

ACCOUNTABILITY MECHANISMS FOR INCLUSIVE CITY-LEVEL PUBLIC SERVICES IN ASIA



Edited by Anand Madhavan, Sujatha Srinivasan,
and KE Seetha Ram



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Abbreviations

ADB	Asian Development Bank
ADBI	Asian Development Bank Institute
ALF	area-level federation
amp	ampere
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BMGF	Bill & Melinda Gates Foundation
BNPB	National Board for Disaster Management
COVID-19	novel coronavirus disease
CPI	Corruption Perception Index
CPR	Centre for Policy Research
CRDF	CEPT Research and Development Foundation
CSP	city sanitation plan
CWAS	Center for Water and Sanitation
CWIS	citywide inclusive sanitation
ERC	Electricity Regulatory Commission
FAR	floor area ratio
FIRE-D	Financial Institutions Reform and Expansion
FS	fecal sludge
FSSM	fecal sludge and septage management
FSTP	fecal sludge treatment plant
FY	fiscal year
GBWASP	Greater Bangalore Water Supply and Sanitation Project
GLAAS	Global Analysis and Assessment of Sanitation and Drinking Water
GPS	global positioning system
GUDC	Gujarat Urban Development Company
GUDM	Gujarat Urban Development Mission
GWSSB	Gujarat Water Supply and Sewerage Board
HDI	Human Development Index
HUDD	Housing and Urban Development Department
IAP2	International Association for Public Participation
ICT	information and communication technology
IEC	information education and communication
IFC	International Finance Corporation
ITN-BUET	International Training Network
IUCN	Union for Conservation of Nature and Natural Resources
IWK	Indah Water Konsortium

JMP	Joint Monitoring Programme
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KPIs	key performance indicators
KWSPF	Karnataka Water and Sanitation Pooled Fund
LAKIP	Laporan Kinerja
LGD	local government division
LGU	local government unit
MDGs	Millennial Development Goals
MWSS	Metropolitan Water Supply and Sewerage Services
NABARD	National Bank for Agriculture and Rural Development
NARSS	National Annual Rural Sanitation Survey
NEA	Nepal Electricity Authority
NGO	nongovernment organization
NRW	nonrevenue water
NUWAS	national urban water supply
O&M	operation and maintenance
OSS	onsite sanitation
P4P	payment for performance
PAS	Performance Assessment System
PAWTP	packaged aerated wastewater treatment plants
PE	population equivalent
PPE	personal protective equipment
PRC	People's Republic of China
PSI	public sector innovation
PUB	Public Utilities Board
RAJUK	Rajdhani Unnayan Kartripakkha
RFID	radio-frequency identification
RPJMD	regional medium-term development plan report
SBM	Swacch Bharat Mission
SBMG	Swacch Bharat Mission Grameen
SBMU	Swacch Bharat Mission Urban
SCADA	Supervisory Control and Data Acquisition
SDGs	Sustainable Development Goals
SHG	self-help group
SJMMSVY	Swarnim Jayanti Mukhya Mantri Shaheri Vikas Yojana
SLB	service level benchmark
SPAN	National Water Services Commission
SPC	special purpose company
SRFD	Sabarmati Riverfront Development
TNUDF	Tamil Nadu Urban Development Fund
TNUIFSL	Tamil Nadu Urban Infrastructure Financial Services Ltd
TOD	time of day
TSC	Total Sanitation Campaign

ULB	urban local body
ULG	urban local government
UN	United Nations
UNICEF	United Nations Children's Fund
US	United States
USAID	United States Agency for International Aid
VMC	Vadodara Municipal Corporation
WASA	Water Supply and Sanitation Authority
WASA	water and sewerage authority
WASH	water, sanitation, and hygiene
WHO	World Health Organization
WRF	water resources management
WSPF	Water and Sanitation Pooled Fund

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1

Introduction: Enshrining Accountability is Central for the Delivery of Ubiquitous Sanitation Access

Anand Madhavan

1.1 Summary

Notwithstanding considerable progress in the last 2 decades, universal safe sanitation access eludes close to half of the world's population, with safe sanitation coverage reported at 54% in 2020. In 2021, the Asian Development Bank noted that about 1.2 billion people have no access to basic sanitation services and the region requires \$53 billion per year on average up to 2030 to finance and address the water and sanitation gap (ADB 2020). Delivering on the United Nations Sustainable Development Goal (SDG) 6.2 of *“achieving access to adequate and equitable sanitation and hygiene for all and end open defecation, while paying special attention to the needs of women and girls and those in vulnerable situations by 2030”* therefore requires concerted attention.

The prospects for tackling this gap, nevertheless, improve rapidly when countries commit to tackle the challenge holistically through a wide range of measures that seek to build policy commitment, public programs and capacity creation, private enterprise, and critically, people participation and ownership. From 2000 to 2020, nearly 2.4 billion people gained access to managed sanitation services, well over the incremental 1.7 billion that got added to the global population in this period. Under India's Swachh Bharat Mission, rural toilet coverage is reported to be up from 44% to 100% during the years 2015 and 2020 (PRS India 2021).

At the same time, it is also sobering that sanitation initiatives remain vulnerable to regress. In 2015, a UNDP and UNICEF paper estimated that

30%–50% of projects fail after the first 2 years and advocated a sharper focus on accountability and related transparency and participation aspects for sustainable sanitation delivery (UNDP and UNICEF 2015). This remains highly relevant even today. As the timeline to achieve the SDG 6.2 shrinks, the need to embed accountability mechanisms into sanitation initiatives is vital to sustain and build on the progress made.

This compendium prepared by the Asian Development Bank Institute (ADBI), with assistance from the Bill & Melinda Gates Foundation presents a compilation of chapters that seeks to add to the knowledge and research for the delivery of successful sanitation programs through the lens of accountability mechanisms and distil insights from experiences and findings of researchers and practitioners globally.

This chapter presents a thematic overview for the compendium. It reiterates the need for greater urgency in the global sanitation gap and reinforces the criticality of accountability mechanisms in sustaining and building on progress made. It introduces a PRISM framework as one of the possible lenses to posit, design, and implement accountability mechanisms within sanitation programs. It concludes with a short summary of coverage and key messages distilled from the chapters in this compendium.

1.2 Universal Sanitation Delivery and the Criticality of Sustainable Development Goal 6.2

Global sanitation gaps remain inexcusably large, deserve greater attention and committed action. In 2015, all the UN member states adopted 17 Sustainable Development Goals (SDGs) as part of the 2030 Agenda for Sustainable Development and set out a 15-year plan to achieve these goals by 2030. Goal 6 under the SDGs seeks to ensure access to water and sanitation for all. Within this, Goal 6.2 sought to *achieve access to adequate equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations* by 2030. Yet, gaps in provision of universal access to sanitation services are still sizable. The scale of the developmental challenge is reflected in the following (Ritchie and Roser 2021):

- In 2020, just over 54% of the global population had access to safely managed sanitation. In other words, close to half of the world's population do not have safe sanitation access. Further, about 6% of the global population for lack of choice, are consigned to practice open defecation.

- Lack of sanitation access is a leading risk factor for the prevalence of infectious diseases including cholera, diarrhea, dysentery, hepatitis A, typhoid, and polio. Lancet Journal's *Global Burden of Disease* pegged the estimates for premature deaths due to lack of sanitation access globally at 775,000 in 2017 (Ritchie and Roser 2021). Not surprisingly, low-income countries bear almost all of this burden, with poor sanitation identified as the cause for 5% of deaths.
- Current rates of progress are grossly inadequate and will translate to nearly a third of the global population remaining uncovered. A threefold increase in prevalent annual coverage improvement rate is needed to achieve SDG 6.2.

The scale of challenge notwithstanding, there has been considerable progress on multiple dimensions and emerging evidence of accelerated improvements at scale when supported with policy stewardship and holistic systems approach to sanitation programs. In aggregate, sanitation has tended to lag the progress made in access to water supply. Nevertheless, there has been remarkable progress in certain dimensions of the sanitation challenge and in select geographies as reflected in these findings from a 2019 report by the United Nations Children's Fund and World Health Organization (UNICEF and WHO 2019):

- **Elimination of the scourge of open defecation is within reach and could be achieved by 2030.** Between 2000 and 2017, 91 countries reduced the practice of open defecation by 696 million people. Open defecation rates decreased from 21% to 9% globally and from 7% to 2% in East and Southeast Asia in this period.
- **Access to basic sanitation improved sharply.** An estimated 2.1 billion people gained access to basic sanitation services globally between 2000 and 2017 with India and the People's Republic of China accounting for a 47% share of this incremental access in this period.

India's progress over this period and especially since the launch of the Government of India's Swachh Bharat Mission (SBM) in 2015, stands out and reflects the achievability of transformational results rapidly. From 2000 to 2017, the share of the population practicing open defecation reduced by 47%. While open defecation decreased by approximately 3% annually between 2000 and 2014, between 2015 and 2019 shows a reduction of over 12% annually. The construction of over 109 million toilets since 2015 has contributed to a sharp acceleration of rural toilet coverage which is reported to have improved from 44%

in 2015 to near 100% coverage. Over 300 million people have been reported to have participated in behavior change campaigns under the SBM. The improvements translate to sizable health and social benefit outcomes as assessed by independent studies. A 2019 UNICEF study estimated annual benefits of outcomes of the SBM at \$727 per household with over half of this coming from reduced diarrhea incidence. Earlier, a 2018 World Health Organization report assessed that realization of toilet coverage and open defecation objectives of SBM would help avert 300,000 deaths and avoid 14 million disability-adjusted life years between 2015 and 2019.

1.3 Factors Leading to Success and Failure of Sanitation Programs

Experience from the last couple of decades has contributed to a growing body of knowledge around factors impacting sanitation programs. A 2018 ADB evaluation identifies six factors of success and six factors of failure from 63 completed and evaluated projects implemented between 2003 to 2016 (ADB 2018).

Success factors identified include (i) long-term relationships for policy dialogue, (ii) policy regulatory system and rules for private sector investment in sanitation, (iii) national campaigns for investment in sanitation, (iv) combining water supply and sanitation institutions and cost recovery mechanisms, (v) encouraging partnerships with other utilities in member countries, and (vi) encouraging demonstration effects of pilot fecal sludge management at municipality level for a wider effect.

Failure factors include (i) no targets for the poor in inclusive planning, (ii) lack of a thorough capacity assessment of local implementing agencies, (iii) not supporting small-scale independent sanitation providers for fecal sludge management, (iv) not monitoring of environment and health impact indicators, and (v) not incorporating gender analysis and actions.

1.4 Accountability as a Key Ingredient for Sustainable Sanitation

Despite growing awareness around factors contributing to success of sanitation initiatives, a key challenge confronting sanitation service delivery is its vulnerability to regress after all ingredients for provision of the service is put in place. A 2015 UNICEF paper estimated that

30%–50% of projects fail after the first 2 years on account of difficulties in sustaining governance of sanitation projects. It identified the crisis in governance as the key reason and advocated a sharper focus on accountability and related transparency and participation aspects for sustainable sanitation delivery. Box 1.1 highlights a set of challenges to driving greater accountability in sanitation

**Box 1.1: Accountability in Sanitation –
Why It Can Be Challenging**

- **GOVERNANCE – Who is responsible?** In many countries and regions, fragmented institutional arrangements and multiplicity of roles often lead to diffused responsibility for the provision of sanitation services. Last mile institutional arrangements, including subnational governments that are vested with the provision of services and engaging users are often not empowered institutionally and financially.
- **SCOPE – What it entails?** Early interventions in most regions often start with tackling open defecation by building toilets without linkages with wastewater treatment and allied requirements. Policies on onsite sanitation are often missing even as sewer systems remain grossly underutilized.
- **STAKEHOLDER – How engaged is the citizen-user?** Citizen-user involvement in the awareness of rights and responsibilities with respect to water and sanitation tends to be limited, especially in low-income contexts. Top-down only sanitation programs without a clear citizen engagement strategy often end up achieving less than optimal outcomes.
- **FINANCING AND FUNDING – How to finance and fund service provision?** There is often limited attention toward identifying funding streams to operate and maintain assets created in sanitation programs. When there is limited clarity on accountability, sources, and size of funding needs for operations and maintenance, sustenance of initiatives comes under challenge.

The need for a multi-dimensional approach for inclusive safe service provision is therefore critical and as the timeline to achieve SDG 6.2 shrinks, it is becoming more crucial than ever before to embed accountability mechanisms across the various facets of sanitation programs.

1.5 A “Prism”atic View of Accountability in Sanitation

Conceptually, public service delivery accountability involves areas of public concern, e.g., how public funds are spent (including where the private sector is engaged), how well are public powers exercised, and how well are public and/or private institutions managed in the delivery of public services. Here, it may be useful to draw a subtle distinction here between **enablers (or conditions precedent)** to ideate, implement sanitation programs and **accountability mechanisms** that enhance their durability, and sustainability of outcomes of these programs in the medium to long term. There is now wide-ranging consensus that effective sanitation delivery is underpinned by some important **enablers**:

- (1) **Clear policy commitment** under which governments clearly recognize sanitation as a basic right, commits itself to universal service targets in a measurable, monitorable manner and puts in place well-conceived programs to deliver on these targets.
- (2) **Requisite Institutional capacity**, under which governance, organizational, and implementation responsibility (including clarity on public and private sector roles) to deliver on policy mandate (with adequate human resources and with requisite skills).
- (3) **Sustainable financing** through a clear assessment of financing and funding needs, budgeting and planning to identify sources and quantum of financing (including budgetary, private financing and user financing), to meet capital and operating expenditures of service provision sustainably.
- (4) **Social ownership** through stakeholder engagement, communication, and community mobilization.

Accountability mechanisms on the other hand, are interventions and systemic features that improve the chances that each of these enablers are forced, incentivized, and made to function as envisaged. They form key to a closed-loop systems approach to sanitation delivery. Table 1.1 presents a PRISM framework that we believe helps to recognize this difference and provides illustrative enabling features and possible accountability mechanisms and are discussed below.

Table 1.1: PRISM Framework for Accountability Mechanisms

Enabler Pillar		Accountability Mechanisms (illustrative)
Dimension	Features	
Policy and Regulation	• Legislation/policy • Rules and Regulations • Technical, environmental standards • Programmatic implementation	• Specificity of targets • Monitoring framework • Independent policy review, program evaluation • Disclosure: inputs, outputs, outcomes
Institutional capacity	• Institutional empowerment • Delegation of powers • Inter-agency accountability • Citizen charter on services • Staffing rules and practices • Procurement/contracting capacity	• Disclosures, reviews, and evaluations ◦ Board constitution, agenda, decisions ◦ Performance standards ◦ Staffing, vacancies ◦ Citizen complaints, resolution timeliness • Geo-tagged disclosure on access provision • E-tendering for procurement transparency • Social audits, citizen surveys
Sustainable Financing	• Resource needs assessment • Ring-fenced budgets • Affordability analysis and cost recovery • Private financing and user charges	• Public hearings and participative budgeting • Disclosure on budgets, financial audits • Timely independent audits and reporting • Expenditure reporting and reviews • Independent evaluation and disclosures around contracts with private operators, self-help groups, citizen groups, and nonprofit organizations
Mobilization of Social ownership	• Decentralized governance • Stakeholder engagement • Targeted communication campaigns • Community mobilization campaigns	• Participative governance and budgets • Evaluation and reviews of communication programs, social audits • Report card system/scorecards • Civil society engagement platforms

Source: Author.

1.5.1 Policy and Regulation

Policy stewardship and regulatory clarity are critical enablers for the success of sanitation programs. A well-articulated policy stance backed with clear well-defined programs are often the starting point for transformative sanitation delivery. Regulatory clarity including on performance and environmental standards, safeguards, features to address affordability considerations, funding sufficiency and cost recovery, and role of private sector are equally critical. Typical mechanisms to drive accountability include *periodic reviews, independent evaluations, and robust reporting and disclosure frameworks*.

1.5.2 Institutional Capacity

Capable, empowered, and well-governed public institutions form the backbone for translating policy objectives into implementation efficacy of sanitation programs and consistent and durable service delivery. Enshrining accountability starts at the apex level in terms of independence, representation, inclusiveness, and delegation of powers to governance boards and/or councils of institutions vested with these powers. In this regard, reporting and disclosures on board constitution, meetings, and agendas become a useful accountability mechanism. Institutions will also need to be staffed appropriately in line with their mandate and here reporting and disclosures around operating performance, staffing, and finances become vital. Apart from reporting and disclosures, the governance and performance of public institutions should be subject to external scrutiny including through audits, reviews, and evaluations in the form of social audits and citizen surveys. Box 1.2 illustrates this principle in action under Japan's *Johkasou* Act.

Box 1.2: Enshrining Stakeholder Accountability: Japan's 1983 Johkasou Act

In 1983, Japan legislated the *Johkasou* or packaged aerated wastewater treatment plant (PAWTP) Act as an intervention to counter increasing pollution from gray water in its water bodies and to provide a legal basis for installation, maintenance, inspection, and desludging of PAWTPs. The Act was supported with good accountability features. This covered follow-up specifications of stakeholder capacity along the chain covering manufacturing, installation, desludging, and around responsibilities of local government, manufacturer, owner, inspection agency, and maintenance vendor. A state certification system of PAWTP installation workers and maintenance operators was also created.

1.5.3 Sustainable Financing

Given the affordability challenges particularly in low-income environments, ring-fenced financing of sanitation assets backed with sufficient sources of funding streams to operate and manage the assets thus created is vital to consistency and sustainability of sanitation delivery. Citizen ownership and willingness to contribute, coupled with bankable arrangements to secure private participation will also be crucial here. Accountability on this dimension will need to be instilled through disclosures, audits, and reviews on the sufficiency of budgets, the adequacy of revenue streams, and financial strength of the implementing institutions. Robust monitoring and evaluation of performance of public utilities and standards, disclosure requirements to evaluate performance of other stakeholders including private partners, citizen self-help groups, and nonprofit organizations that may be involved in the service delivery value chain are also crucial. Box 1.3 provides an illustration of use of escrow facilities and performance linked payment in Maharashtra India.

Box 1.3: Escrow Mechanism and Performance-based Payments for Desludging: Maharashtra, India

Local governments in Wai and Sinnar towns in Maharashtra have entered exclusive contracts with a private service provider to deliver desludging services. Economies of scale further allow the private desludging company to quote lower costs per septic tank. To ensure rigorous performance monitoring, the contracts use a performance-linked annuity model with a pay-for-results clause that makes payment contingent on the number of septic tanks desludged and requires proof of emptied number of tanks and safe discharge at the treatment plant site. At the same time, monthly payments to the private operator are done through an escrow mechanism that protects the operator against delayed payments. The escrow account mechanism is a tripartite agreement between the local government, private sector, and a local bank. The local government is required to maintain 3 months of payment as a reserve fund to safeguard against risk of payment. This ensures backward accountability by the local government to the private service provider.

1.5.4 Mobilization of Social Engagement, Participation, and Ownership

Sanitation programs need to be accompanied with a strong focus on behavior change and social mobilization. All top-down actions at the level of policymaking and public institutions will need to be backed with active interventions around stakeholder identification mapping and engagement. This is also the dimension where sustained attention is paramount to ensure that there is ownership, maintenance, operation and use of assets, facilities, and services delivered. Given the diverse and dispersed nature of stakeholders involved under this dimension, accountability mechanisms will need to target decentralization, communication efficacy, and the government–citizen interface for longevity of outcomes. Accordingly, the accent is around actions that can cover field-level dissemination, feedback loop, and help strengthen decentralized delivery, monitoring, and two-way communication along the government–delivery utility–citizen interface. Refer to Box 1.4 on the scale of the information education and communication campaigns under India’s Swachh Bharat Mission.

Box 1.4: Scale-up of Information Education and Communication: Swachh Bharat Mission, India

The emphasis on behavior change as spelt out in the mission guidelines of the Swachh Bharat Mission (SBM) was backed up with a scaled-up information education and communication (IEC) campaign. A 2019 white paper estimates that an average person living in rural India was exposed to between 2,500–3,300 SBM-related messages over the last 5 years and that the program mobilized a spend equivalent worth \$2.7 billion to \$3.2 billion in monetary and nonmonetary IEC activities, with cash spend (by the government, private sector, and development community) estimated at \$430 million to \$500 million (UNICEF 2020). In doing so, the white paper concludes that the SBM took a unique ecosystem approach to successfully delivering messaging on safe sanitation practices to millions of Indians and led to a paradigm shift in how India approaches awareness and behavior change across sectors. The white paper quotes the National Rural Sanitation Survey (NARSS) 2018–19, which found significant improvement in sanitation coverage. NARSS reported that 96.5% of people had access to toilets.

1.6 About this Compendium

This compendium seeks to shed light on this critical yet relatively unexplored subject of accountability in sanitation service delivery. Relative to a few other infrastructure sectors, like energy and water provision, where an authority—often a public or concessional utility—has a mandate to ensure services are available and safe, sanitation remains a public good that is highly vulnerable to market failures, making it imperative for all stakeholders to identify ways to enhance sanitation service accountability.

This compendium prepared by the Asian Development Bank Institute (ADBI) with assistance from the Bill & Melinda Gates Foundation assembles a set of chapters that seeks to add to the knowledge and research for delivery of successful sanitation programs through the lens of accountability mechanisms. The objective of this compendium is to get researchers and practitioners from different regions together and to get them to share insights from experiences and findings on this critical aspect of public service delivery.

The rest of this compendium is structured with the following sections and chapters:

Chapter 2 Accountability Mechanisms in the Public Sector: A Literature Review on the Benefits and Challenges in the Water and Sanitation Sector. This literature review provides a comprehensive overview of the role and effectiveness of accountability mechanisms in the public sector and identifies opportunities for improvement and further research in this area.

Part I Policies and Theoretical Framework

- **Chapter 3 Strengthening Accountability of Urban Local Governments: Role of the Performance Assessment System and Municipal Budget Briefs.** This chapter focuses on measures to strengthening accountability of local governments toward citizens and higher tiers of government, through regular performance assessment of services, and through preparation of budget briefs. It uses case studies from two states in India—Maharashtra and Gujarat—to demonstrate tools deployed and highlights interlinkages between data analysis using the results for decision making in a different institutional context and the resulting practices that lead to better services.
- **Chapter 4 Role of Accountability in Providing Inclusive Citywide Sanitation Services: Case Wai and Sinnar in Maharashtra, India.** This chapter reviews the experiences of Wai and Sinnar cities in Maharashtra to profile the use of digital tools and allied initiatives

to embed accountability in the private provision of desludging of septic tanks in these cities, and the use of feedback mechanisms to strengthen downward accountability through the capture of a community voice.

- **Chapter 5 Jakarta's River Normalization Program: What Went Wrong and How To Fix It: The Case Study of Kampung Pulo and Bukit Duri Subdistricts.** This chapter reviews the Jakarta River normalization program implementation in Kampung Pulo and Bukit Duri in terms of the level of public involvement in the land acquisition and resettlement process, distils reasons for the suboptimal outcomes, and identifies potential solutions to tackle land acquisition and resettlement more effectively.
- **Chapter 6 Fund Allocation and Accountability Mechanism on Sanitation: A Case Study of Indonesia's Public Sanitation Services.** This chapter uses linear regression analysis and a proposed formula derived from the famous Klitgaard corruption formula to see the correlation between the allocation of funds and sanitation coverage. It analyzes the relationship from an accountability mechanism perspective, including transparency, good governance, and factors in the national context. It points to the inadequacy of institutionalized accountability mechanisms and proposes better-suited sanitation-focused accountability mechanisms based on the Indonesian division of water competencies to improve and increase the growth rate of sanitation coverage.
- **Chapter 7 Accountability Mechanisms for Sanitation in Japan: Perspectives on Onsite Sanitation.** This chapter discusses the need for proper management and accountability mechanisms in onsite sanitation systems, using Japan as a case study. The article highlights the importance of regular operation and maintenance, including fecal sludge management, to prevent public health risks and environmental pollution. It also examines the *Johkasou* Act, a legal framework in Japan that establishes rules and regulations for onsite sanitation management, as an example of effective institutionalized management in the sanitation sector.

Part II Case Studies

- **Chapter 8 Automated Construction Permits and Development Control Process of Dhaka City: Prevailing Policies and Reform Suggestions.** This chapter reviews the mechanisms around the issuance of construction permits and the regulatory framework for development control and seeks to draw inferences for accountability mechanisms for sanitation.

- **Chapter 9 Market Borrowing by Small and Medium-sized Urban Local Bodies using a Pooled Fund Mechanism for Urban Infrastructure in India.** This chapter reviews the applicability of a pooled financing mechanism to sanitation projects in smaller and medium-sized cities including a review of cases of pooled financing initiatives in the states of Tamil Nadu and Karnataka to distil lessons from these initiatives.
- **Chapter 10 Critical Review of the Self-Help Group Model for Managing Fecal Sludge Management Services: Implications for Accountability.** This chapter focuses on the evolution of the fecal sludge management system (FSM) in Dhenkanal, a small town in Odisha, India, and the evolution of routes of accountability of the system, especially with respect to the use of women's self-help groups (SHGs). The chapter analyzes the prevalent institutional agreements, the role and accountability of SHGs, and seeks to identify conditions for replication and scale-up of the model in other regions and geographies.
- **Chapter 11 Accountability Mechanisms and Institutional Arrangements in Sanitation Projects.** This chapter mainly discusses the improvement in water and sanitation that is crucial for public health, education, productivity, poverty reduction, and gender equity, but progress in sanitation is slow. For effective and sustainable sanitation service delivery, accountability should cover all branches of government and be assigned to relevant stakeholders, with a formalized institutional framework in place to ensure effective delivery and avoid unsustainable outcomes.
- **Chapter 12 Accountability Mechanisms for Effective Sanitation.** The chapter examines case studies from Malaysia, Japan, Singapore, the Philippines, and Bangladesh to identify challenges and opportunities in sanitation management practices. The study highlights the importance of effective governance, accountability mechanisms, and the involvement of various stakeholders, including the government, private sector, and the community, in implementing successful sanitation projects.
- **Chapter 13 Stakeholders' Engagement in Deciding Electricity Tariffs in Nepal.** This chapter discusses the establishment of the independent Electricity Regulatory Commission in Nepal in 2019 that aims to address the need for regulation and assurance of stakeholders' engagement in decision making in the electricity sector, and the analysis of the regulatory process suggests that the new tariffs would bring positive impacts on consumers, while also highlighting the importance of consulting and engaging stakeholders

from the beginning for delivering accountability mechanism in public service.

Part III Conclusion and the Way Forward

Chapter 14 Conclusion. This chapter distils key takeaways from the chapters in designing accountability mechanisms and outlines future research directions around accountability mechanisms for the delivery of sanitation services.

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2

Accountability Mechanisms in the Public Sector: A Literature Review on the Benefits and Challenges in the Water and Sanitation Sector

Dwiky Wibowo, Kazushi Hashimoto, and KE Seetha Ram

2.1 Introduction

The concept of accountability is a fundamental principle of good governance and is particularly important in the public sector, where decision making affects the entire community. Accountability mechanisms help to ensure that public officials and organizations are accountable for their actions and decisions and are responsible for their performance. Accountability mechanisms in the public sector are critical for ensuring the effectiveness and integrity of government programs and services. These mechanisms can include various activities such as transparency and disclosure requirements, independent oversight bodies, and public participation in decision-making processes. A growing body of academic literature on accountability mechanisms in the public sector examines the various forms these mechanisms can take and how they can be implemented effectively. This literature review aims to explore the role and importance of accountability mechanisms in the public sector and assess the effectiveness of different mechanisms in promoting good governance and public trust.

The literature on this topic is extensive and includes studies on various accountability mechanisms including performance measurement, audits, and public reporting. These studies have found that accountability mechanisms can be effective in promoting transparency, accountability, and public trust in government institutions. The

literature also highlights challenges and limitations in implementing accountability mechanisms in the public sector, including the need to adapt to new technologies in this sector. Overall, this literature review seeks to provide a comprehensive overview of the role and effectiveness of accountability mechanisms in the public sector and to identify opportunities for improvement and further research in this area.

2.2 The Importance of Implementing Accountability Mechanisms in the Public Sector

Accountability mechanisms are essential for policy makers and government officials for various reasons. First, they help ensure that public resources are used efficiently and effectively, as well as provide a way to monitor the performance of public sector employees. They also provide an essential check on the executive branch's power, preventing abuse of power, and ensuring that public policy decisions are based on evidence. Finally, they can improve transparency and public trust in the government by providing citizens with an avenue to hold their government accountable.

Scholars in various fields have recognized the importance of accountability mechanisms. For example, a study by Mayumana et al. (2017) found that public service management became less hierarchical and bureaucratic after introducing a Payment for Performance (P4P) program in Tanzania. P4P is a compensation model in which employees are paid based on their performance or contributions to the organization. This model incentivizes employees to work harder and more effectively to improve the organization's overall performance and productivity. In a P4P system, employee compensation can be based on factors such as the quantity and quality of their work, their contributions to the organization's goals and objectives, or their performance against specific targets or benchmarks. The exact nature of a P4P system depends on the specific needs and goals of the organization. The study found that the program's incentives have also helped improve the communications between parties. This real example suggests that accountability mechanisms can help promote good governance in a public organization.

Accountability mechanisms can also help to ensure that public resources are used responsibly and efficiently. Studies in public administration have shown that when public sector employees are held accountable for their actions, they are more likely to be diligent in their use of public resources. Accountability mechanisms help to ensure that government resources are used as effectively as possible. In addition,

accountability mechanisms can help reduce corruption by providing an avenue for citizens to report any suspicious activity they may observe. Research has shown that accountability mechanisms in the public sector can positively impact service delivery. For example, the *World Development Report* by the World Bank (2017) found that designing appropriate incentives, implementing checks and balances, and using mechanisms that extend accountability to a broad group of firms and individuals are essential for improving public sector performance.

Accountability in the public sector can also improve economic growth due to improved financial management. A study by Liddle (2018) found that accountability mechanisms could improve public sector financial management as long as the government could align vertical and horizontal administration with its leadership across levels. Similarly, a report by Smoke (2015) published by the Organisation for Economic Co-operation and Development expressed that accountability mechanisms, especially on reporting mechanisms such as assessments and audits, could enhance transparency and consistency, thus improving the overall performance of the public sector. Accountability mechanisms are essential for policy makers and government officials because they help ensure that public resources are used efficiently, prevent the abuse of power, and improve the quality of policy decisions. They also help to promote good governance, economic growth, and public trust in the government.

2.3 Review from the Literature

Table 2.1: Review of Selected Literature on Accountability Mechanisms in the Public Sector

Title	Key Messages	What Is New?	What Is Missing?
Scott (2019) Integrating Basic Urban Services for Better Sanitation Outcomes	• Integrated approach to sanitation can help reduce the burden of disease and other health risks associated with inadequate sanitation • Integrated service provision can help reduce environmental impacts of poor sanitation practices	• Need for effective accountability mechanisms to ensure success of interventions • Importance of engaging a variety of stakeholders and ensuring accountability of all stakeholders for outcomes	• The paper lacks discussion on complete integration of all fundamental services and a reevaluation of organizational mandates that span from sanitation to urban governance.

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Table 2.1 *continued*

Title	Key Messages	What Is New?	What Is Missing?
	Importance of local government involvement and ensuring needs of most vulnerable are taken into account when planning and delivering integrated services		
Tukamuhabwa (2012) Antecedents and Consequences of Public Procurement Non-compliance Behavior	- Noncompliance behavior caused by factors such as lack of legal and institutional frameworks, lack of proper monitoring and supervision, lack of technical capacity, and political interference - Governments need to strengthen legal and institutional frameworks, improve monitoring and supervision, and build technical capacity to reduce noncompliance behavior and its negative consequences	- Focus on specific antecedents and consequences of public procurement noncompliance behavior - Examination of various factors that can lead to noncompliance, such as inadequate resources, lack of training, and lack of accountability - Consideration of potential negative consequences, such as increased risk of fraud and mismanagement	The paper lacks a rigorous methodology due to its theoretical nature, therefore this study's arguments and conclusions are limited to a review of scholarly literature related to compliance, especially public procurement compliance, from secondary sources of information.
Mayernik (2017) Open Data: Accountability and Transparency	Policy makers can learn how the concept of "transparency" and "accountability" can be combined to strengthen the open data policy initiatives by the government.	The categorization and level of transparency and accountability in an "open data" concept. Policy makers can learn about and assess their country's state of transparency and accountability, then adjust the policy accordingly to ensure that their open data policy can be efficient and productive for all.	It would have been helpful to explore ways in which open data can be used to promote development of more inclusive and equitable public services.

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Table 2.1 *continued*

Title	Key Messages	What Is New?	What Is Missing?
Chumo et al. (2022) Informal Social Accountability Mechanisms for Water Sanitation and Hygiene (WASH) in Childcare Centres in Nairobi City County's Informal Settlements	• The study suggests that while social accountability mechanisms (SAMs) are often conceptualized as formal processes or interventions, informal SAMs (discretionary behaviors, norms and values, and facilitative behaviors) play an important role in promoting or maintaining WASH service delivery.	• Focus on how informal social accountability mechanisms can be used to strengthen delivery of WASH services • Highlights need for greater collaboration between government and civil society actors	• There needs to be further research on how to apply the SAMs in rural or formal settings.

Source: Prepared by authors.

2.4 Instruments of Accountability Mechanisms

Accountability mechanisms in the public sector are essential for ensuring that governments are held responsible for the decisions and actions they take in their roles as public servants. Accountability is a complex concept, and the literature on the topic is vast. This chapter provides an overview of the various accountability mechanisms in the public sector and their implementation in academic literature.

Accountability mechanisms can be divided into two main categories: *ex ante* and *ex post* (Pollman, Potters, and Trautmann 2014). *Ex ante* mechanisms focus on preventing misconduct or poor performance, while *ex-post* mechanisms focus on punishing misconduct or poor performance after the fact. *Ex ante* mechanisms include regulations, performance agreements, performance audits, and public disclosure. Regulations are explicit rules governing public servants' behavior, typically set by the government and enforced by an independent body. Performance agreements are contracts between the government and an individual or organization in which the government agrees to pay a certain amount in exchange for specific performance outcomes. Performance audits are reviews of the performance of public servants and organizations to ensure they are meeting their obligations. Finally,

public disclosure is the sharing of information about the performance of public servants and organizations to allow citizens to hold them accountable.

On the other hand, ex post mechanisms include sanctions, punishments, and public inquiries. Sanctions are penalties imposed on public servants for misconduct or poor performance. Sanctions may include the suspension or dismissal of a public servant, the removal of their powers, or the imposition of fines. Punishments are legally imposed on public servants for misconduct or poor performance. Public inquiries are investigations into the performance of public servants and organizations to determine whether misconduct or poor performance has occurred.

Table 2.2: Examples of Ex Ante and Ex Post Mechanisms in Selected Sectors

Sector	Examples of Ex Ante Mechanisms	Examples of Ex Post Mechanisms
Government	Policies or regulations to prevent negative outcomes (e.g., requiring permits before building factories in certain areas to prevent pollution)	Measures to address consequences or impacts of events or outcomes (e.g., compensation for victims of natural disasters or financial fraud, efforts to remediate environmental damage)
Business	Risk management strategies to mitigate potential losses (e.g., purchasing insurance, diversifying investments)	Efforts to repair or compensate for losses or damage that have occurred (e.g., recalls of faulty products, efforts to restore customer trust after a data breach)
Civil society organizations	Advocacy efforts or campaigns to influence policy or decision making (e.g., advocating for stricter regulations on the use of pesticides)	Efforts to provide support or assistance to those affected by a particular event or outcome (e.g., disaster relief efforts)
Media	Fact-checking or investigative reporting to uncover potential problems or risks (e.g., investigating a company's business practices to expose potential wrongdoing or unethical behavior)	Efforts to correct misinformation or provide context and analysis after an event or outcome has occurred
Political parties	Campaign promises or platform positions to influence the outcome of an election (e.g., promising to implement certain policies or regulations to address a specific issue or problem)	Efforts to address the consequences of policy decisions or election outcomes (e.g., implementing new policies or programs in response to voter concerns or needs)

Source: Prepared by authors.

Additionally, Smoke (2015) argued that there are multiple channels of accountability: downward, upward, and horizontal. Downward accountability refers to the implementation where the government provides services to the people such as the implementation of a general election, complaint board, as well as participatory budgeting. This civic participation aspect could help enhance a region's transparency, decision making, and overall governance. Stakeholder consultation and partnership across sectors are another crucial accountability mechanism in the public sector (Schrecongost et al. 2020). It involves engaging stakeholders such as citizens, community groups, and interest groups in decision-making processes. It can help to ensure that public sector activities and outputs align with the public's needs and expectations.

Upward accountability is a specific aspect where citizens and the government take an active role in ensuring there are proper reporting systems, external audits, and performance evaluations of the administration. Performance management systems are also crucial for ensuring accountability in the public sector. These systems involve the systematic monitoring and evaluation of public sector activities and outputs and can help identify improvement areas. Performance management systems are typically based on setting measurable objectives and targets, monitoring performance against these targets, and reporting on progress. They can also provide feedback on the progress of projects and initiatives, helping to ensure that they are progressing in line with expectations. Lastly, horizontal accountability usually takes place in a decentralized system where the policy makers and public servants equally execute local budgets in complex publicly funded projects. This type of horizontal accountability requires adequate accountability systems that provide a clear division of roles in implementing checks and balances that uphold the right balance of transparency between all parties.

2.5 Common Challenges in Implementing Accountability Mechanisms in Water and Sanitation

Many studies have outlined the challenges of implementing accountability mechanisms in the public sector. One of the main problems is the lack of effective enforcement mechanisms. Many accountability systems rely on self-reporting and voluntary compliance with standards, which is insufficient to ensure accountability. Without effective enforcement mechanisms, there is no incentive for individuals and organizations to comply with the standards or to report any violations (Tukamuhabwa 2015). A second issue is the lack of transparency in the public sector,

where many public sector organizations are not reporting their activities to the public, making monitoring their performance challenging (Ball and Bebbington 2010).

Additionally, many public sector organizations are not subject to the same level of public scrutiny as the private sector, which can lead to mismanagement and corruption (Tregear and Jenkins 2007). Third, there is a lack of accountability for public expenditures. Many public sector organizations can spend large amounts of money without oversight or accountability (Heald 2012). This can lead to wasteful spending and inefficiency, as no one can hold them accountable for their actions. Lastly, there is a lack of accountability for results. Many public sector organizations are not required to report their activities' outcomes, making it difficult to assess their performance (Tukamuhabwa 2012). Without clear objectives and performance metrics, it is not easy to hold public sector organizations accountable for their actions.

Specifically, developing countries are arguably unable to successfully implement accountability mechanisms in their public sector due to the lack of resources, capacity, and institutional frameworks. This lack of capacity can be due to insufficient resources and expertise, such as human capital, financial resources, and technical knowledge. Moreover, developing countries cannot always design and implement effective accountability mechanisms, including good governance and public sector reform. The lack of resources and capacity can also be attributed to the lack of political will to implement accountability mechanisms (Ibietan 2013). This lack of political will is often tied to weak governance structures. It can be attributed to the lack of an effective rule of law, enforcement of sound governance principles, and entrenched interests. This means that even if the resources and capacity are present, there may not be the political will to enforce accountability mechanisms in the public sector. Furthermore, developing countries often lack an institutional framework to implement accountability mechanisms. An institutional framework includes independent oversight bodies such as anti-corruption commissions, and the ability to enforce transparency and disclosure laws. Without these bodies and laws, it is not easy to ensure that the accountability mechanisms are effective to help provide sustainable services in water and sanitation for society.

Sanitation is a fundamental aspect of public health and well-being, yet it is often overlooked, considered taboo, and not given the attention it deserves. This is due to the sensitive and personal nature of sanitation-related issues, which can make people uncomfortable discussing them in many societies, including Japan. This lack of discourse can impede the implementation of vertical accountability mechanisms, such as transparency and civic participation, which are crucial for improving accountability in other public services, such as water supply. As a result,

there is a need for increased horizontal accountability mechanisms to hold sanitation services accountable. It is also essential to address the unique challenges faced by small private service providers in the onsite sanitation sector to achieve a sustainable sanitation system since they are often the primary service providers in many parts of the world.

Unlike other sectors, such as water supply and sewerage services, onsite sanitation service providers tend to be private micro or small businesses that are not properly regulated and are often discriminated against by society. This presents a unique challenge in terms of how to ensure accountability to both customers and regulators. Policy makers need to tackle this issue by implementing various mechanisms such as establishing business approval systems, establishing performance standards, undertaking regular inspections, creating a system for customer complaints and feedback, creating training and certification systems, and providing financial support for small service providers that want to acquire new equipment. Additionally, involving small private service providers in decision making and creating a transparent communication channel with them is essential to ensure mutual understanding and cooperation. In Japan, it is legally established that only the desludging operators, which meet the performance standards established by the central government and who are approved by the mayor, can conduct the desludging service. Such approval is valid for a certain period and the license will be revoked if the operator fails to comply with the performance standards. Moreover, in Japan, desludging operators have formed an association of desludging operators. Politicians and government officials participate in the annual conferences of the association as special guests and join the discussions on matters of their mutual interest. As such, social recognition of the desludging business is being promoted.

Another crucial aspect to ensure accountability in the sanitation sector is addressing the issue of customer responsibility. Despite service providers' willingness to provide services, such as centralized sewerage or onsite sanitation, their efforts can be hindered by customers' intentional or unintentional rejection of services. The service providers sometimes encounter difficulties in providing services as they cannot access the houses due to the absence of the owners. Customer accountability plays a vital role in maintaining a sustainable and efficient sanitation system.

Table 2.3 represents a causal map of the issues related to accountability mechanisms in public services in the water and sanitation sector, as well as potential solutions to these issues. The causal map identifies the most responsible stakeholders for addressing each issue, as well as the actors who will hold them accountable. The table is intended to provide a high-level overview of the key issues and potential solutions, and to serve as a starting point for more in-depth analysis and planning. The issues and

solutions listed in the table are not exhaustive, but rather are meant to highlight some of the key challenges and opportunities in improving accountability mechanisms in the water and sanitation sector. The specific stakeholders and actors involved will depend on the specific context and needs of the community, and the table should be viewed as a starting point for further analysis and engagement.

Table 2.3: Causal Map and Stakeholders of Accountability Mechanisms in Public Services in the Water and Sanitation Sector

Issue	Potential Solutions	Key Stakeholders	Who Will Hold Them Accountable?
Insufficient funding for water and sanitation projects	Increase government funding, explore alternative funding sources, implement cost-saving measures	Government agencies, funding bodies (e.g., international organizations, philanthropies, businesses)	Oversight and regulatory bodies, civil society organizations (environmental organizations), media
Lack of transparency and accountability in the management of water and sanitation services	Implement transparency measures, strengthen oversight and regulatory bodies, engage civil society organizations	Government agencies, regulatory bodies, civil society organizations	Media, ombudsmen, civil society organizations, consumers
Inadequate regulation and oversight of water and sanitation service providers	Strengthen regulatory frameworks, implement penalties for noncompliance, encourage transparency through open data initiatives	Government agencies, regulatory bodies	Oversight and regulatory bodies, civil society organizations, media
Lack of community engagement and participation in the planning and decision-making process for water and sanitation services	Engage community-based organizations, consult with communities, provide opportunities for community participation in monitoring and evaluation	Government agencies, community-based organizations	Community-based organizations, society, media
Poor communication and information sharing between different stakeholders	Develop clear channels of communication, foster collaboration, implement open data initiatives	Government agencies, service providers, community-based organizations	Media, oversight and regulatory bodies, civil society organizations, consumers

Source: Prepared by authors.

In conclusion, developing countries often lack the resources, capacity, and institutional framework necessary to successfully implement accountability mechanisms in the public sector. The importance of accountability in ensuring a fair and just society cannot be overstated. By holding individuals and organizations accountable for their actions and decisions, we can help to prevent abuses of power and mismanagement and promote transparency and integrity in decision making. However, implementing effective accountability mechanisms can be a challenge, especially in the public sector, where a lack of effective enforcement mechanisms, transparency, and accountability for public expenditures and results (Heald 2012) can make it difficult to hold public sector organizations accountable for their actions. Developing countries may face additional challenges in this regard, as they often lack the resources, capacity, and institutional frameworks necessary to effectively implement accountability mechanisms in their public sector (Ibietan 2013). Addressing these challenges is crucial in order to ensure that accountability mechanisms are effective and can play their intended role in promoting transparency, integrity, and accountability in decision making. This can involve implementing stronger enforcement mechanisms, promoting transparency, and establishing independent oversight bodies and effective institutional frameworks. By addressing these challenges, we can enhance the accountability of individuals and organizations and contribute to the creation of a fair and just society.

2.6 Moving Forward: Critical Questions to be Asked

In summary, this review has discussed the importance of accountability mechanisms in the public sector and explored how accountability is enforced. The review has highlighted the importance of external and internal accountability mechanisms in ensuring good governance and preventing corruption. Overall, it is clear that accountability mechanisms are essential for the effective functioning of the public sector due to their vast advantages in public service delivery. Further research is needed to investigate the effectiveness of different accountability mechanisms in different contexts and to explore the implementation of technologies and new accountability measures in the public sector. The following critical questions can be asked for better delivery of accountability mechanisms:

- (1) How can we strengthen regulatory frameworks for the public sector to help prevent misconduct or poor performance?
- (2) What measures can be taken to increase transparency in the public sector?

- (3) How can citizen participation be enhanced to help hold public servants accountable?
- (4) How can capacity within the public sector be built to address challenges in implementing accountability mechanisms?
- (5) How can accountability systems be enhanced to address challenges in implementing ex-post mechanisms such as sanctions and punishments?
- (6) What measures can be taken to promote a culture of accountability within the public sector?
- (7) How can technology be used to improve accountability mechanisms in the public sector?
- (8) How can blockchain or Artificial Intelligence technology be used to improve public sector accountability mechanisms' transparency, accuracy, and effectiveness?
- (9) What other technologies can be used to create secure, auditable, and automated public sector processes?
- (10) What research is needed to investigate the effectiveness of different accountability mechanisms in different contexts and to explore the implementation of technologies and new accountability measures in the public sector?

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PART I

Policies and Theoretical Framework

3

Strengthening Accountability of Urban Local Governments: Role of the Performance Assessment System and Municipal Budget Briefs

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Upasana Yadav, and Aasim Mansuri*

3.1 Introduction

The urban population of India was estimated to be 483 million in 2020 (UN DESA 2019.) It has the second largest urban population in the world. Cities and towns in India are governed by urban local governments (ULGs). They form the third stratum of government and were given constitutional status through the Constitution (74th Amendment) Act, 1992. The Act allocated specific responsibilities including water and sanitation to ULGs, along with revenue generation and support through intergovernmental fiscal transfers. Thus, they play an important role in the delivery of basic public services and are accountable to local citizens. However, as a large proportion of resources are through fiscal transfers, they are also accountable to provincial (state) and national governments.

“Formal accountability systems are put in place for the most part, but they are not necessarily made to work. Many good laws have been enacted, but they are not always enforced or monitored. Public agencies are given mandates and funds, but their performance may not be properly assessed and suitable action taken to hold them accountable” (Paul 2002, p.2). To promote consistency and transparency, some of the mechanisms for upward accountability include financial reports, external audits, and performance assessment. Downward accountability

will improve when citizens interact more regularly and substantially with local governments. To improve downward accountability, effective mechanisms that can be used are efficient complaint redressal systems, participatory budgeting, participatory planning, citizen report cards, etc. “Accountability relationships are critical for effective local service delivery, but there is no single best approach. The core challenge is to set an appropriate balance between upward and downward accountability, which can evolve as local governments grow stronger and are better able to manage functions more independently.” (Smoke 2015, p.222).

The authors at the Center for Water and Sanitation (CWAS), CEPT Research and Development Foundation (CRDF), CEPT University work across all scales and levels of government in India (central, state, and local) and carry out activities related to delivering water and sanitation services in an efficient, effective, and equitable manner. Working with all levels of government has provided insights into the challenges of the urban water and sanitation governance system. This chapter focuses on strengthening accountability of local government toward state and/or the central government/s as well as citizens through the implementation of two tools—performance assessment and budget briefs. The case studies from two states—Gujarat and Maharashtra—showcase how these tools have been used and their impact on accountability of various institutions involved in water and sanitation services. These case studies cover different levels ranging from state institutions, large municipal corporations, and small cities.

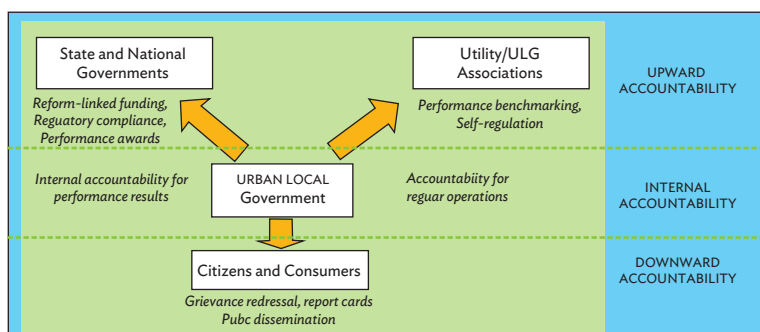
3.2 Conceptual Framework

ULGs are an important point of contact between the state and citizens, where public services are provided by government, and citizens pay taxes. “It is essential that local governments legitimise accountability mechanisms by actively participating in them, incorporating citizen inputs, and providing feedback and explanations regarding official policy or undertaking reforms” (Ardigó 2019, p.7). “The success of service delivery depends on whether institutions of service provision are accountable to citizens. The challenge is thus not to fix the pipes, but to fix the institutions that fix the pipes” (Ahmad, Savage, and Srivastava 2006, p.25). Thus, accountability mechanisms are essential to provide services efficiently, equitably, and sustainably.

For ULGs in India, accountability includes systems for upward, downward, and internal accountability (Figure 3.1). Urban water supply and sanitation has remained a municipal service in India and is subject to strong upward accountability. As local governments in India are largely dependent on the state governments (and often the national

government) for operational support and grants for capital projects, they are subjected to rigorous financial accountability. A key constraint, however, relates to the poor state of information in local governments (Mehta and Mehta 2010).

**Figure 3.1: Accountability and Incentives
for Performance Improvement in WATSAN Sector**



ULG = urban local body, WATSAN = water and sanitation.

Source: Mehta and Mehta (2010).

3.2.1 Linking Performance of Service Delivery to Finance

To address the lack of service level information in water supply and sanitation services, the Ministry of Housing and Urban Affairs of the Government of India (GOI) launched a standardized service level benchmark (SLB) initiative. To take the SLB framework forward from concept to practice, it launched a pilot initiative in 28 cities across 14 states and one union territory in 2009 (Ministry of Urban Development 2010). Concurrently, CEPT University initiated an action research program of the Performance Assessment System (PAS) for water supply and sanitation services. The scale of the PAS program is notable, as it was initiated with all the 400 ULGs of two Indian states—Gujarat and Maharashtra. "...in addition to SLB indicators, PAS also included equity and onsite sanitation indicators and various local action indicators that were missing in GOI's framework." "The PAS measurement framework is applicable for the developing countries where the proportion of the

population living in slum areas is high, and where cities depend on on-site sanitation systems.” (Vaaliya and Bhavsar 2021; PAS 2010, 2015).

In 2010, the 13th Finance Commission of India introduced for the first time a performance grant along with a basic grant. The 14th and 15th Finance Commissions also continued the distribution of grants to ULGs: basic grants and performance grants. Performance-based grants are linked with service levels of water and sanitation. “From 2010 onwards, performance monitoring of urban services was linked to the performance-linked grants provided by the 13th and 14th Finance Commissions for Urban Local Bodies (ULBs)” (Mehta, Mehta, and Vaaliya 2021, p.169). The 15th Finance Commission noted that “publication and monitoring of SLBs will facilitate transparency and accountability in service delivery and sustainability of the entire service level” (15th Finance Commission 2020, p.209).

“The financial incentive linked with the publication of service-level benchmarks has helped sustain and replicate the PAS system. Besides Gujarat and Maharashtra, where a PAS team has been working for the past 11 years, four other states and the Smart Cities Mission of the Government of India have also used the online system for performance assessment.” (Vaaliya and Bhavsar 2021, p.5). State governments with support from various institutions have built capacity to facilitate ULG officials to collate and publish SLB indicators. Vaaliya et al. (2016, p.52) note that “the performance measurement and monitoring system is used to influence policy and the allocation of financial resources at state and national levels and to prepare a performance improvement plan at the city level.”

3.2.2 Downward Accountability through Budgets

Investments in infrastructure projects and regular operations and maintenance expenditure of various services are budgeted and planned by the ULGs through annual local budgets. The lack of transparency in the budgeting process and the lack of a simple budget document to capture the main provisions of municipal budgets make it difficult to have participation by various stakeholders in this process. As pointed out by the World Bank “Predictability, transparency, and participation, in turn, are the essential ingredients of accountability, which is key to good budgeting” (World Bank 2007, p.55). The public needs to understand the spending and tax policies that the budget proposes, they need to have a voice in budget-making decisions, and be able to hold the government accountable for managing public money. The Open Budget Survey examines the current state of budget transparency and how it has changed over time, the degree to which opportunities for public

participation in the budget process are present, and the strength of the two formal oversight institutions—the legislature and the supreme audit institution (Friedman 2016). “Many of the budget documents that are missing from the public domain were prepared but are inaccessible to the public. Budget transparency could be significantly advanced if governments were to take the simple step of releasing these prepared documents. Failure to publish information that is already being produced is clearly a question of political will, which donors and civil society can try to influence” (Friedman 2016, p.4).

Local budgets are strategic documents that help to plan and determine a city’s futuristic vision. However, often the annual budget preparation process is merely a budget submission process and not a strategic one. Budgeting is important as it allows the government to allocate resources with a better financial planning. City budgets need to be more than complicated statistics, which make them difficult to read and understand. Citizens generally indicate that they have little influence on the decision-making over how their money is spent. There is confusion over sources of funds from different levels of government and how the local taxes are allocated. More focused and understandable messages about budget decisions and tax spending are urgently needed (MRSC 2021). Some of the key recommendations stated under the budget accountability systems is to focus on publishing more information, improve the content of budgets, and ensure transparency. In India, many states under the provisions of their municipal legislation, have mandated publishing budgets to make them available in the public domain.

It can be intimidating for most citizens and even for the elected representatives, to read lengthy budget documents and to identify how the city government plans to allocate its resources. A simple formulation of municipal budgets is critical to stakeholders to understand how local government allocates its resources with better financial planning. For this, complex city budgets need to be synthesized and disseminated to both citizens and the elected representatives.

To enhance accountability, improved communication, and especially the “voice” of users, is needed by service providers. This will enable ULGs to better understand customer needs and priorities. “User voice can also have a disciplining effect, to make service delivery more efficient and effective. Citizen involvement in the provision of urban services can be seen as a means by which individuals protect their rights as consumers” (Cavill and Sohail 2004, p.158).

“Urban local governments deliver a host of vital services related to public health, education, water, sanitation, street lighting, waste management, livelihood, transportation, gardens, and other essential

services. Their delivery on a digital platform would radically alter both the efficiency of the urban local government and the satisfaction levels of citizens” (Jha 2022). “Performance data should be reported in the ULB’s/utility’s annual reports, be shared with media and other stakeholders in the interest of transparency and for enhanced accountability” (Ministry of Urban Development 2009, p.84). The data systems should be designed in a such a way that will allow stakeholders to assess whether the investment of taxpayers’ resources has produced desired outcomes. They can support ULG officials to improve service levels and achieve greater efficiency in service delivery. Both internal and downward accountability need to be strengthened through such public dissemination and participation.

3.3 Case Studies

Accountability mechanisms for ULGs are not subject to a single, one-size-fits-all model. There are various ways to improve their accountability. Case studies from two states of India—Gujarat and Maharashtra—demonstrate how performance assessment and budget briefs were used to improve accountability in local governance. When performance assessment and budget data are analyzed thoughtfully, they provide valuable feedback on strengths and limitations to local governments. Many times, capacity building and encouragement are required to use the results in making decisions by the local governments. It helps them to focus on key aspects that are important for improvement actions. After that, it will become standard practice in the local governments and will be striving for delivering higher service levels.

3.3.1 Improved Upward and Internal Accountability through Performance Assessment System for Local Services

In the PAS, water and sanitation information is assessed through an agreed set of key performance and drill down indicators. This is supported through an online portal across 1,000 cities in India. In the online portal, entered data is analyzed and various analysis dashboards are available in the public domain. Open information on service level indicators promotes the use of data and improves transparency to the citizens. Over the past 12 years, the CWAS has provided support to selected state governments and ULGs to use performance data for service level and information system improvement. This information is used to assess accountability in terms of service delivery.

Performance assessment system to strengthen accountability of various institutions: The state government of Gujarat had decided to take up underground sewerage system projects in all ULGs under a state sponsored program called the *Swarnim Jayanti Mukhya Mantri Shaheri Vikas Yojana* (SJMMSVY). To support urban renewal and urban infrastructure development in the state, the Gujarat state government established the Gujarat Urban Development Mission (GUDM) in 2006. One of its objectives is “to provide financial, technical and technological support for creation of modern infrastructure and to bridge the knowledge and information gaps in the field of modern urban technology and management” (GUDM n.d.). The GUDM works as a state-level nodal agency for the national missions—AMRUT and the Smart Cities Mission and as a nodal agency for the SJMMSVY. The state government appointed the Gujarat Urban Development Company (GUDC) and the Gujarat Water Supply and Sewerage Board (GWSSB) as implementing agencies for sewerage system projects in the ULGs. The GUDC has implemented sewerage projects in 56 ULGs and the GWSSB has implemented sewerage projects in 96 ULGs. By 2017, administrative approval of ₹156.7 billion (more than \$700 million¹) was given for the sewerage projects under the SJMMSVY.

The information from the PAS is useful to make the implementing agencies accountable. ULG officials share the annual performance assessment data for water supply and sanitation services through the digital PAS platform. Using this data, the PAS portal provides key performance indicators (KPIs).² As a result of this, standardized and collated information on sewerage connections were available for all ULGs in the states. Analysis of the KPIs on sanitation revealed that despite reported completion of sewerage projects, the number of properties connected to the sewer system had not increased significantly in project cities.

This was reviewed at the state level as multiple agencies were involved in the sewerage projects. The tasks of the GUDC and the GWSSB were to lay down the network, construct treatment plants, and ensure operation and maintenance for 2 years. It was assumed that house connections would be provided by local governments based on demand from the property owner. Property owners did not always demand connection as the cost was high and the process was cumbersome. Property owners also did not see immediate benefits of connecting to a sewer system as they perceived that their septic tanks were providing the same service.

¹ The exchange rate quoted through this chapter is \$1 = ₹81.

² For more information, refer to www.pas.org.in

The upward accountability of ULGs came into the limelight when the KPIs from the PAS portal were reviewed at the state level. It was realised that \$700 million was lying unused as the sewerage system was not connected to properties. Policy directions by the state government on the reduction of connection charges and the inclusion of laying pipes and inspection chambers as a part of the project implementation agencies' responsibility helped to significantly increase the number of sewerage connections. However, the availability of temporal performance assessment data on the sewerage project implementation made it possible for the state government to take corrective actions. It has now become a standard practice for the GUDM to compare the performance assessment data with the physical progress of infrastructure projects. From 2010 to 2020, there was a significant improvement in the connection of properties to the sewerage network. The number of ULGs reporting sewerage coverage increased from 57 to 135 out of 170 ULGs. The aggregate value of the percentage of properties connected to the sewerage network in ULGs in Gujarat increased from 48% in 2010 to 75% in 2020. Citizens' willingness to pay for the services increases when better services are provided. One way to assess the willingness to pay is to review the collection efficiency (percentage of current year revenues collected from total billed amount) of wastewater related charges. Analysis of performance assessment data indicates an increase of collection efficiency of wastewater related charges from 67% in 2010 to 77% in 2020 (SLB-PAS Data). This case study illustrates how service-level information is used to hold implementation agencies accountable. The regular reporting of performance information has helped to strengthen accountability of the ULGs to both state institutions that fund their activities as well as to the residents in terms of improved services.

The information collected on the PAS platform is also used to prepare improvement plans by the ULGs in Gujarat and Maharashtra. They cover areas such as measurement and reduction of water losses, strategies, and actions in making cities open-defecation free, septage management, and improvements in consumer grievance redressal and cost recovery. These plans emphasize service-level improvement rather than the creation of infrastructure, and more effective management systems for water and sanitation service delivery. It also enables the preparation of better plans that emphasize equity and helps build credibility of local governments through improved administration.

Data system strengthening leading to local accountability: Vadodara is the third largest ULG in Gujarat state with a population of around 2.5 million (SLB-PAS Data). Support was provided to the Vadodara Municipal Corporation (VMC) for the preparation of an

information system improvement plan. The CWAS and partners worked with various departments of the VMC to prepare strengthening strategies of the data system. A consultative process was adopted to understand the data recording, transfer, analysis, and decision-making processes. In addition to the technical assessment, local officials were sensitized through capacity building and training and their views were also incorporated in the strategies. In addition, exposure visits were organized to facilitate peer-to-peer learning; VMC officials visited other cities in Maharashtra to study their water supply systems. This helped them to better understand the pros and cons of the Supervisory Control and Data Acquisition (SCADA) systems used in these cities. Based on these practices, the VMC established their own SCADA system. This included metering from source to distribution stations worth ₹270 million (\$3.33 million), as well as a SCADA Phase 2 project for metering from distribution stations to consumers under a Government of India project of the Smart City Mission.

The SCADA system generates a significant amount of data, which need to be analyzed to trigger action to increase accountability and effectiveness of the local government for water supply services. Under the project, the Center for Water and Sanitation provided support to the VMC to use the SCADA information to measure nonrevenue water (NRW) losses in the water transmission network (from source to the water distribution stations). Around 18% water was lost between source to water distribution station. Due to lack of metering at the consumer end, it was not possible to assess water loss in the distribution network from the SCADA system. Hence, a detailed water audit was carried out in Karelibaug, an area in the northern part of Vadodara. A water audit revealed heavy leakage from the storage tanks. Based on this, the VMC was able to take measures to reduce leaks and thus reduce the NRW losses. This also helped to increase water supply at the consumer end. The water supply department of the VMC now plans to do this assessment in the entire city. Thus, these type of data assessments and studies have helped to improve the accountability of the VMC and improve services to its citizens.

“Benchmarking should not be viewed as a data collection exercise. The cities need to understand how such information can help them improve performance” (Mehta, Mehta, and Immanuel 2011, p.17). The PAS platform has provided such support for analysing performance data and to encourage ULGs to assess emerging problems. One of the local officials highlighted the importance of such support by stating that “PAS support is not only helpful in managing data for water supply service levels but also helpful in improving water supply system through regular monitoring”.

Strengthening internal and downward accountability through municipal budget briefs: A budget brief is an analysis and a simple graphic representation of municipal budget documents. It is easy to understand and can become self-explanatory for different stakeholders, ranging from local elected representatives, other leaders, and small community groups. For this, the annual budgeting process was studied for small and medium-sized towns in the state of Maharashtra (population 45,000 in Wai and population 75,000 in Sinnar). Based on discussions with the city budget preparation team and key decision makers, as well as lessons from participatory practices, an approach to annual budget briefs was developed. Budget documents of the two cities were converted to more readable formats and important details of resources mobilization and allocations were identified. The CWAS provided support to the two small cities for the preparation of their budget briefs for three consecutive financial years. Based on this experience, an excel based tool was developed to prepare budget briefs, which will be used by other cities. The local government officials were involved in preparing their own budget briefs (CWS 2021).

Budget briefs have made municipal budgeting more transparent for various stakeholders. They were disseminated to local elected representatives, the president (head of elected wing), council chief officers, department heads, and other members of the local government general body. After the approval of the budget in the general body meeting, it was also shared with the district collector for final approvals of the budget. In Wai, the budget brief was shared with the city's local print media, and key highlights of the budget were printed in the local newspapers. The chief accountant of the Wai Municipal Council appreciated the idea and stated, "The concept of budget brief is really helpful for us to share key highlights of the city budget in such a short time with much clarity to the staff members and Councillors in the General Body meeting. It also helped resolve the usual queries that are raised during in-house budget approvals. We would like to practice the making of budget briefs every year."

The budget briefs were also disseminated through the city's website, which helped to disseminate key highlights of the municipal budget to citizens and various local stakeholders. The budget briefs were printed and shared with all 55 elected councillors, as well as all the department heads in both cities. Over time, training and capacity building of ULG officials has made it possible for them to prepare the budget briefs themselves on a regular basis. The dissemination of budget briefs through different modes has also helped to reach different citizen groups.

The budget brief captures key infrastructure highlights of the city, sources of revenue for both capital and revenue accounts, surplus and/

or deficit, sectoral allocation and major revenue expenditure, details of government schemes and grants, and major projects and their annual capital expenditure (Figure 3.2). It also highlights the performance of priority services and per capita income expenditure. These help citizens in improving their understanding of the future vision for their city. It also helps to disseminate mandated information in a simple manner. This may also facilitate in augmenting ULGs' finances. In the financial year 2021–22, in Wai the budgeted estimates of revenue and capital budget were 25% more than the previous year estimates. The budgeted estimation of per capita revenue income increased from ₹3,097 (around \$38) in budget year 2020–21 to ₹3,958 (around \$49) in budget year 2021–22. Conventionally, most city budgets do not have clear sectoral reporting. The budget brief helps to provide details of sectoral allocations. Through the budget brief, staff members and elected representatives can more easily understand sectoral allocations and review their budget provisions. For example, the state government of Maharashtra has mandated cities to have at least 5% of the budget earmarked for the welfare of women and children, 3% for the disabled, and 5% for the economically weaker section. The budget brief helped the elected representatives to increase allocations and utilization of the earmarked funds from 2% to 5%. This also helped to measure progress in the utilization of the earmarked funds. The cities of Wai and Sinnar also increased their sanitation budget allocations by budgeting realistic estimates. Allocation of revenue expenditure in water, sanitation, and health is increased from 15% in the Wai budget of 2020–21 to 23% in the budget of 2021–22.

**Figure 3.2: Budget Brief Document prepared
for Wai Municipal Council, Maharashtra**
(with key highlights from the Council's Budget 2021–22)



Source: CWAS (2021).

Budget briefs can help cities to create transparency and boost local participation and citizen engagement in the local budgeting process. Disseminating budget briefs to the municipal staff and elected representatives has helped in strengthening internal accountability, while communicating to citizens has helped in strengthening downward accountability. The idea of budget briefs is being discussed with the state government officials to use by all the ULGs in the state through the state government guidelines. It is envisioned that cities will foster participatory governance by strengthening their downward accountability mechanism. It will help build trust and ensure citizen participation to strengthen downward accountability and help improve local services.

3.4 Conclusions

Strengthening the three layers of (upward, internal, and downward) accountability systems is essential for good governance and improved service delivery. Accountability mechanisms are essential for providing public services efficiently, equitably, and sustainably. Although there is no single, one-size fit for strengthening accountability, various efforts are needed from local governments to monitor service performance and to assess accountability for service delivery. On the other hand, budget briefs can help in creating transparency and make local government officials more accountable for public spending.

The case studies from Gujarat and Maharashtra demonstrate how regular performance assessments and plans as well as budget briefs were used to improve accountability in local governance. Analysis of performance assessment and budget data provided valuable feedback to both the state and local governments. Performance assessment of services, decisions based on data analysis, key municipal budget allocations, and their dissemination help to create transparency and improve internal and downward accountability. The handholding support, training, and capacity building of officials over time has made it possible to use budget briefs and annual performance assessments tools for decision-making on a regular basis. Scaling-up of such processes across different cities and states will strengthen accountability mechanisms at all tiers of government and enhance transparency for citizens.

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4

Role of Accountability in Providing Inclusive Citywide Sanitation Services: Case of Wai and Sinnar in Maharashtra, India

*Arwa Bharmal, Aditi Dwivedi, Kasturi Joshi, Jigisha Jaiswal,
Aasim Mansuri, and Dhruv Bhavsar*

4.1 Introduction

The Swachh Bharat Mission, India's flagship program for sanitation, has progressed into its second phase, focusing on the aspects of safe conveyance, collection, and treatment of waste. The United Nations Sustainable Development Goal (SDG) 6.2 also envisages safely-managed sanitation for all, which addresses not just access to toilets but also safe conveyance, treatment, and disposal of excreta, while also focusing on inclusivity. This chapter discusses improvements in sanitation service delivery in two cities in India, Wai and Sinnar, which address issues for achieving safe sanitation across the service chain with aspects of accountability and inclusivity. The improvement program not only includes actions from the government in terms of service delivery but also from the citizen perspective in terms of feedback mechanisms and user experience.

Recent data suggest that only 400 cities in India, out of thousands of urban centers, have sewerage networks that are connected to treatment plants (Mehta, Mehta, and Yadav 2019). This is attributed to issues in smaller cities and towns with inadequate water or energy resources, and the lack of skilled staff or planning capacity (Narayanan et al. 2017). Such cities with populations of less than 100,000 are largely dependent on

onsite sanitation systems where toilets are usually connected to septic tanks (Mehta, Mehta, and Yadav 2019). In these situations, maintenance is the responsibility of households, compared to the sewerage networks where services are provided by the local government. Local governments, through their mandate to provide public services, typically offer desludging services on demand and as per their technical, infrastructure, and financial capacity. On-demand services often translate to irregular desludging and long periods between successive desludging that affect the digestion capacity of septic tanks and quality of effluent in the outflows. A septic tank is a preliminary treatment unit where solids are settled and digested anaerobically. The liquid portion or effluent from septic tanks overflows into soak pits, soakaway fields, or flows into drains. “The effluent although clarified to a large extent, will still contain appreciable amount of dissolved and suspended putrescible organic solids and pathogens” (CPHEEO 2013, p.9–18). Effluent typically flows through drains into rivers or other water bodies, effectively affecting their water quality. The Central Public Health and Environmental Engineering Organization guidelines in India recommend that the settled solids from a septic tank should be desludged on a regular basis for it to function well. It suggests desludging at least once every 2–3 years if yearly desludging is not feasible or economical (CPHEEO 2013). Here, accountability mechanisms are required to ensure timely desludging.

Low demand for desludging is partially due to high emptying charges and thus low-income households avoid it for as long as possible. In India, the mandate to provide sanitation services is with local governments and to provide these services in an inclusive manner, it is important that local governance is transparent, accountable, and responsive toward the needs of its citizens. Additionally, for the citizens, feedback mechanisms from citizens are required so that local governments are aware of the quality of services provided.

Lastly, even if sludge is collected from the tanks, it is important to monitor that it is disposed of safely. Where treatment plants are not available, desludgers dispose of the sludge on open land or in water bodies. Such unregulated dumping on open land leads to serious health hazards through ground and surface water pollution. Even with available treatment plants, it is important to monitor private desludgers, who may dispose of sludge in more convenient places. Here, accountability mechanisms are needed to monitor service providers.

This chapter presents a public service approach by local governments toward providing equitable and safe sanitation services on a city scale.

4.2 Context: Sanitation Programs in Wai and Sinnar

The cities of Wai and Sinnar in the Indian state of Maharashtra are representative of more than 7,400 small and medium-sized towns in India, including 3,600 urban local governments and 3,800 census towns. Approximately 40% of India's urban population—150 million people—live in these towns. Wai has a population of 43,000 and Sinnar 80,000 (Government of India 2011). Like most small and medium-sized cities in India, Wai and Sinnar face the same sanitation issues of open defecation, untreated disposal of fecal waste, financial constraints, and growing environmental pollution.

In 2012, the Center for Water and Sanitation (CWAS) through a grant from the Bill & Melinda Gates Foundation, was working on a making a case for non-networked sustainable sanitation for small and medium-sized towns. Wai and Sinnar were chosen, where city sanitation plans (CSP) would be prepared. This was done in consultation with the Water Supply and Sanitation Department of the State Government of Maharashtra and Maharashtra Jeevan Pradhikaran.

In 2013, after a consultative process, CSPs were prepared, and the cities requested for technical support for implementation of the CSPs. Based on the cities' priorities, two main proposals were selected. The first was on increasing the coverage of individual household toilets and the second focused on safe conveyance and treatment, i.e., fecal sludge and septage management (FSSM).

4.2.1 Ownership of Improvement Plans by Local Governments Through Council Resolutions

A government resolution was passed to implement an integrated FSSM plan. The resolution included aspects on citywide FSSM involving the private sector, scheduled desludging, land for treatment facilities, and taxes to be levied. Wai and Sinnar were two of the first cities in India to have passed such a resolution, which led to overall sustainability both in terms of financial resources and commitment from the government. It also ensured the improvement programs would continue even with a change in leadership.

4.2.2 Inclusive Scheduled Desludging Service for Septic Tanks

In both cities, all household toilets are connected to onsite systems, i.e., they have septic tanks. In order to regulate and monitor the emptying of septic tanks, the local governments of both cities planned to implement scheduled desludging of all septic tanks as a planned effort to ensure regular desludging. In this, every property is covered along a defined route and the property owners are informed in advance about desludging.

Scheduled desludging is offered as a public service, wherein all properties in the city would receive the service. Low-income households and those staying in slums would also receive the service. There was willingness from households to get their tanks emptied as no user charges are paid at the time of emptying.

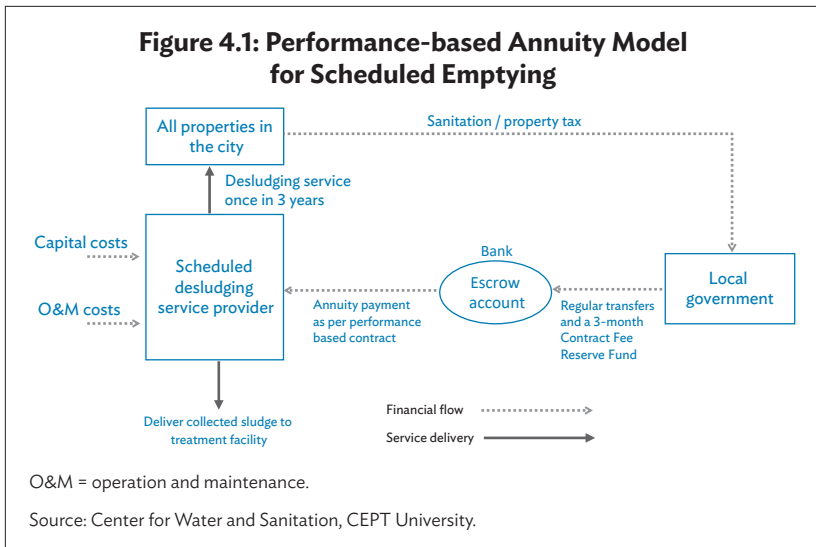
The service ensures that all septic tanks in the city are emptied mandatorily on a pre-fixed schedule over a cycle of 3 years. With this, every septic tank would be serviced once every 3 years to maintain its efficiency.

4.2.3 Performance based Annuity Model for Scheduled Desludging

The local governments have entered into exclusive contracts with a private service provider to deliver these services. As permit are not given to another private operator, there was an assured market for the service provider. Economies of scale further allow the private desludging companies to quote lower costs per septic tank.

One of the key aspects of being accountable for providing inclusive sanitation services is to ensure rigorous monitoring of performance. To achieve this, performance-based contracts for private operators of scheduled desludging have been designed. The contracts use a performance-linked annuity model with a pay-for-results clause, which means that payment is based on the number of septic tanks desludged. The contract is “performance based,” i.e., it specifies what the service provider must deliver in order to get paid, and not the input or material used. Performance-based payment agreements are an established tool to provide greater incentives to responsible parties in exchange for greater accountability for achieving results (UNDP 2017). In Wai and Sinnar, in order to receive full monthly payments, the private operator is required to produce proof of having emptied the required number of tanks and safely discharge at the designated fecal sludge treatment plant (FSTP) site.

Monthly payments to the private operator are done through an escrow mechanism that protects the operator against delayed payments. The escrow account mechanism is a tripartite agreement between the local government, the private sector, and a local bank. The local government is required to maintain 3 months of payment as a reserve fund to safeguard against risk of payment. This ensures downward accountability by the local government to the private service provider.



This model as shown in Figure 4.1 helps to mobilize capital expenditure for conveyance as well as day-to-day operations management from the private sector. Payments by the local governments are done on an annuity basis, in Wai payments are done monthly.

For financing the scheduled desludging services sustainably, both cities have levied a sanitation tax. This is also backed by a property tax collected by the local governments. The sanitation tax itself is part of the overall property tax that is paid annually by property owners to local governments for various services. This allows the payments to be more equitable as larger and better properties pay more property tax. This helps make the desludging service more affordable for low-income groups.

4.3 Women's Engagement and Ensuring Safety of Sanitation Workers

Women citizens, especially those belonging to vulnerable groups, have been oriented on the basic aspects of scheduled desludging with the help of awareness material and group discussions as shown in Figure 4.2. Such engagement has led to women being more aware of services provided by the government and have in a way built their agency to raise concerns and take informed decisions. It was observed that women were more aware and concerned about their hygiene and health compared to men. This led to a high rate of acceptance for the scheduled emptying service. Such initiatives have helped indirectly ensuring downward accountability since empowered citizens can make the local government accountable to provide inclusive sanitation services.

Figure 4.2: Orientation with Women on FSSM and Scheduled Desludging Activities



FSSM = fecal sludge and septage management.

Source: Center for Water and Sanitation, CEPT University.

From the aspect of ensuring the safety of sanitation workers, the model contract includes clauses that enforce performance standards and safety compliance for septic tank emptying such as the prohibition of manual scavenging, the use of personal protective equipment (PPE) for workers, the quality of suction trucks, cleaning up of spillage, and assigning responsibility for damage to septic tanks. In a continuation of efforts, the local government has institutionalized the safety of sanitation workers. First, clauses relating to the replacement and monitoring of PPE in all contracts of the sanitation department were added. The procurement tender for PPE by the local government was revised to reflect requirements according to number, gender, and activity profiles

of the engaged sanitation workers. As shown in Figure 4.3 training workshops on the use of PPE have been conducted at regular intervals, which has led to an improvement in the working conditions of the sanitation workers. Resource materials were developed that are easy to understand and were used during the training workshops (CWAS 2020a). Through such efforts, the local government has been made accountable to ensure the safety of the sanitation workers.

Figure 4.3: Sanitation Workers' Training Program



Source: Center for Water and Sanitation, CEPT University.

4.4 Digital Tools to Monitor Service Delivery

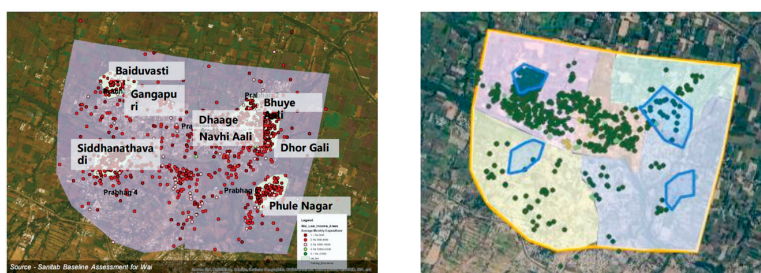
For local governments to be held accountable for meeting mandates, effective monitoring systems need to be created. Transparent monitoring systems that capture local governments' performance, through key performance indicators (KPIs) and targets, ensure upward (to higher government authorities) and downward (to citizens) accountability. In order to achieve transparent monitoring systems, a host of digital tools have been used in Wai and Sinnar that enable the monitoring of the urban sanitation situation and the performance of sanitation service delivery. Some of these tools can be used by decision makers to assess current performances to make strategic decisions, while other tools monitor the performance of service providers to ensure quality service provision.

When scheduled desludging started, monitoring was done through paper-based forms and logbooks. Each desludging is accompanied by a

form with signatures from the truck operator and septic tank owner for proof of emptying and from the FSTP operator and the truck operator for proof of safe unloading at the designated treatment site. Four copies of this form are made—one each for the household, the desludging company, the FSTP, and the local government. Once this monitoring system was set in place, digital tools were developed to make the process transparent, faster, and minimize human error.

An application (app) called SaniTab was developed, where surveyors enter data into an online form and submit it to generate a database. This is used to collect data on desludging operations and, more importantly, on the septic tanks being serviced. In addition to text-based questions, the app also allows the capture of photos and global positioning system (GPS) coordinates for quick and easy spatial mapping. Capturing spatial details makes it possible to identify and focus more on the vulnerable areas. The data collected are plugged into a dashboard allowing quick analysis for local government officials. Figure 4.4 shows the mapping of vulnerable properties and scheduled desludging service provided.

Figure 4.4: Mapping of Vulnerable Properties and Scheduled Desludging Services Provided



Source: Center for Water and Sanitation (CWAS), CEPT University.

SaniTrack, the second tool, is a custom app developed specifically to enable end-to-end operationalization and monitoring of desludging operations. It allows desludgers to schedule and record daily operations with signatures on mobile screens as acknowledgment from septic tank owners and later validate the location of safe disposal at the treatment

plant. Survey questions in SaniTab and SaniTrack also capture important monitoring aspects such as the use of PPE and customer satisfaction.

Radio-frequency identification (RFID) tags on suction trucks and readers at treatment sites have been installed as an alternative to manual logbooks that recorded entry and exit of trucks at the treatment site. This further triangulates information on ensuring safe disposal at the designated location.

The FSTP operators are required to submit monthly lab test results for outlet effluent quality to ensure that disposal is up to standard and that the FSTP is functioning as per design. In order to give a few quick indicators for proper functioning, real-time water quality testing systems are installed that give information on treatment quality metrics such as acidity (pH), biological oxygen demand, chemical oxygen demand, total dissolved solids, etc.

Dashboards have been developed based on real-time data that are generated from the apps. The dashboards show information on geographical coverage, household readiness, safe conveyance, use of PPE, etc. Information can also be downloaded in pre-configured formats. The SaniTab dashboard also helps in improving internal accountability within the department and reporting to the chief officer, i.e., the sanitation department staff can easily report on the operational aspects of scheduled desludging to the chief officer.

The dashboards are simple and can be used by any staff having basic knowledge of operating a computer. City chief officers, sanitation engineers, and sanitation supervisors were given hands on training on the use of the dashboards in both cities. The apps have the option of using vernacular language also.

As shown in Figure 4.5 staff were also given explanations on the aspects of monitoring operations and assessing the performance of the private contractor. They were also oriented on the spatial database that is created on the dashboard and how they can use the information in decision making.

These applications help in delivering better desludging services by providing real-time insights on FSSM processes and by ensuring checks for safe conveyance, treatment, and disposal of fecal sludge. They reduce human labor and provide simpler methods to monitor and collect data. This has equipped the local government with latest real-time information for not only planning purposes but also for ensuring accountability toward both higher authorities and citizens (CWAS 2020b).

Figure 4.5: SaniTab Dashboard Being Used by Local Government Officials for Monitoring of Operations



Source: Center for Water and Sanitation, CEPT University.

4.5 Capturing Community Voices for Feedback by Improving the Complaint Redressal System

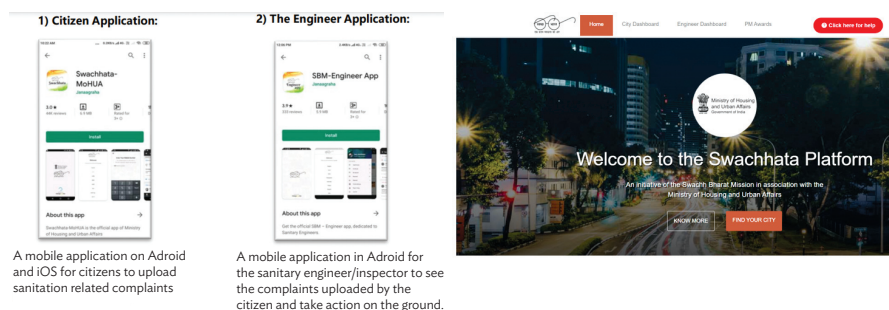
Along with institutionalizing scheduled desludging and treatment services the local governments also plan to strengthen their existing systems and organization structure for better municipal governance and service delivery systems.

It is important to underscore that tools like grievance redressal and data transparency systems are accountability mechanisms. In order to integrate downward accountability to citizens and to the elected representatives of the local government, an efficient complaint redressal system is important. For citizens it is a platform to voice their opinions and ensure that the services received from the urban local body (ULB) meet their expectations. For local government, it is an important mechanism to evaluate their performance and improve it further (TERI 2010). In order to strengthen the complaint redressal system of, a detailed study of existing processes was conducted for all the services provided by the sanitation department and few other departments. Details such as the time taken to process the complaint, forms and formats used, roles and responsibilities of the human resources involved, etc., were studied. Key stakeholders such as the ULB officials, elected representatives, citizens (including the women, low-income, and vulnerable households)

were also interviewed to understand their perspective toward local governments' complaint redressal process. The study found that while the sanitation department addressed most of the complaints it received, it followed an “ad hoc” process of complaint redressal. Thus, improvements were suggested on a closed-loop documentation process of complaint registration, escalation, resolution, and also on digitization of record keeping for analysis.

Based on the positive response of digital tools for scheduled desludging, the local governments in both cities are keen to use digital tools for complaint redressal. The “Swachhata” app developed by the Government of India for resolving the city-level sanitation-related complaints followed an ideal process of complaint resolution. Since in both cities complaints are received through multiple channels, the Swachhata app, if used for all complaints, would help not only in streamlining but also would close the loop of the complaint raised. The CWAS supported the Wai Municipal Council to provide training for all staff members for institutionalizing the Swachhata app and conducted awareness programs for citizen users (CWAS 2021).

Figure 4.6: Swachhata App for Complaint Redressal



Source: Swachh City. <http://www.swachh.city/> (accessed 10 November 2022).

4.6 Impact and Results

Wai city has completed the 3-year scheduled desludging cycle covering more than 6,800 properties and more than 3,600 septic tanks. About 95% of property owners welcomed the scheduled desludging service and accepted it. It is one of the first cities to have successfully implemented such a service. This has helped achieve treatment

of 20 million liters of septage. The local government in both cities have been able to achieve success since they acknowledged the importance of monitoring and efficiently implemented the digital tools. Effective performance monitoring for the provision of sanitation services has led to improved accountability at all levels, i.e., to higher authorities through central mission programs such as the Swachh Bharat Mission and the Swachh Survekshan (a national mission focusing on solid waste management). For internal accountability, i.e., reporting by the health department to the chief officers or even inter-departmental reporting has improved due to the availability of reliable real-time information on monitoring. The Wai and Sinnar municipal councils have been using the apps that have increased program efficiency for service operations. Integrated monitoring systems provide collated information across the FSSM service chain. Real time data provide quick results on dashboards and there is no need to manually process paper-based forms to evaluate and disburse payments to the private operator. The digital apps are easy to operate and significantly reduce paperwork as well as minimize human error. Training for truck operators and supervisors has been conducted and city administrators are regularly using the dashboard to monitor progress. Photo stamping and geo-stamping provide an added degree of authenticity to the data collected and allow monitoring at city scale. It is now easy to see coverage in the city. Lastly, the unique and detailed database of sanitation systems is seen to be useful for future planning of operations.

Downward accountability has been integrated through an improved complaint redressal system and the use of Sanitrack that captures citizen feedback on scheduled desludging services. Both the digital apps (i.e., SaniTab and Sanitrack) have the potential for being scaled-up to all cities in the state. Both the apps have an option of being used in the vernacular language. The apps are designed in such a way that minimal training is required to use the app.

Sanitation supervisors have been trained to use the Swachhata app so they can use it and respond to complaints that have been raised through the app. The Swachhata app, although currently being used for complaint redressal, is an effective tool for ensuring downward accountability from the local government toward citizens. The tool also empowers citizens to raise their voice for proper services.

Apart from complaint redressal a need has been felt for further improvement in engaging community for raising their awareness, sharing their aspirations, and providing positive feedback for efforts that the local government takes for providing inclusive sanitation services. The Swachhata app could in future be used as a community platform

wherein it is not just limited to complaint redressal but a platform for sharing aspirations, feedback, updates, etc.

4.7 Scaling-up

Over the years, both cities have demonstrated that it is possible for small and medium-sized towns to deliver high quality, affordable, equitable, and inclusive sanitation services to their citizens.

It is important for cities to recognize that management of onsite systems, although sometimes considered as “informal sanitation”, requires accountability mechanisms and resource commitments that are at par with those associated with networked systems. Providing a proactive service for regular desludging as against a demand-based system will lead to positive social and environmental outcomes. However, for the success and sustainability of services like this, two key actions need to be ensured. First, the services need to be inclusive and equitable to guarantee uptake and with feedback mechanisms for capturing community voices. Second, they need to have monitoring mechanisms, such as those applied by these two cities, to ensure quality as well as progress on identified goals. This will help ensure accountability of all stakeholders and parties involved.

There is a huge opportunity to scale-up efforts for inclusive sanitation services. For scaling-up efforts at the state level, training for all local governments in Maharashtra to implement scheduled desludging based on the experience of Wai and Sinnar has been carried out. The training was delivered through a series of webinars for the Swachh Survekshan and ODF+/++ (a certification process for cities under the Swachh Bharat Mission) organized by the government of Maharashtra. To support this training, exposure visits of cities from all six divisions of Maharashtra are planned. Also, at the national level, scheduled desludging has been made as one of the mandatory requirements to get ODF++ certification from the Ministry of Housing and Urban Affairs and marks have been allocated under the Swachh Survekshan for scheduled desludging.

In recent years, the Government of India has stressed the importance of regular desludging under the Swachh Bharat protocols. With this development, it is expected that SaniTrack and SaniTab will be widely used. In Maharashtra alone, more than 200 fecal sludge treatment plants have been constructed as per a state directive as of July 2023. Over 400 urban centers in the state are in process of obtaining ODF++ certificates, which require that all waste is conveyed and treated safely. This will require accountability mechanisms. If institutionalized within the city government, SaniTrack can be used

for constant service improvisation, and monitoring tools can be linked to performance-based payments. SaniTab questionnaires can be customized to city requirements, and like SaniTrack, are applicable to a wide range of surveying and monitoring requirements. SaniTrack can also accommodate various models of FSSM—scheduled or demand-based, service provided by government operator or private operator sector, single or multiple service providers, scheduling pre-uploaded property database, or on-the-go scheduling. Owing to their simplicity, user-friendliness, and easy adaptability, the developers of these apps have already received inquiries from potential users.

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5

Jakarta's River Normalization Program: What Went Wrong and How to Fix It: The Case Study of Kampung Pulo and Bukit Duri Subdistricts

Dinda Alexiana Putri

5.1 Introduction

One of the traits of a well-functioning public service is accountability. One mechanism to ensure accountability of the government is public participation, including the participation of disadvantaged people. That being said, often the voice of marginalized people is overlooked. This is also the case in Jakarta's river normalization program.

The Jakarta government had made efforts to restore the water flow capacity by expanding the river body and deepening the riverbed. These efforts required the government to relocate the riverbank community. Unfortunately, there was a lack of an accountability mechanism in the relocation process. This phenomenon could be seen through the lack of public engagement in the land acquisition and resettlement process. That said, under the new leadership, the Jakarta government plans to resume the normalization process (Aliya 2021). Before that, a thorough evaluation of the past implementation, especially its public engagement aspect, is urgently needed to avoid yet another policy failure.

Utilizing the case study approach in Kampung Pulo and Bukit Duri subdistricts, this research aims to discuss the problems of the program's past implementation from the perspective of accountability and public participation theories. This chapter will also assess the current policy, unveil the policy gaps, and offer several solutions based on the

assessment. Accordingly, the research questions to be answered through this study are:

- (1) How does the government currently regulate the land acquisition and resettlement process, especially in relation to the Ciliwung river normalization program? And to what extent was the public involved in the program's land acquisition and resettlement process?
- (2) What are the key drivers that caused the implementation of the river normalization program to fail?
- (3) How could the government improve the river normalization program—especially in its land acquisition and resettlement aspect—to ensure its successful implementation?

This chapter is divided into several sections. Section 5.1, as we have seen, provides an overview of the problem. Section 5.2 discusses the problem in more detail. Section 5.3 discusses the relevant theories that will be utilized in this research. The methods and materials used in this chapter are explained in Section 5.4. In Section 5.5, an analysis will be conducted, and the key drivers of the program's failure are derived from the analysis. Section 5.6 proposes some solutions to the problems, and Section 5.7 concludes.

5.2 Background

Flood disasters quickly become a growing concern due to their substantial multi-sectoral impact, including social, economic, and development sectors. The National Board for Disaster Management's (BNPB) natural disasters data (2021) showed that floods were the most destructive natural disasters in Indonesia compared to other disasters in 2020.

Floods also occur in various strategic locations, such as the Special Capital Region of Jakarta. Based on historical flood data analysis, of the 267 subdistricts in Jakarta, around 31% of them are classified as flood-prone areas (Regional Board for Disaster Management, cited in Nainggolan 2020). The frequent floods in Jakarta have resulted in significant social and economic losses, such as displacement of thousands of families from their homes (Pradewo and Ridwan 2021), along with economic losses of up to Rp40 billion (CNN Indonesia 2021).

Acknowledging these risks of damage, the Jakarta government has made various efforts to prevent more flood disasters. One of the most prominent efforts made is the river normalization program. According

to Article 21 of the Regulation of the Special Capital Region of Jakarta Number 6 of 1999, river normalization is an effort to restore the water flow capacity by expanding the river body and deepening the riverbed. The program will be carried out on the Ciliwung and Cisadane riverbanks and requires a total of 47.01 hectares of land.

Figure 5.1: Housing on the Ciliwung Riverbank



Source: Photograph of Ciliwung riverbank slum, 13 March 2023. Author's personal collection.

The program requires the Jakarta government to “clean” the riverbanks of buildings, meaning that the government needs to acquire the land and relocate the riverbanks’ community to a new housing location. On the Ciliwung riverbank, especially, this also provides an opportunity for the government to improve the living standards of the residents, considering that they have lived in slum areas (as seen in Figure 5.1), with inadequate facilities and sanitation (Fitrianti and Fadhillah 2018).

Land acquisition and resettlement, thus, require consultation and negotiation as the program would significantly impact the lives of the riverbank residents. Engagement with the riverbank residents is essential to ensure that the project will not harm the residents’ lives and enhance the legitimacy of the decisions made regarding the program (Irvin and Stansbury 2004). Unfortunately, the Jakarta government had not carried

out an optimal stakeholders' engagement in the normalization program. For example, Artharini (2016) had reported that the Jakarta government deliberately eliminated the consultation process in the land acquisition and resettlement process in Kampung Pulo, one of the subdistricts on the banks of the Ciliwung river. The lack of public engagement then led to a prolonged controversy of land acquisition and resettlement matters between the community and the government, leading to the program's suspension (Uswatun 2021) and causing the then Jakarta governor to lose the next election (Rosyadi 2016). Ultimately, the lack of public engagement in the land acquisition and resettlement process had led to the program's failure.

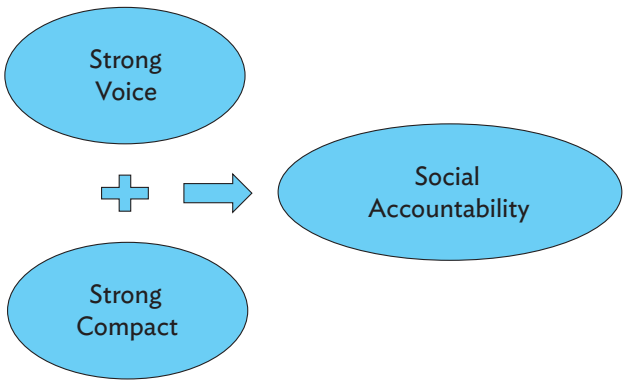
5.3 Literature Review

5.3.1 Public Participation as Accountability Mechanism

In the case of river normalization, several organizations, such as the Asian Development Bank (ADB), the International Union for Conservation of Nature and Natural Resources (IUCN), the International Finance Corporation (IFC), and the World Bank, set the resettlement principles in development projects. These institutions argue that in ideal conditions, resettlement is something that should be avoided. However, if resettlement is unavoidable, the government must minimize the negative economic and social impacts (ADB 1995; World Bank 2004; IFC 2012; IUCN 2016). Accordingly, governments should be held accountable in order to effectively minimize, prevent, and mitigate negative impacts of the resettlement, as it gives an arena for the affected communities to deliberate and negotiate in getting a better—or at least the same as before—livelihood, both from an economic and social perspective (ADB 1995; World Bank 2004).

According to Kumar et.al. (n.d.), social accountability is established by a strong voice and a strong compact (Figure 5.2). A strong voice means that the citizens are well informed, mobilized, and able to take advantage of available engagement platforms to demand accountability. Meanwhile, a strong compact refers to an institutional design with a system structured and functioned to encourage a better accountability—a system where public participation can actually translate to better accountability. Malena, Forster, and Singh (2004) utilizes social accountability to illustrate the phenomenon of public participation in demanding government accountability, which will lead to policy legitimacy (Schmidt 2013).

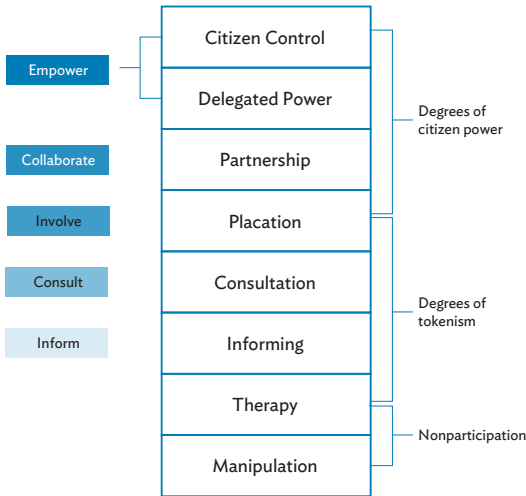
Figure 5.2: Social Accountability Framework



Source: Kumar et al. (n.d.).

Forms of public participation are spread across various ranges. The International Association for Public Participation (IAP2 2018) had established a spectrum of public participation to analyze and categorize the public participation process based on the extent of community roles. In line with the IAP2 spectrum of public participation, Arnstein (2019) classifies citizens’ participation into eight typologies and puts those types into a figurative ladder (Figure 5.3).

Figure 5.3: Citizen’s Participation Ladder



Source: Arnstein (2019).

Table 5.1: Synthetization of Principle of Public Participation in Resettlement Cases and its Equivalency with the Spectrum of Citizen Participation

Standards/Principles	Rationale/Advantages	Spectrum
- Ensuring project's transparency and accountability - Adequate information dissemination regarding the project	- Avoiding resistance or turmoil caused by misinformation that will ultimately avoid social disruption, substantial delay in achieving targets or even abandonment, and increasing costs. - Creating society's awareness regarding every possible impact and losses due to the project and the project's grievance and dispute mechanism - Assist in dispelling fears, avoiding misconceptions, and building stakeholders' trust - Establish a strong foundation for collaboration	Inform
Consultation is essential especially in the project planning and preparation stage	- Provide policy options and alternatives to affected communities including host communities - Generate the best possible resettlement alternatives, provide insights regarding useful procedures for continued participation, and independent information regarding the actual on-the-ground implementation	Consult
- Stakeholder Inclusiveness - Free, prior, and informed consent - Continuous collaboration throughout the decision making, operating, and monitoring stage of the project	- Ensure a culturally appropriate, non-discriminating, and gender-inclusive participation process - Assess the significance impact of the resettlement and formulate mitigation measures in the perspective of affected people. The term affected people also refers to the community members in which the displaced will be resettled or in which the displaced will find new income resources - Provide a platform for affected parties and beneficiary groups to influence and contribute to project design, planning, and implementation - Avoiding arbitrary actions or violations of the rights of affected persons.	Collaborate
Extension of choice	Allow the affected parties to decide their preferred options for resettlement	Empower

Source: Based on ADB (1995), World Bank (2004), IFC (2012), and IUCN (2016).

That being said, Arnstein (2019) warned that several practices had been misleadingly labeled as participation by those in power. Those misleading practices would sit on the therapy and manipulation rung of Arnstein's (2019) ladder of participation. Therapy means that the government uses public participation as a tool to "educate" or "cure" the stakeholders, requiring the stakeholders to change the way they act and think in the end. Meanwhile, manipulation means that the government makes the stakeholders believe that they are engaged to participate through public meetings and other methods, while in reality, they do not have any say regarding the decisions. At this stage, public participation is merely a formality that will only lead to an illegitimate policy decision (Innes and Booher 2004; Ozawa 2012, cited in Quick and Bryson 2016, p.4).

To help identify where the stage of the current participation is situated and gain a thorough understanding of how a participation process should be conducted, especially in the context of resettlement, this research will pair each degree of citizens' participation with the illustrated ideal citizens' participation practices that various world institutions put forward. To be more detailed, the participation forms along with their rationale are depicted in Table 5.1.

5.3.2 Public Participation in Practice

River normalization programs have also been carried out in other countries, for example in India and the People's Republic of China (PRC). Just like the river normalization program in Jakarta, these programs also require resettlement of residents who live along riverbanks.

- **Sabarmati Riverfront Development (SRFD) Project, Ahmedabad, India**

The SRFD project was initiated in 1998 and lasted until 2012. This program aimed to convert 9 kilometers of riverbanks into centers of leisure activities, real estate zones, transportation services, informal markets, and cultural activities (Joshi and Maheswari 2016). Consequently, it was estimated that 4,400 families living on the riverbanks would experience relocation. According to Joshi and Maheswari (2016), the project implementation denied inclusivity, transparency, and public participation resulting in the erosion of trust in the authorities. For example, affected residents only received resettlement information from newspapers, not through official information. In addition, there was no consultation process regarding the location of the new housing, which turned out to be very far from the old housing, so it impacted the livelihoods of the affected residents who primarily work in the informal sector on the riverbanks, not to

mention the problem of lack of amenities and clean water problems in the new housing. Moreover, the regulation regarding compensation for affected residents only applied to legal residents, even though most affected residents were informal dwellers.

- **Qinhuai River Environmental Improvement Project, Nanjing, the PRC**

This ADB-financed project aimed to prevent flooding during the rainy season and improve water quality due to wastewater discharge from the city (Vollmer 2009). This program was implemented in 2010 and required resettlement from residents living on the banks of the river. As many as 457 households with 731 persons were affected by this program (ADB 2015). However, this resettlement was deemed as an opportunity to improve the affected persons' quality of life, especially improving sanitary infrastructure (Vollmer 2009). Unlike the SRFD, this project actively engaged with stakeholders, including affected households, affected villages, local government, and design institutes (ADB 2015). Consultations were conducted to decide resettlement plans (including selecting relocation sites and designing new housing), delivery of compensation funds, and income rehabilitation programs. In addition, the authorities stipulated a grievance redress mechanism. However, no significant grievance issues arose during the implementation period because the project implementation had gone through consultation and engagement with the affected communities.

5.4 Methods and Materials

This chapter utilizes the case study approach. According to Davies and Beaumont (n.d.), as the case study only involves certain subjects, generalization might not be drawn from the analysis. However, the case study method involves holistic detailed investigation and the analysis could incorporate various methodological tools, not restricted to one tool only (Davies and Beaumont n.d.). In this case, this study serves as an in-depth investigation of the public participation scheme for the river normalization program in the Kampung Polo and Bukit Duri subdistricts. The two subdistricts are located on the banks of the Ciliwung river where intense conflict led to civil lawsuits against the Jakarta government.

Several data sources will be used in this work: regulation documents related to Jakarta's river normalization program, land acquisition, and resettlement process; policy documents such as the regional medium-term development plan report (RPJMD); nongovernment organization

(NGO) documents; articles and news from mass media; and previous research findings on Jakarta's river normalization program, land acquisition, and resettlement. Most of these documents are publicly available and can be accessed online.

5.5 Analysis

5.5.1 Socioeconomic and Demographic Profile of Kampung Pulo and Bukit Duri SubDistricts

Kampung Pulo and Bukit Duri subdistricts could be categorized as slum areas with inadequate sanitation. People's livelihoods were heavily reliant on the river (Purba et al. 2018) to meet their daily needs, such as bathing, washing clothes, and disposing of waste. Additionally, most of them were unskilled and unemployed, causing them to work in informal sectors for a living (Krausse 1979; Barker 2009). However, despite those conditions, the people had built a strong sense of community, often saying they all belong in the same big family (Arslanian 2015; Wardani 2014).

In regards to the land ownership situation, Ciliwung Merdeka Foundation (cited in Soemarwi, Febrian, and Feran 2017, p.56), an NGO that fights for the rights of Ciliwung riverbank communities, reported that the land that was going to be utilized by the Jakarta government for its river normalization program was owned mainly by the Ciliwung riverbank residents with different kinds of proof of ownership; some residents had ownership certificates, some residents were Girik holders (right based on customary law), some residents possessed a deed of sale and purchase of their houses, the rest did not have any proof of legal ownership.

5.5.2 Current Policy of the River Normalization Program

One of the most critical things in developing public infrastructure is the existence of a clear legal framework (Perera, Gamaathige, and Weerackody 2016, p.37). Jakarta's river normalization was mainly executed per Jakarta's Government Regulation Number 1 of 2012 and Number 1 of 2014 regarding Regional Spatial Planning 2030 and Detailed Spatial Planning and Zoning Regulations, respectively. Besides, Provincial Medium-Term Development Plan (RPJMD) for 2013-2017 states that the amount of successfully acquired land in the implementation of the river normalization program as one of the performance indicators of the provincial government (Regional Development Planning Agency of DKI Jakarta 2013).

Several regulations stipulate how the government should acquire the land needed for the program's development. On the national level, Law Number 2 of the Year 2012 regulates the land procurement for public utilities construction. According to this law, the land acquisition process must first put the public interest such as humanity, justice, benefit, certainty, openness, agreement, engagement, welfare, sustainability, and harmony, as its number one priority. Three of these ten principles are directly related to public participation: transparency, agreement, and participation principles.

According to this law, public consultation is carried out to obtain an agreement on the development plan's locations between the government and the affected community. If the government and the community fail to reach an agreement by the end of the public consultation process, a task force should be formed to solve the bottleneck that prevent consensus. If the authorities, in this case the governor, reject the objection from the affected persons, the affected persons are allowed to file a lawsuit in court.

Furthermore, the law also regulates the deliberation mechanism regarding compensation. Paragraph 4, Article 37 to Article 39 stipulates that the National Land Management Agency issued the valuation as the benchmark for the amount of compensation and negotiate it with the affected community. If an agreement on settlement fails to be agreed on, the affected persons can file an objection with the Local District Court.

The Jakarta government also issued Regulation Number 216 year 2016 regarding the Procedures for Land Procurement for the Jakarta Development Program. The regulation stipulates that if the program is located on privately-owned land, the affected persons should be informed and consulted to obtain an agreement on the location of the development plan. If an agreement fails to be reached or the affected persons reject the development plan, re-consultation will be carried out.

5.5.3 Engagement Practice in the Ciliwung Normalization Program

Despite being fully implemented in 2015, Jakarta's government had informed the Ciliwung riverbank residents of the Ciliwung river normalization program in 2012. Joko Widodo, the then Jakarta governor, invited the Ciliwung riverbank residents and the chairman of the Ciliwung Merdeka Foundation to discuss the resettlement options for the residents affected by the normalization project. According to Topsfield (2016), a meeting opportunity with the then Jakarta leaders was utilized by Ciliwung riverbank residents, with the help of various NGOs, to propose a floating village (Kampung Susun) design. The design

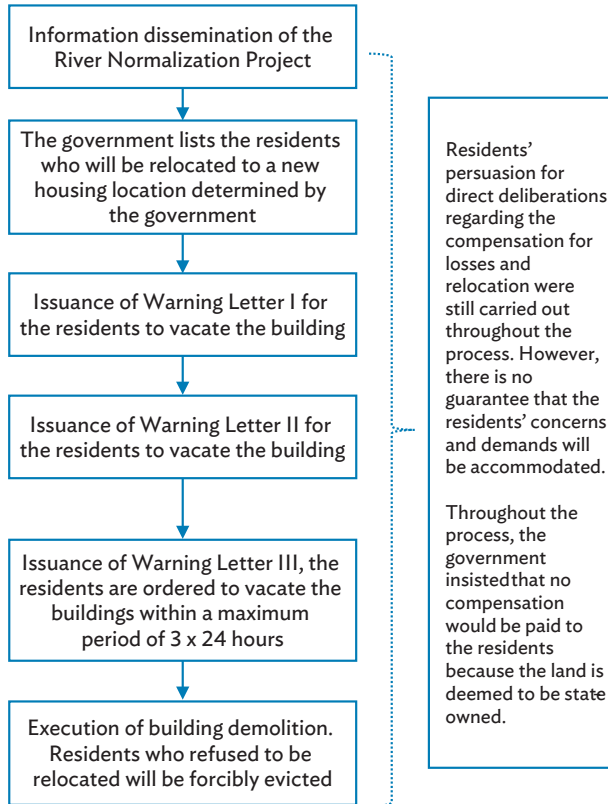
adapted the previous resettlement success in the Petogogan subdistrict (Sa'diyah and Marbun 2014).

Kampung Susun was seen as an alternative way to revitalize the riverbank while still allowing the inhabitants to live on it. The design emphasizes river revitalization using ecologically friendly materials and highly values social spaces to keep the informal sectors going, allowing the poor residents to keep their jobs (Topsfield 2016), thus offering a solution that could benefit all stakeholders. Unfortunately, although the government initially showed an excellent response to the design proposal, it still failed to be adopted by the government. Instead, the government proceeded to conduct the relocation process in 2015 without any further meaningful public engagement. The government also refused to compensate for losses adequately because they claimed that the affected land was government-owned, leaving the residents with no compensation whatsoever despite losing their homes and jobs. Furthermore, they also one-handedly decided the relocation location for the Ciliwung riverbank residents without considering their needs and demands. This phenomenon has resulted in many residents feeling more socially and economically burdened after being removed from their homes (Ainurrofiq 2018).

Figure 5.4 shows us that the Ciliwung riverbank community indeed had tried many ways to persuade the government to involve them in the decision-making arena. Some residents tried to invite the government to initiate a direct discussion with them (Belarminus and Afriyanti 2015). Others held peaceful demonstrations to refuse the demolition of their homes (Firdaus 2015, Parikesit and Chairunnisa 2017). However, the government's unwillingness to distribute some of its power to other stakeholders had kept the distant gap in power relations between them.

In addition, the Ciliwung Merdeka Foundation's (Soemarwi, Febrian, and Feran 2017) result of the juridical analysis concluded that the resettlement carried out by the Jakarta government for the Ciliwung river normalization program had violated the law of good governance administration, especially the principles of participation, openness, legal certainty, and propriety. The review also concluded that both the central government and the provincial government had failed to implement the basic principles and guidelines in development regulated by the United Nations as stated in Document A/HRC/4/18. The violations include denying the citizens their rights to get proper compensation and be involved in the decision-making process and the motion to violently invade their homes by conducting forced evictions (Soemarwi, Febrian, and Feran 2017).

Figure 5.4: Timeline of Ciliwung Riverbank Residents' Eviction for Ciliwung River Normalization Program



Source: Synthesized from Firdaus (2015) and Parikesit and Chairunnisa (2017).

5.6 Discussion

5.6.1 Lessons Learned

Based on the analysis, several key points could be derived as to why the past Ciliwung river normalization program was controversial, as shown in Figure 5.5. This condition can be associated with the absence of a social accountability mechanism, that is, a strong compact and a strong voice. While the land acquisition process is already regulated, there is

an absence of regulation regarding the resettlement process, risking the affected people being barred from deciding their future. It needs to be noted that the national law and the provincial law only regulate public participation in the land acquisition process, not the resettlement process as a whole. This condition thus gives the government justification had they decided not to include the affected parties in the deliberation regarding resettlement. This condition is problematic, especially when there is a dispute over land ownership recognition between the government and residents. This is the case in the Ciliwung river normalization program, where the majority of affected communities are poor people who do not have proof of land ownership, or their ownership is not recognized by the government. Lack of government obligation to engage these cohorts in the decision-making process regarding resettlement had resulted in a justified one-sided decision regarding resettlement (Firdaus 2015; Parikesit and Chairunnisa 2017; Soemarwi, Febrian, and Feran 2017).

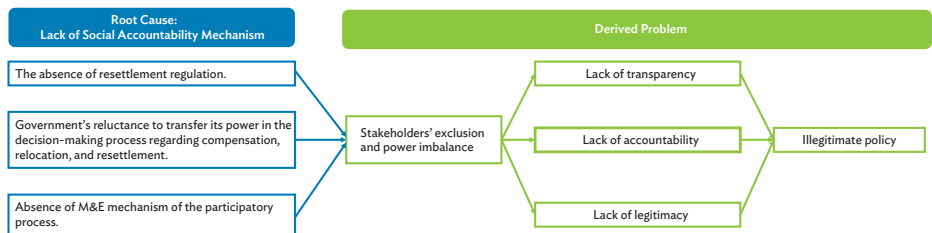
Furthermore, this condition also violated various world institutions' principle of resettlement, which noted that public participation in involuntary resettlement is essential because it will determine the future quality of life, whether socially or economically, of those affected by the development program (ADB 1995; World Bank 2004; IFC 2012; IUCN 2016). In fact, according to the World Bank (2004), involuntary resettlement requires an "extension of choice", allowing displaced people to choose rehabilitation options. It also violated ADB's Policy on Involuntary Resettlement (1995) and the UN's Basic Principles and Guideline on Development Based Eviction and Displacement, which states that all displaced persons, whether they have formal legal rights to the land and buildings or informal dwellers such as traditional landowners and squatters, are still entitled to compensation and have the right to propose alternatives for compensation for their losses.

The lack of supporting regulation was aggravated by the government's reluctance to transfer its power in the decision-making process regarding compensation, relocation, and resettlement in the past implementation of program. The government only came to introduce and execute the program, made an effort to give hope to residents that their aspirations would be heard, but never provided reliable mechanisms to accommodate and address the residents' aspirations and concerns. Worse, the government's manipulation can be seen from the promises made and denied regarding the Kampung Susun development (Soemarwi, Febrian, and Feran 2017). Thus, it can be said that they had failed to conduct genuine public participation in the implementation of this resettlement, causing its public participation effort in 2015 to fall in Arnstein's (2019) manipulation rung. The affected stakeholders were made to believe that they had a say in the decision-making process while

they actually did not. This is similar to what happened in India, where according to Joshi and Maheswari (2016) that SFRD is an example of power manipulation by authorities to the marginalized group.

The final point is the absence of monitoring and evaluation mechanisms that focus on the land acquisition and resettlement process quality. As explained in the previous section, the RPJMD document indeed makes the success of the river normalization program one of the government's performance indicators (Bappenas 2017). However, it only considers the amount of land that was successfully acquired and revitalized as the indicator of its success while completely disregarding the quality of the land acquisition process and the satisfaction of the affected parties of the acquisition process.

Figure 5.5: Causal Diagram of Key Drivers and Resulted Problem



M&E = monitoring and evaluation.

Source: Synthesized from Firdaus (2015), Bappenas (2017), Parikesit and Chairunnisa (2017), Soemarwi, Febrian, and Feran (2017), and Sumardi 2016, cited in Ainurrofik (2018 p.5).

It can be said that the Jakarta government had to build legitimate policy by failing to establish an accountable, transparent, and inclusive citizen participation scheme. The result is that most residents refused to be relocated due to the lack of public involvement in the decision-making process (Firdaus 2015; Sumardi 2016, cited in Ainurrofik 2018 p.5).

5.6.2 Policy Solutions

The lack of public participation has resulted in the unsuccessful implementation of the resettlement program. Many affected persons refused to live in the new housing due to their exclusions from

participating in the decision-making process and chose to build settlements in other locations (Ainurrofiq 2018). This condition is unfortunate, because if it was carried out by prioritizing the rights and aspirations of affected residents, this program may follow the success of the Qinhuai River Improvement Project where apart from reducing the risk of flooding and the degree of pollutants in the water (ADB 2015), it also had improved the living environment of the affected communities, including improving their sanitation infrastructure (ADB 2015).

Therefore, as the normalization program for the Ciliwung river will still be continued in the future, several solutions can be implemented as follows:

Enacting a New Resettlement Regulation

The government needs to regulate resettlement as a separate matter from land acquisition. Through a new regulation, the government needs to ensure that the displaced persons in the government development project are engaged in the decision-making process regarding resettlement. Parties who lost their livelihoods due to government projects need to be included so that their rights can be recovered after the resettlement. As stated by policy scholars, those whose lives are most negatively affected by the project have the right to be informed, be included in the deliberation, and decide (Richardson and Razzaque 2006, du Plessis 2005). Further, the regulation must be issued by the central government so that it can be obeyed and be used as a reference for implementing resettlement by all local governments throughout Indonesia.

There are two ways the central government can enact resettlement laws. The first option is by proposing a land acquisition and resettlement bill to the parliament. However, the procedures of passing the law would take months or longer, and the bill would need to be included in the National Legislation Program, which unfortunately is only held every 5 years at the beginning of the parliamentary term. Hence, an alternative way is to apply a Government Regulation in Lieu of Law (PERPU). PERPU is a statutory regulation that can be enacted by the President if there are compelling circumstances and the mandatory law does not yet exist, or there is a law but is inadequate (Presidential Regulation Number 87 of 2014). Accordingly, in resettlement cases, enacting a resettlement PERPU will be more effective and efficient to give the displaced persons due to infrastructure development legal protection related to the fulfilment of their human rights.

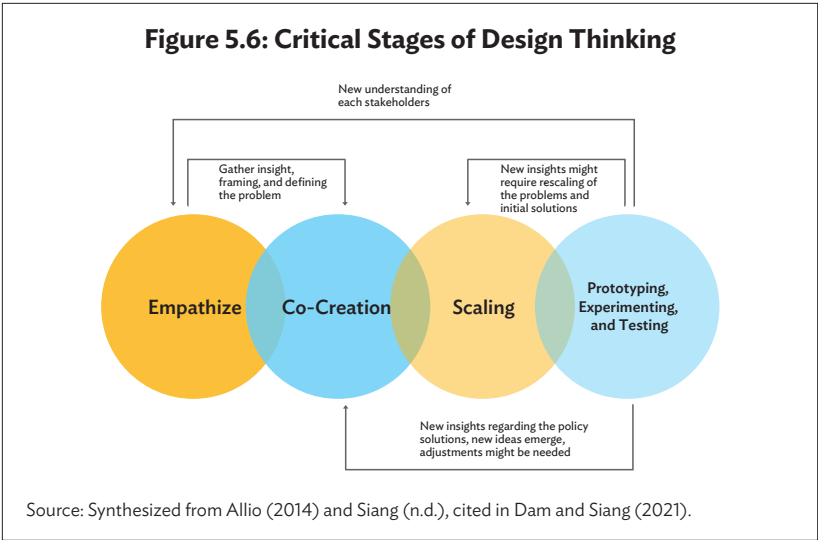
However, it needs to be noted that the government's political will plays a vital role in ensuring the success of enacting and enforcing the resettlement law. The new law's enactment could only be achieved if a favorable political environment supports it (Abdulai 2009). Accordingly, the policy lobbyists could utilize the Ciliwung river normalization problems as momentum to provide awareness of the need for resettlement law, especially now that the policy window is opening due to the government plan to resume the river normalization program.

Utilize the Design Thinking Approach by Co-designing Decisions

After the government has finished setting up a more comprehensive legal basis for conducting public participation schemes in the land acquisition and resettlement process, the government actions instrument must be put in place to ensure the democratization of the policymaking process.

The user-centered nature of design thinking could accommodate this requirement as it demands that the most affected stakeholders be actively involved and put in the center of policymaking, letting the policymaking process revolve around them (Kolko 2018, Sanoff 1990). Blomkamp (2018) also notes that this approach demands all stakeholders to interact and collaborate despite their social, intellectual, and political positions because they are all perceived as experts of their respective experiences. Understandably, although the central roles will be given to the affected residents of the Ciliwung river normalization program, the opinions of the experts and the government will not be entirely disregarded.

Furthermore, the government must note that creativity is essential in applying design-thinking in the co-design approach. It utilizes various creative tools to bring stakeholders with varying backgrounds into the policymaking arena (Blomkamp 2018, Katsonis 2019). This phenomenon allows extraordinary, and sometimes even nonlogical, collaborative approaches (Considine 2012; Kolko 2018, cited in Lewis, McGann, and Blomkamp 2020, p.115). Accordingly, bringing it into the Ciliwung river normalization program context, the policy makers are allowed in many unlimited ways to engage with the socially and economically varied Ciliwung riverbank residents. This condition ensures that the participation process can reach all elements of society, including the marginalized cohorts such as the illegal dwellers and squatters, thus allowing the policy makers to absorb the knowledge of all Ciliwung riverbank residents and accommodate them in the policy design process.



As depicted in Figure 5.6, there are four critical stages of design thinking (UNDP GCPSE 2014). First is the empathize stage, where stakeholders should also set aside assumptions to gather as much insight as possible. Second, the co-creation stage, where they are all forced to confront each other’s real-life situation and co-create from it. Third, the scaling stage, where the underlying causes are uncovered, base scenarios are decided, and possible scenarios of the problem development are established. Lastly, the prototyping, experimenting, and testing stage, where the stakeholders create a sample or a policy model, test the concepts they had gained from other stages and experiment on it. All these stages are iterative and nonlinear, allowing “self-corrections” to happen throughout the process (Torjman 2012). Thus, there are possibilities that the problems could be redefined and reframed, ideas could develop, prototypes could be modified, and solutions could be changed along with the increasing knowledge gained from the collaboration between stakeholders, hence allowing the establishment of the best possible outcomes (Torjman 2012).

Co-designing the solutions in the river normalization program is hoped to promote the program’s acceptance and ultimately promote the program’s sustainability. Implementing the mutually agreed solutions will lead to the willingness of the affected persons to be resettled to a new location and minimize the possibility of displaced persons leaving the new housing set by the government. Ultimately, with this solution, the living standards of affected persons will be improved.

It needs to be noted that there are some challenges in applying the design thinking approach in the policymaking process. One of the most notable ones is the requirements to shift the traditional policymaking process, which emphasizes the “authoritative problem solving” by the government and its bureaucracy (Colebatch 2005, cited in Lewis, McGann, and Blomkamp 2020), into a more collaborative one (Blomkamp 2018). That said, the government could overcome the challenge by bringing in public sector innovation (PSI) labs as a policy entrepreneur responsible for promoting innovation and collaboration between the stakeholders (UNDP GCPSE 2014). As noted by Williamson (2015, cited in Lewis, McGann, and Blomkamp 2020, p.118), PSI labs could assist the government by being an “innovation intermediary” that helps break the stakeholders’ egotistical wall and enable cross-sectional coordination, collaboration, and innovation.

Applying New Key Performance Indicators in the Current Performance Measurement Approach

The proposed government instrument to measure the quality of the public engagement process are key performance indicators (KPI) for the land acquisition and resettlement process. Different from the current performance indicators on the program’s public engagement scheme—which is more fitting to be categorized as key result indicator—the KPI should be process-focused, continuously and directly monitored by the project’s leader, and should have a significant impact on the project’s “critical success factors” (Parmenter 2016). These understandings of KPI align with the Procurement Executives Association’s (PEA 1993, cited in Demediuk 2004, p.13) notion of performance measurement, which emphasizes measurements of both efficiency and efficacy of resource use in producing outputs and the satisfaction of end-users with these outputs and the service delivery. Furthermore, measuring performance through KPI will oblige the government to continuously report the project’s progress and ask feedback from the communities they serve—aside from their project leaders—especially in cases involving many people’s lives (LIHEAP 1999, cited Demediuk 2004, p.13). Thus, it can be said that on top of efficiency and efficacy matters, the affected communities’ satisfaction of the service delivery is highly regarded by the KPI.

Accordingly, in the Ciliwung river normalization project context, the new KPIs should focus on the public satisfaction of the project’s implementation and how they are engaged, listened to, and involved in its implementation. Accordingly, several key indicators need to be measured in the public participation KPIs. Referring to the performance metrics proposed by Griffin et al. (2018), the participation performance

could be divided into three tiers: observe, interact, and incorporate. These indicators then should be applied in the land acquisition and resettlement context. The detailed example of the proposed KPIs is displayed in Table 5.2.

Table 5.2: Example of KPIs for Participatory Scheme in Land Acquisition and Resettlement Context

Tier	Performance Measure	Key Indicator
Observe	Outreach	• Number of public meetings held for sharing information about the resettlement plan • Number of consultation meetings • Number of printed information documents distributed • Availability of budget for informing public
	Participation	• Number of participants attending each event • Number of organizations’ representatives attending each event • Public officials who present in each event
	Response	• Amount of feedback from public (sentiment analysis of the feedback or comment) • Number of media inquiries • Average response time to enquiries
Interact	Convenience	Ask the affected persons if the public consultation events were held in a convenient place and time
	Participation	Participants need to be asked several questions: 1. Whether the participants given sufficient opportunity to participate 2. Whether the participatory process is inclusive enough for the participating parties 3. Whether the participants feel that their inputs will affect the final decisions regarding the land acquisition and resettlement 4. Whether the participants feel that their input were captured and considered by the decision makers 5. Whether the participants were given feedback in an adequate and timely manner
	Clarity of information	The rate of clarity of the information conveyed to the public in the public consultation
	Project specifics	The satisfaction rate on the resettlement option

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Table 5.2 continued

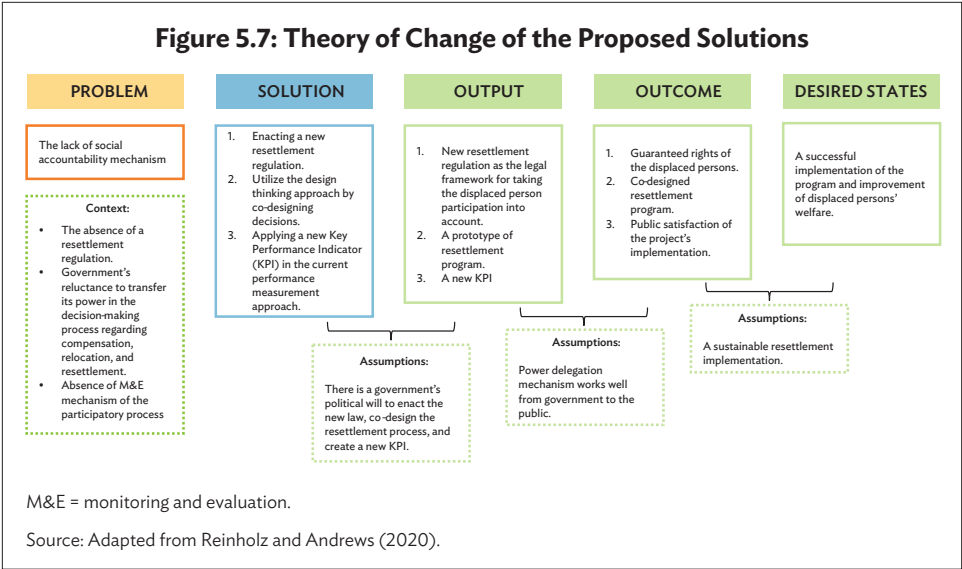
Tier	Performance Measure	Key Indicator
Incorporate	Demographic distribution	Survey and report to collect the affected person's profile including data such as income, age, education, employment, gender, household size, address, race/ethnicity
	How is public's input integrated with existing knowledge of the program	• Was the demographic survey helps to identify resettlement options? • How did the demographic survey help to identify affected people that have not been involved? • The existence of report to the public of how their input handled.
	How does the participatory results affect resettlement objectives?	• Did the information obtained from the public engagement scheme result in modifications to the resettlement project as planned? • Have the experiences of public engagement successfully influenced the policies and strategies from time to time?

KPI = key performance indicator.

Source: Adapted from Griffin et al. (2018)

These three solutions could be mapped using the Theory of Change (Reinholz and Andrews 2020) diagram as shown in Figure 5.7. This diagram depicts the problem, solution, output, and outcome and the underlying assumptions that drives the success of the program.

Figure 5.7: Theory of Change of the Proposed Solutions



5.7 Conclusion

Jakarta's river normalization program was suspended due to a prolonged conflict between the Jakarta government and the affected citizens. Several reports have noted that the absence of public engagement in the program's land acquisition and resettlement process had caused the program's failure. Through a case study of Kampung Pulo's and Bukit Duri's program implementation, this chapter reveals several reasons why the past implementation of the river normalization program failed. The first reason is the failure to establish a strong compact. For example, there was an absence of regulation for the resettlement process, which could justify the government had they decided not to involve the affected community in making decisions regarding their resettlement. The second reason is related to the absence of a strong voice, including the government's failure to transfer its power to the most affected stakeholders and the lack of an adequate monitoring and evaluation mechanism that measures the quality of the public engagement, which turned the public participation process into a mere formality. These problems depicted the failure of the Jakarta government to establish social accountability. Consequently, the establishment of throughput legitimacy failed to happen, which ultimately resulted in illegitimate policy decisions regarding the past land acquisition and resettlement process.

Thus, policy reform needs to be conducted to establish legitimacy, to prevent the same problems from occurring again in any future implementation. The first policy reform is to provide new regulations that require public engagement in the resettlement process so that the affected people could have a say regarding their future livelihood. The government action instrument is manifested in the form of a design-thinking approach in a codesigning framework—which is hoped to enable a more collaborative, inclusive, and innovative decision-making process—and new KPIs to monitor and evaluate the quality of the participation process.

Further, it needs to be noted that the government could choose to apply one instrument over the other. However, as these instruments complement each other, simultaneous implementation of all three would enable a faster and more thorough land acquisition and resettlement policy and implementation reform, and consequently, promote the better performance of the river normalization program.

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6

Fund Allocation and Accountability Mechanism on Sanitation: A Case Study of Indonesia's Public Sanitation Services

Camila Sarai Estacio, Santi Setiawati, and KE Seetha Ram

6.1 Introduction

Clean water and sanitation are essential for health. The lack of services in both rural and urban areas of developing countries has created a global water and sanitation crisis. While this crisis can be argued as having roots in poverty, power, and inequality, experts at the World Bank claim that it is first and foremost a crisis of governance (UNDP/UNICEF 2015). The impacts of poor governance on water and sanitation are reflected in the quality of service, which is unsatisfactory at best and dangerously lacking at worst. There is an imperative need for efficient accountability mechanisms to achieve effective water governance in the sanitation sector. These mechanisms become an external legitimation to the actions taken by politicians and policy makers to give an account of why and how they have acted throughout the different projects and policy implementations of the sector. In other words, accountability becomes the acceptance of responsibility of the service providers. Although the meaning of accountability is understood, it is harder to pinpoint precisely how it should be measured and how it affects governance and consequently improves the overall water and sanitation systems. Whereas the measurement

of accountability itself poses a challenge, it is often simplified by categorizing accountability into different and more quantifiable concepts, such as that financial accountability.

In Indonesia, water distribution and sanitation are often treated with a strict institutionalization distinction, although there is an inherent undeniable link between the country's water demand and governance. The UNICEF/WHO Joint Monitoring Programme (JMP) estimates 97.9% of improved water in urban areas and 86.1% in rural areas, making an overall 92.7% improved water sources up to 2020 (UNICEF and WHO 2022). On the other hand, for improved sanitation, the percentage for facility type estimates is 90.4% in urban areas and 83% in rural areas, with 92.3% overall. As the JMP monitors the overall improvement in each country, these estimates do not reflect the reality in Indonesia. For a more realistic overview of sanitation services, an analysis of the inequalities and the distribution per type of sanitation is needed. According to the JMP, Indonesia only has basic improved sanitation services, for which the percentage varies greatly depending not only on rural and urban areas, but also on the wealth quintile household classification.

Since almost half the population lives in urban areas, making up 43.36% of the country's population in 2020 according to the World Bank Development Indicators, higher-income and lower-income households are interspersed within the same neighborhoods (World Bank 2020). Therefore, poor sanitation is a problem for everyone (Water and Sanitation Program 2011). However, although there is an undeniable sanitation crisis in the country, the complex administrative hierarchy, lack of proper mechanisms of accountability, and responsible allocation for water and sanitation in Indonesia further complicate the issue.

While, in theory, more transparency and openness in the policy process and fund allocation would lead to better service provision, it is difficult to affirm so without confirming in the first place whether more funds directly translate to better and more availability of the services. This chapter first aims to find out to what degree a region's sanitation coverage directly translates to having allocated higher funds in the sector. Second, the chapter theorizes that accountability mechanisms could contribute to better service provision of sanitation. To test this hypothesis, the data used are from two regions of Indonesia. This chapter is divided into the literature and context of Indonesia and its water and sanitation system, the background of the regions to be studied, a comparative analysis using quantitative data, an analysis of the results, and conclusions.

6.2 Literature Review

As defined by UNDP and UNICEF, financial accountability in the water and sanitation sector is the mechanism put in place to ensure transparent budget expenditure both from state and service providers (UNDP and UNICEF 2019). In public service provision, accountability can centrally be understood as answerability. If the government charges a public agency to provide a given service, that public entity needs to be “held to account” and made answerable for providing that service in an efficient, effective, sustainable, and equitable way (ESAWAS 2021). Furthermore, accountability in the water, sanitation, and hygiene (WASH) sector, according to the UNDP and UNICEF, is the democratic principle whereby elected officials and those in charge of providing access to water supply and sanitation services account for their actions and answer to those they serve. The mechanisms to hold accountable the government units are two: vertical and horizontal (UNDP and UNICEF 2019). Even though the allocation of funds is regarded as a matter of national policy, the relationship between fund allocation, service coverage, and accountability has yet to be studied in the sanitation sector. This refers to the possibility of causality, as there are two distinct positions in which accountability and fund allocation can relate: (i) higher funds are allocated to local governments that have shown better accountability, or (ii) higher funds are allocated to local governments who despite poor accountability still need the financial support to invest in better sanitation services. However, measuring accountability as having a direct relation with fund allocation would not consider the bureaucratic processes related to funding allocation itself. Thus, to analyze this relation, specific case studies respond to the question, “if given the case of existing investment in sanitation, is there a difference in the success of the project when there are better mechanisms of accountability?”

6.3 Background

6.3.1 Indonesia’s Accountability Mechanism in the Sanitation Context

The Indonesian case follows a unique assignment in which the management conducted for water resources is based on the river basin level. This translates to a complex system where the central and regional governments (provincial and regency/municipality) must treat water resources management with a more intersectional and interregional approach. Additionally, while the central government is

actively involved in the direction of water resources, with 14 ministries participating directly or through delegated subnational departments—the coordination of water resources management (WRM) at the national level is done by the National Water Resources Council, which branches out to the Provincial Water Resources Council and finalizing at the district level and river basin level (in which depending on the region there may be a council). Nonetheless, most of the responsibility for water supply and sanitation has been delegated to local governments since the decentralization process in 2001 (ADB 2016).

Similar to how water distribution and financial aspects have been delegated to local governments, sanitation is handled mainly by the provincial or local governments. The central government then has the responsibility only for the sanitation policy and strategy. Similar to how water resources are managed overall, sanitation is considered a multi-institutional issue in the case of urban areas in which the National Development Planning Agency (Bappenas), the Ministries of Public Works, Health, and Home Affairs (which is responsible for local government) and, the Environmental Impact Management Agency (Bapedal) work together to improve conditions and expand the reach. This is contrary to sanitation in rural areas, whose responsibility for monitoring lies solely with the Ministry of Health (ADB 2016).

Furthermore, while all the institutions play a role in water management, due to the decentralized system, certain localities will have more specialized institutions, such as in the case of East Java. Perum Jasa Tirta or simply Jasa Tirta I is the biggest water supply state-owned company in Indonesia. Although it is based in the city of Malang, the Indonesian government has actively tried to increase the company's work area and replicate the model in those regions where the leading company cannot physically branch out.

This division of responsibilities and allocation of sanitation services providers are based on the legal framework of the country. Indonesia has many different laws and regulations relevant to water resources management. However, the most important of these laws was Law No.7/2004, a framework law, until it was revoked in 2015, and a court reinstated the old Water Law UU 11/1974. As the government aimed to approach WRM as democratic, decentralized, and open, the Law of No.7/2004 was based on three main pillars of water resource management: community participation, steady institutional and sound information systems, and data. The cancellation of the applicability of Law UU 7/2004 left a legal vacuum that the government is aiming to fill by drafting a new water law.

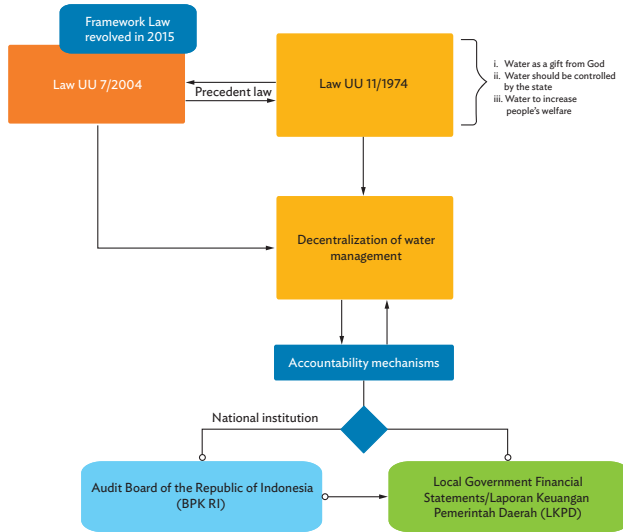
Nonetheless, until new regulations related to water governance are instated, the fundamental principles of the Law UU 11/1974 will take precedent, which encompasses:

- (i) Water and its sources, including natural resources contained in it, are the gift of God Almighty, which has versatile benefits fulfilling human needs of all times, both in the economic, social, and cultural aspects.
- (ii) Earth, water, and natural resources are controlled by the state and used for the greatest prosperity of the people fairly and equitably.
- (iii) Commercial operation of water resources should be devoted to the interests and welfare of the people while creating growth, social justice, and the ability to be autonomous in a just and prosperous society based on Pancasila (ADB 2016, p.59).

This legal framework, which recognizes WRM (including sanitation) only as a national competence, directly opposes the fact that since 2001 the local government law has been the one marking the commitment and management of sanitation services, as decentralized management based on the administrative division. This creates legal uncertainty. This uncertainty is further exacerbated by how decentralized sanitation has been treated for over 2 decades, and the constitutional court's decision regarding the rights and responsibilities of the state over sanitation is not as straightforward as it should be. This, in turn, complicates further the measuring of accountability, as it brings up the question of who should be held responsible for sanitation under the current legal framework (ADB 2016).

In this way, the inconsistent and inefficient sanitation supply has led the people to demand improvement of not only the quality of public sector services, but also their professionalism and public accountability of them. Consequently, public complaints led to the conduct of audits that are not only limited to compliance but also performance. In other words, accountability in the case of Indonesia is examined from the local government standpoint and is portrayed as the audit of finances by the Audit Board of the Republic of Indonesia (Pradana, Sidharta, and Rosietta 2018). In this context, the reporting of regional financial information in its development is related to its presentation in the local government financial statements (*Laporan Keuangan Pemerintah Daerah*). This serves as a form of accountability for the implementation of the regional government budget (*Anggaran Pendapatan dan Belanja Daerah*) in accordance with government accounting standards (Pradana, Sidharta, and Rosietta 2018).

**Figure 6.1: Water Management in Indonesia
(legal and political breakdown)**



Source: Authors' elaboration based on data obtained from the Indonesian Water Legal Framework and ADB (2016).

6.3.2 Fund Allocation for Water and Sanitation in Indonesia

The allocation of funds has been kept as Law No.7/2004 mandated, that is, water resource management funding sources may come from government budgets, the private sector, external funding, and water resources management service fees, and the amount of funding is determined based on the actual need of water resources management (Azdan 2016). Within the national institutions, all the dimensions of water are treated as subdivisions within a broader topic. For example, the Ministry of Transportation is responsible for transport facilities, infrastructure, community access, and quality of services, including navigation of rivers and lakes. In contrast, the Ministry of Health is responsible for protecting and improving public health, while setting standards and monitoring drinking water quality.

Even though each institution allocates a specific budget for its water-related responsibilities, the Ministry of Finance is responsible for government financing of WRM through the usual government budgeting processes. In recent years the Indonesian government started to encourage local governments to follow a national urban water supply (NUWAS) performance-based financing scheme, which prioritizes the expansion of services of water, sanitation, and hygiene by using grants with incentive-based financing at scale. This transfers the funding from the central government to local governments, but it is done through a set of specific desired outcomes focused on water and sanitation (ADB 2016).

The fund allocation process for sanitation in Indonesia starts with the central government funding capturing expenditures under the regular budget for water and sanitation and the DAK or Special Allocation Fund. Later, local government funds capture their share of contributions to DAK funding from the national level and rough estimates of expenditures for water supply and sanitation in provincial and district budgets (World Bank 2016, 2020). Nevertheless, it is important to note that while the expenditure assignment for public services, in general has been highly decentralized, most of the local government revenues are still centralized, meaning that the local governments do not make any profit from their public services, including water and sanitation.

The external funding sources for sanitation are diverse. However, the most significant contributors are development partners. These funds represent the investments and/or loans coming from the Asian Development Bank, the Australian Department of Foreign Affairs and Trade, the Japan International Cooperation Agency, the Islamic Development Bank, and the World Bank.

Table 6.1 compiles some of the most significant contributions to sanitation by development partners from 2015 to 2021.

**Table 6.1: Biggest Contributions in Sanitation
by Institution and Type (2015–2021)**

Institution	Project name	Type of contribution
United States Agency for International Development (USAID)	Indonesia Urban Water, Sanitation and Hygiene (IUWASH)	Microfinance services for toilets
Asian Development Bank (ADB)	City-Wide Sanitation Project	Improve regional sanitation conditions with financial and technical assistance
Asian Development Bank (ADB)	Metropolitan Sanitation Management and Health Project Sovereign Project	\$35 million loan
Japan International Cooperation Agency (JICA)	Jakarta Sewerage Development Project (Zone 1)	\$500 million loan
Japan International Cooperation Agency (JICA)	Urban Flood Control System Improvement in Selected Cities	\$70 million loan
World Bank Group	National Urban Water Supply Project	\$100 million loan
Australian Department for Foreign Affairs and Trade (DFAT)	RISE Intervention	\$4 million investment in sanitation infrastructure
Islamic Development Bank (IDB)	Strengthening National Referral Hospitals and Vertical Technical Units Project	\$261.7 million in financial aid

Source: Authors' compilation based on information obtained from ADB, DFAT, IDB, Japanese Ministry of Foreign Affairs, USAID, and World Bank websites.

6.3.3 East Nusa Tenggara and East Java

East Nusa Tenggara is one of the 34 provinces in Indonesia. The province comprises around 500 islands divided into 21 regencies and one independent city. Compared to East Java province, the context of Nusa Tenggara's work is very different. East Nusa Tenggara holds the 12th spot regarding demographics; however, it is still one of the least developed provinces in Indonesia, contrary to East Java, which is the second most populated province and one of the most developed in the country. Overall, Indonesia as a nation struggles with the widespread use of sanitation services as the decentralization of sanitation has created further disparities in a country that already has significant development gaps between provinces, and the government (whether central or local) has not been able to catch up with the higher demand caused by the rapid population growth. This adds up to the nation's struggles with water availability and inconsistency in public service provision and has created a situation in which sustainable development is likely to be jeopardized.

By 2021, the percentage of households with improved sanitation for East Nusa Tenggara was 73.36%, an increase from 10.41% in 2001, and growing at an average annual rate of 14.50% (World Data Atlas 2022). On the other hand, in East Java the percentage of households with improved sanitation was 80.97% in 2021, an increase from 29.4% in 2001, but the average annual growth rate was disproportionately low at 5.73%, in comparison to the number of funds allocated to the province (Table 6.2).

Table 6.2: Comparative Percentage of Improved Sanitation by Households in 2001 and 2021

	% of Households with Improved Sanitation in 2021	% of Households with Improved Sanitation in 2001	Average Annual Growth Rate
East Nusa Tenggara	73.36%	10.41%	14.50%
East Java	80.97%	29.4%	5.73%

Source: World Data Atlas (2021).

6.4 Methodology and Data

As the first part of this chapter, a simple regression analysis with readily available data will be performed to confirm whether there is any relation between fund allocation and service provision. In this analysis, fund allocation will be categorized as Y or the dependent variable. At the same time, service provision will be considered the independent variable. Other dependent variables that can influence fund allocation will not be considered as factor terms, such as population, urbanity, and existing services; they will be considered as part of the random error term. These terms will not be analyzed and considered to obtain less biased results.

The data to be used have been obtained through the Central Bureau of Statistics (*Badan Pusat Statistik*) as a direct request to the provincial government. Furthermore, the data to be used will be that of the last 5 years starting from 2017. This data are the allocation of funds by provinces and areas within provinces beginning in 2021, specifically from sanitation. Furthermore, these numbers will be compared to the overall sanitation coverage of that same year.

**Table 6.3: Total Sanitation in East Nusa Tenggara, 2017 to 2021
(%)**

		East Nusa Tenggara				
Area		Total	Total	Total	Total	Total
		2017	2018	2019	2020	2021
1	Sumba Barat	49.89	70.5	59.58	95.08	77.66
2	Sumba Timur	70.03	74.9	76.15	95.89	88.13
3	Kupang	91.8	90.52	95.46	99.24	94.2
4	Timor Tengah Selatan	94.17	92.84	92.81	99.62	93.41
5	Timor Tengah Utara	88.35	92.68	93.17	99.39	94.18
6	Belu	85.38	88.15	93.32	98.97	95.37
7	Alor	86.63	83.99	97.4	97.19	97.23
8	Lembata	90.31	90.91	96.81	99.28	96.12
9	Flores Timur	89.02	99.99	89.14	100.01	94.54
10	Sikka	85.23	88.47	86.5	99.56	90.47
11	Ende	87.7	90.27	100	94.34	95.55
12	Ngada	94.6	96.26	97.81	99.74	96.39
13	Manggarai	84.38	83.79	86.63	97.08	92.79
14	Rote Ndao	68.19	77.77	80.41	98.47	89.9
15	Manggarai Barat	77.84	84.96	83.63	96.9	92.74
16	Sumba Tengah	66.32	64.39	66.61	98.8	76.77
17	Sumba Barat Daya	60.93	65.28	63.75	99.26	74.16
18	Nagekeo	82.78	91.9	91.2	98.51	94.93
19	Manggarai Timur	89.57	91.99	97.74	99.32	95.46
20	Sabu Raijua	86.12	87.81	87.71	99.82	87.99
21	Malaka	72.7	76.79	82.96	94.61	91.3
22	Kota Kupang	99.71	100	100.01	98.93	99.87
	Nusa Tenggara Timur	84.6	87.64	89.33	98.32	92.5

Source: Authors' estimation based on the data obtained from the Indonesian Central Bureau of Statistics, Statistics of East Nusa Tenggara Province (Central Bureau of Statistics 2022b).

Table 6.4: Percentage Total Sanitation in East Java, 2016 to 2021

		East Java					
Area		Total	Total	Total	Total	Total	Total
		2016	2017	2018	2019	2020	2021
Regency	1 Pacitan	65.01	62.36	67.11	65.01	69.90	71.7
	2 Ponorogo	77.41	79.69	83.27	80.37	84.97	87.49
	3 Trenggalek	64.14	69.09	71.43	72.72	76.81	75.48
	4 Tulungagung	78.16	82.95	78.72	79.82	89.45	85.37
	5 Blitar	72.73	69.87	70.35	75.73	80.36	75.67
	6 Kediri	79.33	78.75	78.59	84.73	83.59	86.92
	7 Malang	70.21	75.12	73.69	79.49	80.99	80.79
	8 Lumajang	63.55	64.21	73.25	69.59	84.53	83.24
	9 Jember	56.14	60.88	56.15	63.78	65.83	64.17
	10 Banyuwangi	69.46	71.57	69.61	78.36	77.44	81.15
	11 Bondowoso	34.45	30.90	35.67	43.10	44.07	52.82
	12 Situbondo	45.01	44.13	48.15	52.14	55.29	59.79
	13 Probolinggo	39.29	50.75	46.14	55.96	59.76	62.14
	14 Pasuruan	60.08	60.62	68.11	73.47	80.03	82.92
	15 Sidoarjo	92.34	93.94	90.64	94.07	95.52	95.05
	16 Mojokerto	84.72	81.10	84.96	91.30	91.02	87.34
	17 Jombang	81.53	84.30	84.72	88.70	88.98	90.95
	18 Nganjuk	73.08	79.51	82.16	79.58	85.75	81.84
	19 Madiun	85.91	86.91	84.11	89.14	91.92	89.09
	20 Magetan	85.09	86.58	82.71	84.00	88.65	88.4
	21 Ngawi	60.59	74.52	67.85	76.34	83.67	79.35
	22 Bojonegoro	71.41	78.11	80.58	86.58	89.02	90.96
	23 Tuban	68.71	68.99	75.49	77.79	79.03	83.8
	24 Lamongan	83.19	85.00	93.66	90.08	92.23	89.7
	25 Gresik	95.93	93.97	94.41	97.99	96.90	91.56
	26 Bangkalan	41.53	43.24	51.66	54.66	56.18	39.44
	27 Sampang	59.75	63.51	69.83	73.04	81.85	76.22
	28 Pamekasan	65.44	66.49	61.84	72.37	68.25	70.85
	29 Sumenep	55.53	54.29	55.38	68.63	64.74	65.66

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Table 6.4 *continued*

			East Java					
			Total	Total	Total	Total	Total	Total
Area			2016	2017	2018	2019	2020	2021
Municipality	30	Kediri	93.78	89.54	93.96	95.60	95.40	95.75
	31	Blitar	94.09	94.28	94.40	94.82	96.67	96.77
	32	Malang	80.89	83.20	84.86	85.20	83.25	87.08
	33	Probolinggo	78.16	83.88	83.56	88.32	88.45	89.77
	34	Pasuruan	74.97	76.58	83.04	86.86	90.02	92.1
	35	Mojokerto	90.42	93.35	93.36	94.89	94.48	95.49
	36	Madiun	97.36	90.81	94.51	98.06	98.71	97.31
	37	Surabaya	92.04	94.69	87.18	93.89	91.84	95.2
	38	Batu	91.37	91.13	90.85	92.82	93.20	95.57
Jawa Timur			71.50	74.03	74.28	78.78	80.98	80.97

Source: Authors' estimation based on the data obtained from the Indonesian Central Bureau of Statistics of East Java Province (Central Bureau of Statistics 2022a).

Table 6.5: Allocation of Funds by Area in East Nusa Tenggara (Rp)

Year	East Nusa Tenggara		
2021	Area	Total	Sanitation
1	Sumba Barat	637,402,466	9,500,061
2	Sumba Timur	974,824,464	3,123,571
3	Kupang	1,070,544,942	4,544,994
4	Timor Tengah Selatan	1,266,149,717	3,067,609
5	Timor Tengah Utara	924,115,778	2,915,677
6	Belu	739,512,103	3,471,184
7	Alor	1,001,543,462	3,186,506
8	Lembata	741,698,494	4,617,296
9	Flores Timur	998,461,051	4,279,428
10	Sikka	1,022,470,948	15,679,060
11	Ende	1,040,254,048	5,869,653
12	Ngada	769,503,244	6,627,807
13	Manggarai	986,967,277	10,904,801
14	Rote Ndao	706,350,409	3,034,891
15	Manggarai Barat	879,966,075	5,417,627

Table 6.5 *continued*

Year	East Nusa Tenggara		
2021	Area	Total	Sanitation
16	Sumba Tengah	535,194,642	3,502,204
17	Sumba Barat Daya	937,473,244	9,437,084
18	Nagekeo	680,905,727	5,245,436
19	Manggarai Timur	1,007,778,770	7,244,606
20	Sabu Raijua	543,600,524	1,729,197
21	Malaka	801,768,983	4,478,581
22	Kota Kupang	843,596,687	1,503,509
Nusa Tenggara Timur		23,295,993,486	NA

NA = not available.

Source: Authors’ estimation based on the data obtained from the Indonesian Central Bureau of Statistics, Statistics of East Nusa Tenggara Province (Central Bureau of Statistics 2022b).

Table 6.6: Allocation of Funds by Area in East Java (Rp)

Year	East Java		
2021	Area	Total	Sanitation
Regency	1 Pacitan	1,307,628,025	3,488,926
	2 Ponorogo	1,701,407,521	2,967,565
	3 Trenggalek	1,407,114,937	8,606,256
	4 Tulungagung	1,843,623,026	3,659,649
	5 Blitar	587,942,826	2,099,691
	6 Kediri	853,782,582	3,708,980
	7 Malang	2,741,965,641	6,972,382
	8 Lumajang	1,552,271,361	4,206,022
	9 Jember	2,558,508,394	1,749,794
	10 Banyuwangi	2,200,947,854	NA
	11 Bondowoso	1,579,488,239	12,054,355
	12 Situbondo	1,295,327,348	1,049,845
	13 Probolinggo	1,825,298,151	4,238,902
	14 Pasuruan	2,014,463,456	2,634,957
	15 Sidoarjo	1,999,317,541	2,974,562
	16 Mojokerto	1,667,694,671	3,207,342
	17 Jombang	1,867,353,493	3,412,191

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Table 6.6 *continued*

Year		East Java		
2021		Area	Total	Sanitation
Regency	18	Nganjuk	1,837,246,686	3,479,098
	19	Madiun	1,396,410,737	1,498,997
	20	Magetan	1,441,188,526	2,099,691
	21	Ngawi	1,709,169,874	6,105,266
	22	Bojonegoro	3,205,065,403	3,780,311
	23	Tuban	1,682,139,482	3,445,200
	24	Lamongan	2,004,368,991	4,449,624
	25	Gresik	1,693,984,721	595,305
	26	Bangkalan	1,704,619,966	7,127,492
	27	Sampang	1,413,302,714	6,750,073
	28	Pamekasan	1,404,929,164	15,660,884
Municipality	29	Sumenep	1,902,225,158	18,018,949
	30	Kediri	2,034,749,126	2,700,000
	31	Blitar	1,757,660,872	1,086,820
	32	Malang	1,198,105,546	2,439,775
	33	Probolinggo	655,679,979	1,869,681
	34	Pasuruan	558,975,508	819,764
	35	Mojokerto	575,996,610	1,565,512
	36	Madiun	675,801,398	NA
Jawa Timur	37	Surabaya	2,048,506,186	1,070,728
	38	Batu	674,440,846	1,641,582
Jawa Timur			16,115,190,276	NA

NA = not available.

Source: Authors' estimation based on the data obtained through the Indonesian Central Bureau of Statistics of East Java Province (Central Bureau of Statistics 2022a).

Second, this chapter aims to not only analyze the correlation, but also to determine the statistical significance of the relationship between fund allocation and sanitation coverage after obtaining the numerical coefficient of the correlation. Additionally, this study theorizes that service coverage in Indonesia could be improved under an accountability framework. To support this theory, this chapter will also attempt to measure accountability in sanitation in Indonesia.

For this purpose and acknowledging that there is no precise method to measure accountability metrically, this chapter simplifies accountability overall into financial accountability, which can either be measured with the allocation of funds and the relation to a specific metric (number of services, number of projects, percentage of coverage, etc.). Therefore, this work will refer to financial accountability as accountability overall. Hereby, this work understands financial accountability in the water and sanitation sector as defined by UNICEF like the mechanisms put in place to ensure transparent budget expenditure from state and service providers. Along these lines, a dissonance in the actual transfer from fund allocation and availability of services still exists. Thus, we reinstate the question, if a region has better service provision and higher coverage in sanitation does it directly translate to it having a higher fund allocation?

In this way, recognizing the impossibility of metrically measuring accountability, and finding out how much impact accountability mechanisms could have, this study acknowledges that if a discrepancy between fund allocation and service coverage were to exist different variables would be needed to be considered. Nonetheless, as there is a need to measure the possible effects of accountability mechanisms, to simplify the scope of this study, this work theorizes that anti-corruption efforts would diminish the gap between fund allocation and sanitation coverage. In such a manner, this study argues that although different variables undoubtedly have an impact on sanitation provision, the lack of anti-corruption mechanisms could partially explain the possible discrepancy.

However, although corruption is a factor to be considered, this work's focus is not on corruption itself but on the anti-corruption efforts the Indonesian government has or could implement as financial accountability mechanisms. In other words, this chapter measures the possible impact of corruption but only as a gateway to establish the importance of official accountability mechanisms in Indonesian governance.

To understand the provision of any service through accountability lenses, it must first be acknowledged that any failure of the said provision is above all, a failure in the system. This newly proposed formula then highlights that the institutionalization of accountability is understood as an effort of targeting citizens' concerns about the lack of sanitation coverage due to perceived issues in the current system. Therefore, we first clear accountability based on Klitgaard's corruption formula, understanding that accountability undoubtedly decreases corruption.

Figure 6.2: Klitgaard's Corruption Formula

$$C = M + D - A$$

C = Corruption, M = Monopoly, D = Discretion, A = Accountability

Source: Klitgaard (1998).

If ① $C = M + D - A$ then, ② $A = M + D - C$. We see then that there is always a negative relationship between corruption and accountability. At first sight, one could misinterpret ② thinking that monopoly and discretion add up to accountability. However, as Klitgaard's formula of corruption claims as generally true that monopoly increases corruption, discretion causes corruption, and accountability reduces corruption, this chapter understands that the relationship between accountability, monopoly, and discretion are, as with corruption, inversely proportional. With this understanding, we would obtain ③ $A = -M - D - C$. Merely at first glance, we recognize that ③ does not follow an intuitive pattern.

Based on formula (1), we found that accountability is closely related to discretion, nonetheless, discretion is unmeasurable. This chapter argues that although levels of discretion are not possible to be determined, "openness", the antithesis of discretion, is. To propose a more intuitive formula, and taking into account the inverse relation between discretion and accountability this chapter first proposes the use of "openness" as a variable replacing "negative discretion", as follows:

$$\text{Accountability} = \text{Openness} - \text{Monopoly} - \text{Corruption} \quad (1)$$

In this way, this chapter proposes that openness can be determined through first, the ability of the authorities to explain the work done; second, the level of openness of the process; and third, the level of openness of the data itself. Along these lines, this work will refer to this openness as one variable that can be equally measured through "transparency" and "data availability" as shown in formula (2). This work then argues that accountability is an aftereffect of transparency and data availability.

$$\begin{aligned} \text{Accountability} &= \text{Transparency and Availability} \\ &\quad - \text{Monopoly} - \text{Corruption} \end{aligned} \quad (2)$$

Likewise, sanitation is often managed through state-owned companies, is a natural monopoly, and hardly creates any revenue. It is, more often than not, an expense rather than a profitable service for the state. It is implied then, that since sanitation is managed solely by the state, the lack or poor provision of the service is an issue of governance. In that fashion, this paper’s accountability formula can be extrapolated by exchanging “monopoly” for “good governance”, this, of course, discerning that in the case of Indonesia sanitation is, as pointed out before, a natural monopoly managed by the state. In other words, since sanitation is a public service, and therefore, falls under the Indonesian government’s responsibility, the perceived negative effect monopoly would have on accountability is seen as a systemic failure of the governance system. On that account, this chapter finally proposes the formula in Figure 6.3 to analyze accountability.

Figure 6.3: Proposed Accountability Formula

$$\text{Accountability} = (\text{Transparency and Availability} + \text{Good Governance}) - \text{Corruption} - \text{factors depending on the national context}$$

Source: Authors’ elaboration based on Klitgaard’s formula.

Nonetheless, there are certain limitations to using Klitgaard’s formula to base our proposed formula. Those limitations focus on two main factors: (i) the already implied impact of accountability in corruption, and (ii) the lack of nuance in which accountability can affect service provision for better or worse depending on the case. In such a manner, this study deals with the first limitation arguing that the calculation of the correlation between fund allocation and service provision has to be done before the qualitative analysis. This order is proposed to eliminate possible bias if the correlation is not statistically significant, and therefore, there is no discrepancy between fund allocation and service provision in the first place. If there is no statistically significant correlation, then, there is no theorizing about what is causing it. On the other hand, it is simply dealt with the analysis of the study itself, the conclusions, and the following policy implications.

Furthermore, this chapter will consider the already existing Indonesian accountability mechanisms where the recognition of

existing accountability is due. To measure how much timely and valuable information the local governments make publicly available throughout the budget process, researchers would have to file formal requests to access to information with the relevant government authority and analyze the documents to obtain a subindex for transparency and availability. Thus, in the transparency and availability to simplify the process, this will be a categorical, ordinal variable. The results will be categorized as low, medium, and high based on three questions, each with a categorical yes or no answer. (1) Is the specific data on sanitation available to the public through the current accountability mechanisms? (2) If needed specific information, is it possible to contact the government through a public platform, and expect an efficient and quick response to obtain it, and (3) Is there an official channel to confirm the validity of the data? By answering these questions, one could assign a value of 1–3 where 1 is low and 3 is high on the transparency and data availability scale.

Regarding good governance, we understand it as “the negotiation by all the stakeholders in an issue (or area) of improved public policy outcomes and agreed governance principles, which are both implemented and regularly evaluated by all stakeholders” (Bovaird and Löffler 2003, p. 316). Yet, we recognize that although the practice of good governance is well understood, the measuring of it, as well as accountability is vague. In that sense, this work considers *good governance* based on the two elements proposed by Governance International, and perfected by Bovaird and Löffler (2003), which are:

- improvements in public policy outcomes; and
- implementation by all stakeholders of a set of principles and processes by means of which appropriate public policies will be designed and put into practice. (p.317)

On this basis, this chapter shifts the focus from the consideration of key indicators for good governance to the encouragement of the measurement of public governance's quality. In other words, as the only available information regarding measuring governance is about national governance performance and separate numbers on sanitation coverage by provinces, this chapter will follow the principles of the Oxford governance assessment tool in which input and output are directly correlated to measure good governance (Haldrup 2020). Therefore, the correlation between fund allocation and sanitation coverage, through results obtained by regression analysis will be used. Additionally, the relationship between the regression analysis results and good governance is argued on the base of accountability, and the use of report lines to track down any improvements and implementation of the public policies and sanitation processes.

Corruption would be measured with the Corruption Perception Index (CPI) at a national, local, and regional level through the exact measurements the CPI uses. This index can be obtained through the official website of Transparency International.¹ It is measured on a scale from 0 to 100 where the closest to 0 is the highest perception of corruption. Lastly, the last variable t can be easily explained through the example of regression analysis. Depending on the national context, the mentioned factors would be the error term in which external factors that could also possibly affect the level of accountability in the country would affect the result. These factors would change depending on the country's national context to be studied. The case of Indonesia will be presented in further detail in the analysis.

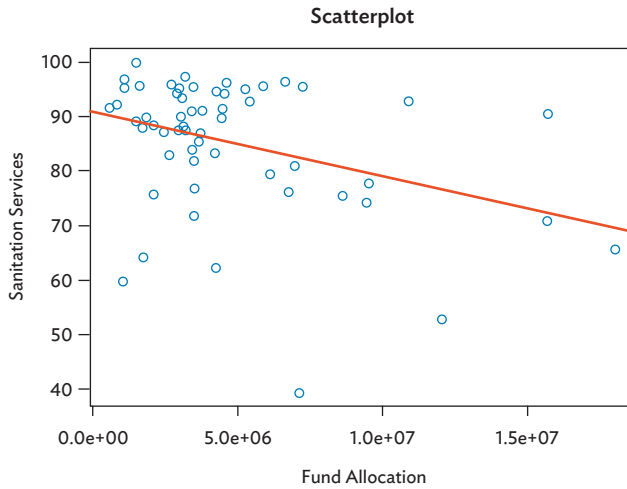
6.5 Results and Analysis

The regression analysis indicates a relationship between fund allocation and sanitation services. However, the relationship is categorized as a weak category (0.36). The R-Square is 0.1334, which means that 13.34% of fund allocation influences sanitation services, and the remaining 86.66 is explained by other factors not included in the model. Figure 6.4 shows the relation between the two variables.

This work analyzed two distinct provinces, East Nusa Tenggara and East Java in Indonesia. By 2020 and according to the Statistics Bureau of Indonesia, East Java's population was approximately 20.4 million, and East Nusa Tenggara's was 5.3 million, making it roughly a quarter of the former province's population. Furthermore, the fund allocation for each province was very consistent with these proportionalities having East Nusa \$4.2 million which is also roughly one quarter of the designated budget of East Java \$16.1 million. Nevertheless, the funds allocated by the Java government for sanitation were only slightly higher than those given to Nusa Tenggara, at \$119 million and \$153 million, respectively. To put it into perspective, according to the Human Development Index (HDI) (which considers access to safe water and sanitation as a metric to rate) in 2021 East Nusa Tenggara ranked 32 out of 34 provinces, while East Java was 14th. It is expected to go higher. At a glance, it could be argued that since Java has a higher population and is a much more industrialized province it already had a higher sanitation coverage than Nusa Tenggara, but that would be incorrect. Albeit the overall score of the HDI is higher for East Java, it is Nusa Tenggara's record for the past 5 years that showed that its sanitation coverage is higher than that of Java and has grown at a much higher rate.

¹ Official Corruption Perception Index website. <https://www.transparency.org/en/>

Figure 6.4: Scatterplot Fund Allocation and Sanitation Services in Nusa Tenggara and East Java



Source: Authors' calculation.

However, the Indonesian case study is unique. As Indonesia faces rapid population growth and a high level of open defecation, the country distinguishes itself because increasing sanitation coverage is a priority. This is reflected in how the government has been actively investing in the sector and seeking external investors. In other words, Indonesia has the funds to improve and increase sanitation, but there are still massive gaps in the sector. Theoretically, and following simple logic, the service coverage should be directly proportional to the government's official fund allocation, as it is with this budget that any project is funded. Nevertheless, as shown in the regression analysis, the percentage of sanitation coverage and fund allocation is relatively weak, being only 13.34%, thus, giving space to theorize that factors have barked the efficient use of funds. Many factors can weaken the relationship between these two variables, but corruption, governance, transparency, and data availability are the ones studied in this chapter. However, other factors such as income and population density could also explain the discrepancy.

Since these issues tend to be a systemic problem that goes beyond the actions of specific individuals, the question arises of how exactly a country overcomes it more than the acknowledgment of whether it is or not an issue. Even though there is not any straightforward, fit-to-all, or

fix-it-all solution, it is understood that accountability mechanisms can significantly decrease them and increase efficiency. Nonetheless, another question arises of what exactly do accountability mechanisms entail? Accountability has become a much talked about topic in recent years, especially in public policy. As democratic practices globally become more and more the norm, there is an understanding in civil society, which is that the government works for the people. As an institution employed by this same civil society, it must also answer to it about what it does. Organized and transparent reporting back to the people is what accountability means. Thus, an accountability mechanism is the process and institutionalization of this reporting.

6.5.1 Transparency and Data Availability

Holding Nusa Tenggara and Java governments accountable means for them to be transparent and report their actions regarding sanitation. Theoretically, these local governments would report their performance in sanitation to an overseer impartial agency that would make available the data for all. However, this process already exists in Indonesia. In Indonesia, each ministry and government agency must create performance reports or *Laporan Kinerja* (LAKIP) (Butterworth et al. 2021). They briefly explain their use of the funds and how they have translated to tangible achievements.

Nevertheless, it is often that the brevity from which these reports are done does not translate into any efficient accountability mechanisms. The LAKIP reports have had much criticism as an accountability mechanism since it is considered to be too shallow. This is because the reports do not discuss sectoral issues in depth. This forces sectors such as water distribution, health, sanitation, and environmental policy to be held to the same standard. In this way, there is no specific data on any sector trivializing the accountability process itself. Is the specific data on sanitation available to the public through the current accountability mechanisms? No.

To perform the regression analysis, data about sanitation coverage in the studied provinces were needed. As it was not publicized publicly, the authors of this chapter obtained it by contacting directly the Indonesian Central Bureau of Statistics and requesting the information. The information was delivered promptly for both provincial governments. Thus, responding to the second question: If needed specific information, is it possible to contact the government through a public platform, and expect an efficient and quick response to obtain it? Yes.

Due to the adoption of a 5-year National Medium Term Development Plan that aims to achieve the Sustainable Development Goals (SDGs), the central government has a national accountability mechanism.

Nonetheless, although with a slightly more detailed focus on sanitation on account of SDG 6, this voluntary reporting has proven still insufficient to maximize the efficiency of the work decentralized governments do in the sector. Consequently, we posed the final question: is there an official channel to confirm the validity of the data? No. Making the score on transparency and data availability variable a 1, low.

As the regression analysis in this work showed, although some mechanisms are in place to hold the government accountable, these seem not to be enough. Thus, it is the improvement of the current tools and the implementation of newer ones needed in Indonesia.

Nonetheless, this measure of transparency and data availability is subjective, as it could be argued that (i) although there is no specific data on sanitation in the LAKIP reports, there is a sanitation section that explains the national reality, furthermore, the specific *numeric* data for sanitation coverage are available publicly in the Bureau of Statistics website and the Ministry of Finance website; (ii) as more data were required to perform the regression analysis, it was easy to contact the Bureau of Statistics to obtain it, and if the data requested existed within the database it did not take longer than 3 working days to receive it; and (iii) the data must be validated simply because it comes from the official government sites, and to doubt this validity is out of the scope of this study. In such a manner, both provinces would rank in number (iii), or high transparency and availability. This further analysis purpose is to show the intrinsic subjectivity of the variables used, and the importance of institutionalized accountability mechanisms that can systematically and measurably track sanitation service provision.

6.5.2 Good Governance

The simplistic method of rating the availability of data and transparency can be used in principle for the variable of good governance. We recognize that there are mechanisms of accountability that deal with sanitation, and even more so these accountability mechanisms are recognized and standardized, as the LAKIP reports. This theoretically would make it easier to affirm that there is when accountability is concerned with sanitation, there is good governance too. Nevertheless, the flaws presented in the lack of standardized methods to obtain the data without contacting each government, the non-existence of the coherence of the data, the disparity between provincial governments in how they manage sanitation, and the weak relation between fund allocation and sanitation coverage show that the current accountability mechanisms exist solely on name only, as they do not serve the purpose of what accountability mechanisms entail.

Furthermore, as explained before, Indonesia follows a decentralized sanitation system in which the decisions to allocate budgets fall mostly under the authority of the provincial governments. In this way, the disparity between fund allocation and sanitation coverage shows that the current governance system is not working, as it is creating a gap between provinces and rural and urban areas. Therefore, although sanitation is a priority for the Indonesian government, the lack of institutionalization of accountability mechanisms in the sector greatly diminishes the efficiency of the institutions in charge.

6.5.3 Corruption

Another factor that negatively influences fund allocation is the lack of anti-corruption mechanisms and in the same way corruption itself. Klitgaard conceptualizes that “corruption can be defined as the misuse of office for personal gain” (Klitgaard 2008), although it could be argued that whenever fund allocation is involved corruption is meant to happen, this perspective fails to take into consideration that corruption is, above all, a systemic issue rather than a moral one. According to the 2021 CPI, Indonesia scored 38 out of 100 points, indicating some concerns about corruption. Additionally, a significant percentage of the population perceives corruption as a challenge. Corruption is often associated with the misuse of the authority, which may lead to mismanagement of public funds or influencing government decisions. Addressing these issues can help enhance transparency and accountability in the system. Corruption hinders development, which is why proponents of accountability mechanisms highlight the need for their existence, claiming that it is essential to have a proper system whereby corruption, if not eradicated, can at least be diminished. This claim has been proved empirically in many cases. Nonetheless, the low correlation between fund allocation and sanitation coverage despite the existence of accountability mechanisms shows two things. First, these mechanisms need to be improved, and second, corruption in the sector is a problem that needs to be dealt with urgently.

In a study done by the UNDP in Latin America, the perceived corruption and economic performance “explain about 80% of the variation in satisfaction with the functioning of the political system among the region” (Sapienza 2020). In other words, since governance is a part of the political system, and public service provision falls under the system too, the perceived corruption, and lack of anti-corruption mechanisms are seen as the main reason for the inefficiency of public services in Latin America. Extrapolating these data and taking account of the similar issues of developing regions, it could be argued that the

lack of anti-corruption mechanisms is therefore at least perceived as the main obstacle to proper sanitation coverage.

6.5.4 Other Factors

Other factors could also translate to a lower correlation that cannot be directly treated to the methods of financial accounts, such as income or population density. For instance, if an area or locality is known to be of lower income, there could be a preferential bias against it, making the local government prioritize different localities even if the sanitation coverage is disproportional. Another case could be in areas with a dispersed population compared to localities in which the population is more concentrated. In the case of the former, the costs of implementing or improving sanitation could be too high for the number of citizens that would enjoy the service. However, other types of accountabilities, whether social or more horizontal approaches, could also improve the issues here theorized.

6.6 Conclusions and Policy Implications

Since sanitation is not a profitable sector, it is imperative to have mechanisms in place to develop it further. Although what constitutes a good accountability mechanism will change depending on the country's sociopolitical context, good accountability mechanisms make a difference in sanitation, whether it is to push forward existing improvements or give the initial push to not stagnate in progress. In the Indonesian case study, the need for proper accountability mechanisms in sanitation is highlighted, mainly because the country already suffers significantly in health and environmental issues derived from lack of services.

While there has been significant progress in the sector in the past few decades, as the numbers showed, this progress pales compared to the results that could have been achieved if there were more control and stricter accountability mechanisms. Whereas the Indonesian government has put a particular emphasis on sanitation, in the case of this sector specifically, there needs to be a coherent accountability mechanism based on how the distribution of responsibilities in the sector is done.

This proposal is made following the logic that the lack of monitoring and anti-corruption mechanisms is the main factor that impedes a directly proportional relation between fund allocation and sanitation coverage. Therefore, accountability mechanisms should increase the percentage of correlation between these two variables. As mentioned

before, income, population density, and governance can also play a role in the decrease. For instance, in the case of governance, the proposal of two different accountability mechanisms would make for good governance. The lack of proper institutionalization of accountability is a crisis in governance too.

We propose two policy recommendations for consideration as policy options. First, as Indonesia divides the water responsibilities both at river basin level and at ministerial level, there should initially be an accountability mechanism for water-related matters only. This would follow an enduring model similar to the Corporatization of Water Utilities Model² proposed by the World Bank. That is not to say that this chapter argues in favor of the corporatization of water sources, much less of sanitation services in Indonesia, but rather that accountability itself should follow a corporate governance model like the one proposed by the World Bank. In other terms, sanitation services would remain managed by state-owned enterprises or through public-private partnerships, however, following the principle of corporatization and to encourage the impartial assessment of public governance, sanitation providers would be treated as corporations. This would be implemented to maintain a transparent and efficient delivery of the service, the entity—the sanitation provider—should have a separate shareholding, board of directors, accounting, and reporting lines. Although other factors have taken part in the success, such as competent public management, sustained commitment from the government, strong financial support, and innovative partnership with the private sector, all have been accomplished through well-established and impartial lines of reporting (Marin, Fall, and Ouibiga 2010). In the case of Indonesia, the application of this policy recommendation would take the form of a direct line of reporting solely focused on sanitation matters, this first accountability mechanism can take the same form as publicly available reports. The line of reporting mentioned here could in theory be managed too by the same ministries that managed the LAKIP reports, but the detail on the reports would differ to be more sanitation centered. This accountability mechanism would manage the matter of sanitation in a more detailed and focused manner than the LAKIP reports, while still not fully immersing itself in the topic.

Second, as sanitation is a decentralized sector there should be a national institution that portrays it as an accountability monitor for sanitation. This institution would oversee the local governments in matters only regarding the sector. This policy recommendation follows a

² The successes of cases as the Burkina Faso Corporatization of Water Utilities, argue in favor of this model (Marin, Fall, and Ouibiga 2010).

similar pattern as the recently proposed policy done by Michael Bennon in the Policy Dialogue on Innovative Solutions for Achieving City-Wide Inclusive Sanitation regarding a new investment intermediary in the global sanitation sector to justify that “an intermediary institution can apply management practices that have proven to mitigate counterparty risks on global infrastructure projects in the past” (ADBI and Stanford University 2022). While Bennon’s policy recommendation refers specifically to an international financial institution instead of a national organ the principle of autonomy and monitoring in as far as accountability is concern follows the same logic. The accountability mechanisms in the sector need to be precise and efficient. The mere existence of an institutionalized accountability mechanism can improve the efficient use of funds.

Ultimately, it is necessary to underline the limitations of the study. First, as mentioned in the methodology, the use of Klitgaard’s formula to base the accountability formula should be further researched. Second, this chapter equates accountability to financial accountability, and while it is done in order to limit the scope of the work the application of the measurements should be studied with other types of accountabilities for a more complete vision of the topic. Finally, this chapter aims to highlight the need for properly institutionalized accountability mechanisms in Indonesia, however, it should be considered only as a surface and introductory study to the complexity of water resources management and sanitation in the country.

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7

Accountability Mechanisms for Sanitation in Japan: Perspectives on Onsite Sanitation

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7.1 Common Issues with Onsite Sanitation System Management

Any wastewater treatment system requires regular maintenance to function properly, reliably and perform as designed. To do so, in order to protect public health and prevent environmental pollution, onsite sanitation facilities need a management system with regular operation and maintenance (O&M) that includes fecal sludge management (FSM). FSM requires an entire and complex service chain with interconnected links that consist of fecal sludge (FS) containment or storage, FS collection, and transportation to, ideally, a sludge treatment plant where it is adequately treated for the intended end use before safe disposal or reuse. If one of the links is not managed properly—for example if sludge is not collected or collected at irregular or too long intervals or dumped in the open during transportation to skip the subsequent steps and gain time to increase profit—the whole sanitation service chain is affected and, ultimately public health and the environment are at risk. FSM has received more attention internationally in recent years due to the work of international donor organizations and as a result, an increasing number of projects promoting good practices have been launched. However, onsite sanitation is still not receiving enough attention

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among political leaders and remains an underfunded and unregulated sector, lacking institutions dedicated to this service and skilled human resources, particularly in low- and middle-income countries. As a result, FS collection from onsite sanitation systems is often not carried out or only carried out when it causes a nuisance or problems such as toilet clogging. Such poor management practices have contributed to the deterioration of the water quality in Asia, where increasing volumes of untreated wastewater and pollutant loads are discharged into the environment (WEPA, MOE, and IGES 2021).

Desludging is the main and almost sole O&M procedure for basic onsite sanitation systems such as septic tanks. However, advanced onsite sanitation systems, such as the *Johkasou* in Japan, use electrical devices (e.g., blowers for aerobic treatment) that require additional O&M procedures. Onsite sanitation systems cover a large and growing proportion of the world's population, even in urban areas, increasing the number of facilities in need of proper management. Nonetheless, unlike most sewerage systems, the management of onsite sanitation systems is in many cases not conducted by professional service providers, working, for example, under a municipal authority, but at the discretion of private owners. Typically, private owners do not know how to operate their onsite sanitation system, and more critically, have a low willingness and/or affordability to pay for O&M costs. Such context in the absence of an institutionalized and a regulated management system results in some of the poor practices described above.

In order to drastically increase and accelerate access to sanitation and ensure safely managed sanitation services for all, citywide inclusive sanitation (CWIS) provides a new approach that breaks out the business of sanitation as usual, focusing on improving service provision rather than on constructing specific infrastructure (Gambrill, Gilsdorf, and Kotwal 2020). It is articulated around three core functions (BMGF 2019):

- Responsibility: provision of safe and inclusive services by a responsible authority with a clear mandate.
- Accountability: monitoring tools and accountability system to evaluate the performance of the authority against mandate.
- Resource planning and management: reflecting how efficiently resources are managed for execution of mandate across time and space.

In Japan, sanitation is considered as a public good that serves the best interests of society at large, and onsite sanitation is no exception. It is a public matter (Hashimoto 2021) that has been prioritized and taken in hand by the public sector, which has developed an enabling

environment for safe and sustainable service provision through the establishment of:

- government and professional institutions for administrative and technical management,
- robust legal and regulatory frameworks with clear mandates defining and delineating the role of the public and private sectors, as well as that of individuals,
- a training and national certification system for the human resources involved in onsite sanitation systems management,
- a national evaluation and certification system for the standardization of onsite sanitation products (i.e., *Johkasou*),
- a monitoring system with data collection and public disclosure for accountability, and
- a well-developed financing system inclusive of subsidies for the construction of the desired infrastructure.

Such an environment allows the private sector to play an important role.

7.2 Sanitation in Japan

7.2.1 Japan and Citywide Inclusive Sanitation

It is not necessarily known, but in the mid-1950s and 1960s Japan experienced many of the urban sanitation problems and challenges that emerging nations are now facing, as the country was quickly growing economically and urbanizing. To rapidly increase access to sanitation facilities in developing urban areas, Japan took an approach similar to CWIS by promoting a range of solutions—onsite and off-site—while not only focusing on infrastructure construction but also on management with the creation of institutions for providing training and national certification to the human resources in charge of the O&M of sanitation systems. As the public sewerage system was only constructed in a limited number of cities—less than 10% of the Japanese population was covered by this system in the first half of the 1960s, as compared to 30% in 1980 (JSWA 2005) and 80.6 % in 2021 (MLIT 2022)—and its expansion could not match the pace of the rapidly increasing urban population, onsite sanitation facilities (mainly vault toilets connected to a night soil storage tank) were then the prevalent means for human waste management. In the meantime, as citizens were gaining economic prosperity, strong demands were made for improved living standards, which included access to flush toilets (University of Tokyo 1994). As a response for the areas not covered by the sewerage system, a compact wastewater treatment facility treating wastewater for residential use

called *Tandoku-shori Johkasou* was developed. However, as the volumes of night soil in major cities rapidly increased with urbanization, treating them sanitarily was not only a challenge, but it also became a critical social problem, particularly as night soil could no longer be used as fertilizer in agricultural lands with the spread of chemical fertilizers and as “it was discovered that the use of human excreta could cause parasitic infections” (University of Tokyo 1994). The government coped with this problem by promoting technology development for night soil treatment plants and by providing subsidies to municipalities for their construction. As a result, night soil treatment plants quickly spread throughout Japan to reach more than 1,200 plants by the end of the 1970s, with a treatment capacity of more than 100,000 cubic meters per day (MOE 2019) as shown in the Figure A7.1 (Appendix). Together with the regular collection and transportation of night soil from vault toilets and sludge from *Johkasou*, this was one of the initial strategies to ensure the safe management of sanitation through the full-service chain, while sewerage coverage steadily increased. From the 1970s, the sanitation goal gradually shifted from the protection of public health to the preservation of the environment with the passing of a number of anti-pollution laws, the strengthening of the Sewerage Act, and in 1983 the passing of the *Johkasou* Act for the *Johkasou* system (onsite sanitation).

As displayed in Figure A7.2, a wide range of sanitation solutions has been and is still used in Japan today, which enabled a relatively quick and cost-effective access to sanitation, while ensuring that 92.6% in fiscal year (FY) 2021 (MLIT 2022) of the population’s wastewater is safely treated. To achieve this in a relatively short time after the severe pollution impacts associated with the rapid economic growth after World War II, Japan made a massive effort to improve sanitation conditions, particularly from the 1970s, making sanitation a high priority and significantly investing in the sector to provide both access and safely-managed services. This effort is particularly noticeable and significant with onsite sanitation, which is typically a neglected, underfinanced, and mismanaged sector in many countries.

7.2.2 Onsite Sanitation: Context Before the *Johkasou* Act and Why the Need for a Legal System

During the period of rapid economic growth after World War II, people’s demands for flush toilets increased drastically. As by law, similar to now, human waste could not be discharged without treatment, the response in the 1960s to this demand was the development for residential use of the *Tandoku-shori Johkasou*, which could treat black water for households of five to 20 people. These facilities made of fiber-reinforced plastic were prefabricated in factories and installed in residences. It was

the only system that could be installed when discharging wastewater from flush toilets in areas not served by the public sewerage system. As these facilities were mass produced and relatively inexpensive and as the construction of sewerage systems made little progress outside large cities, the *Tandoku-shori Johkasou* quickly spread in newly constructed residences, starting in the urban areas without flush toilets. By 1969, the population using *Tandoku-shori Johkasou* almost equaled that served by the public sewerage system and, thus both systems were effective means to meet the demand for flush toilets, particularly as the proportion of the population using the *Tandoku-shori Johkasou* and the public sewerage system kept increasing at about the same pace until the mid-1980s as shown in Figure A7.3. Unfortunately, the incentive of having to install a wastewater treatment facility that meets the required treatment quality and structural integrity in order to get a flush toilet, as it happened in Japan, does not apply in countries or cities where residents already have access to such toilets with septic tanks.

During Japan's rapid economic growth era, wastewater from factories and other commercial facilities became the main source of water pollution. Indeed, secondary industries were highly developed during this period, but regulations against industrial water pollution were only limited to some water bodies. The priority was given to the economy with disastrous consequences on public health, resulting in infamous cases of pollution hazards from industrial effluents such as the Minamata disease; a disease found in 1956 caused by methylmercury contaminated effluent released by a chemical manufacturer into Minamata Bay and responsible for more than 2,200 deaths. The pollution session at the Diet in 1970—famously called the Pollution Diet, an initiative largely triggered by citizens' protests throughout the 1960s—marked a milestone in the actions of the Japanese government against environmental pollution in the country. For this purpose, the Water Pollution Control Act was created in 1970 to strengthen the regulation on effluents from factories and businesses. Additionally, a series of 14 pollution-related laws were ratified.

The problem of industrial wastewater pollution was solved in the 1980s, but water pollution originating from domestic wastewater, particularly gray water (accounting for two-thirds of the water pollutants found in domestic wastewater in Japan), continued to increase and became the next problem to solve, causing eutrophication in lakes and bays (JECES 2005). Although the spread of *Tandoku-shori Johkasou* was positive in enabling the diffusion of flush toilets, the treatment efficiency of these facilities receiving black water only was low, and this combined with a weak understanding from users about the importance of maintenance led to an increasing number of cities that saw the water environment deteriorating. To tackle the problem of gray water pollution in the 1970s a new technology called *Gappei-shori Johkasou*

was developed—now simply called *Johkasou* since the interdiction of installing new *Tandoku-shori Johkasou* from 2001 onward—treating both gray and black water and providing higher treatment performance with eight times lower impact on the environment. An example of a small-scale *Johkasou* facility is displayed in Figure A7.4.

However, there was no drastic improvement in the water environment due to the spreading but still limited coverage of the public sewerage system—36% of the population in the mid-1980s (JSWA 2005)—and the large number of installed *Tandoku-shori Johkasou* while the diffusion of the newly developed *Johkasou* was only starting. Pollution in public water bodies was particularly potent in areas where *Tandoku-shori Johkasou* were predominantly installed, due to the discharge of untreated gray water and insufficient maintenance. Indeed, the *Tandoku-shori Johkasou* rapidly spread and popularized with the housing boom that occurred during the postwar economic growth period, but neither the *Johkasou* industry nor the administration and legal system in place could cope with the growing need for management. The problems associated with pollution in public water bodies, such as unpleasant odors as well as *Johkasou* becoming pollution sources, caused societal problems and troubles among residents. An example of the impact of untreated gray water can be seen in Figure 7.1a in comparison to the effluent of the *Johkasou* treating both gray and black water in Figure 7.1b.

Figure 7.1a: Gutter with Untreated Gray Water Discharged in a *Tandoku-shori Johkasou* Area



Note: Biofilm is attached at the bottom of the gutter; problem with odor and possible presence of sanitary pests such as mosquito larvae.

Figure 7.1b: Gutter with Discharged Treated Effluent from a *Johkasou*



Note: Technology providing gray and black water treatment.

Source: Kagoshima Prefecture Environmental Conservation Association.

To bring a change to these difficult circumstances, the Japan Federation of *Johkasou* Associations was established in 1977 as a national organization promoting policies for the development of the *Johkasou* industry and the spread of *Johkasou* facilities throughout the country. Members of this organization actively promoted *Johkasou* and advised Diet members, which led to the establishment of the Federation of Diet Members for the *Johkasou* Affairs by volunteers among Diet members (Katou et al. 2015). The collaboration of these two organizations enabled the cooperation between the public administration sector and the *Johkasou* industry and marked the start of promotion activities for the creation of the *Johkasou* Act, which was enacted and promulgated in 1983 and enforced in 1985. This legal framework strengthened regulations to ensure the proper management of the *Johkasou* system and was a turning point for the management of this onsite sanitation system in a standardized fashion throughout the country.

A look at the history of sanitation development In Japan shows that the country went through a period of remarkable economic growth after World War II until the early 1970s, but that it was done at the expense of the environment. In addition to insufficiently controlled industrial wastewater discharge, sewerage works were scarcely developed and not actively promoted, while the first generations of *Johkasou*, only treating black water, left untreated gray water in the environment. As a result, *Johkasou* caused societal problems as they became one of the pollution sources in the then heavily polluted public water bodies. Although it can be said that the development of sanitation in Japan was done at a relatively rapid pace, it took the country several decades before moving the sanitation goal from protecting public health to preserving the water environment. This period could have probably been shortened if sanitation development had been actively promoted together with water supply at the time of fast economic growth. This is a point to consider for low- and middle-income countries on the path to economic development.

7.2.3 Description of the *Johkasou* Act and the *Johkasou* Management System

Nobody wants to experience problems with a sanitation facility or an interruption of service, particularly for a sector as essential, but also often considered as taboo, as sanitation is. Being connected to a sewerage system is usually the assurance for residents to not have to deal with any problem as it is, in most cases, a public good managed by professionals employed or commissioned by, for example, a municipality, or a group of municipalities, or a wastewater utility. It is trickier when it comes

to onsite sanitation systems, which are most often privately owned, meaning that maintenance is left up to the good will of the owners. The existence of standards, rules, and regulations that clearly define roles and responsibilities, with institutions and capable human resources in central and local governments to create them and make sure that they are put into practice and followed, are some of the prerequisite conditions for an inclusive and good public service delivery with accountability. For onsite sanitation systems in Japan, the *Johkasou* Act establishes the rules and regulations, setting the foundations and backbone of the management of the entire service chain of the *Johkasou* system, to ensure not only compliance with effluent standards but also the best possible treatment performance over time, while ensuring the longevity of the *Johkasou* facilities. Furthermore, this legal tool brings clarity for the duties and requirements of the personnel involved in *Johkasou* installation and maintenance, as well as for the designation of the institutions in charge of training and certifying personnel.

The creation of the *Johkasou* Act (Government of Japan 2019)— was the response chosen by the Japanese government to solve the situation of the increase of pollution observed with the rapid spread of *Tandoku-shori Johkasou*, which by not treating gray water, caused environmental concerns. This law has the merit of putting together regulations that were fragmented in different laws: the Building Standards Act (Government of Japan 2020) (first enacted in 1950), which mandates the installation of a wastewater treatment facility such as *Johkasou* when discharging effluent from flush toilets in areas not covered by a sewerage system, and which also regulates the *Johkasou* structure; the Waste Management and Public Cleansing Act (first enacted in 1970) (Government of Japan 2001), which regulates the management of waste such as night soil and sludge, including storage, collection, transportation, treatment and disposal; and the Water Pollution Control Act (Government of Japan 2016) (first enacted in 1970), which regulates effluent standards, particularly effluents from factories and businesses, to prevent pollution in public water areas. However, these laws had not been created specifically for the dissemination of *Johkasou* and were, therefore, not best suited for this purpose.

The aim of the *Johkasou* Act and related legal documents (Government of Japan 2011; MOE 2012) is to promote the safe and hygienic treatment of domestic wastewater (black, and later black and gray water after the revision of the law in 2000, banning the new installation of *Tandoku-shori Johkasou*) in the areas where *Johkasou* are installed, to protect public health, and preserve the living environment. For this purpose, the approach adopted has been to strengthen the regulations at each stage of the *Johkasou* management chain and to

provide concrete rules. The law consists of 11 chapters and 68 articles for the regulation in a systematic and standardized way of:

- *Johkasou* manufacturing,
- the type of *Johkasou* and treatment performance of each process adopted to comply with national, and sometimes local-specific, effluent standards,
- the installation, including construction, and
- the operation and maintenance, including desludging.

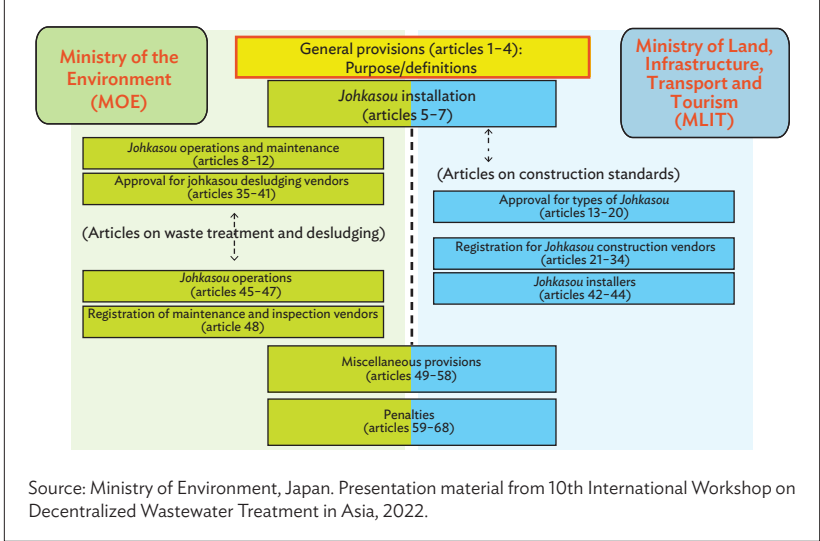
In addition, the law and related documents (Ordinance for Enforcement of *Johkasou* Act and Enforcement Order) provide clear mandates and clarity of the responsibilities and duties of the personnel and organizations involved in *Johkasou* installation and maintenance and designates the institution in charge of certification. More specifically, they regulate:

- the establishment of a national certification system for *Johkasou* installation workers and the operators conducting maintenance inspections and repair,
- the establishment of a registration system for *Johkasou* installation businesses,
- the establishment of a registration system for the vendors conducting operation and maintenance,
- the monitoring of installed facilities and their operation and maintenance by designated third-party inspection agencies, and
- penalties in case of noncompliance with the legal regulations.

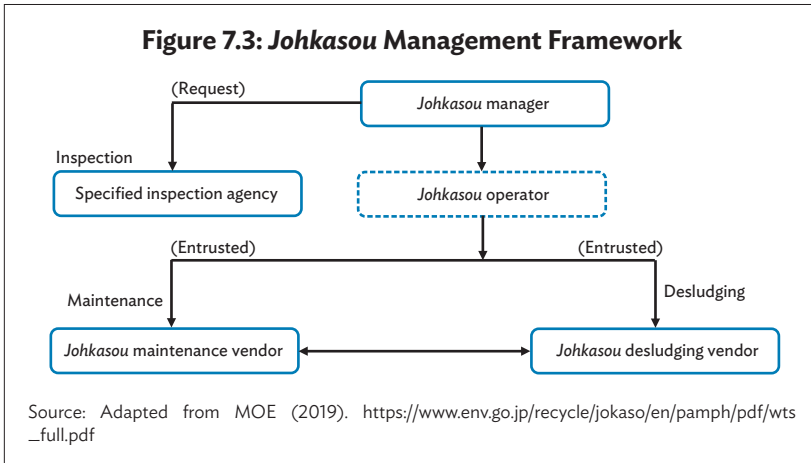
An outline of the 68 articles of the *Johkasou* Act is shown in Figure 7.2.

The *Johkasou* Act has been revised several times, which resulted in 2000 in banning the installation of *Tandoku-shori Johkasou* to promote the water environment conservation with the sole installation of the later type of *Johkasou* treating both gray and black water. In the revision of 2005, the preservation of water quality in public water areas and other areas was clearly stated (Katou et al. 2015). Accordingly, water quality standards were set for the effluent of *Johkasou*, which can achieve the same treatment efficiency as the public sewerage system. This concretely means that in Japan wastewater treatment efficiency is not a criterium that differentiates a *Johkasou* to a modern sewerage system when selecting a wastewater treatment facility in a determined area.

Figure 7.2: Outline of the 68 Articles of the *Johkasou* Act



As illustrated in Figure 7.3, the owner or the person who has the authority of managing the *Johkasou* is called “*Johkasou* manager.” This person has the legal responsibility to ensure that maintenance, desludging, and legal inspections are done in accordance with the rules and regulations prescribed in the *Johkasou* Act. Since these tasks require a knowledge and expertise that *Johkasou* managers typically do not have, they are commissioned to nationally certified professionals such as “*Johkasou* operators” for maintenance inspections, “desludging technicians” for sludge collection and transportation, and “registered *Johkasou* inspectors” from a designated inspection agency, which checks annually that maintenance operations, including desludging, are done appropriately and that, as a result, the discharged effluent meets the effluent quality standards.

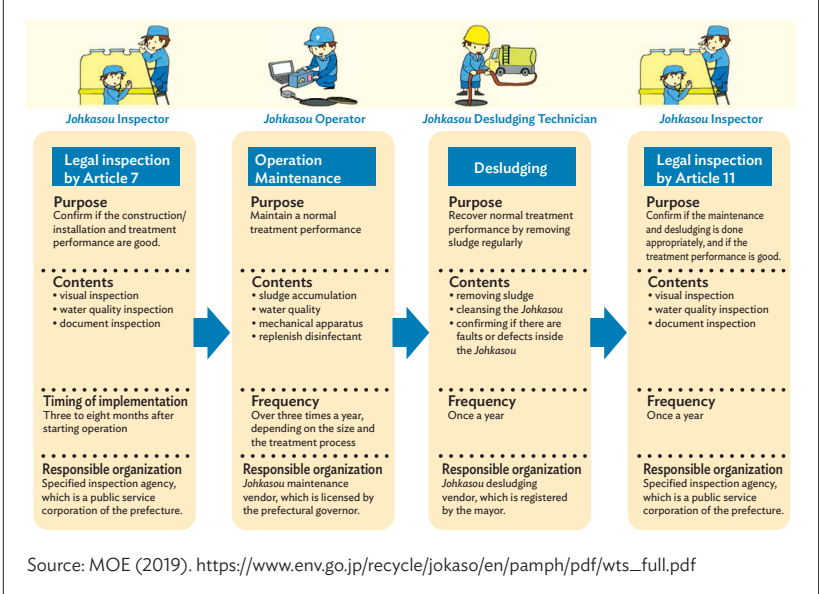


As shown in Figure 7.4, the *Johkasou* management consists of the following steps:

- 3 to 8 months after starting operation, the *Johkasou* unit needs a legal inspection to check construction, installation, and treatment performance by a designated independent inspection agency.
- Every year, the *Johkasou* unit needs to receive more than three inspections per year to check the level of sludge accumulation, water quality, the status of mechanical devices and add disinfectants such as chlorine tablets. If the facility is full of sludge, the owner is informed of the need to contact a desludging technician (often desludging companies, officially called “vendors” are the ones conducting maintenance inspections).
- Every year, the *Johkasou* unit needs to be desludged once (this operation is done more frequently for *Johkasou* of larger scales).
- Every year, the *Johkasou* unit needs to be legally checked by an independent inspection agency designated by the prefectural governor.

With the framework in place taking care of the management aspect, the *Johkasou* system offers a peace of mind comparable to what sewerage users normally experience. This is important to maintain a sense of fairness as *Johkasou* users often have relatives that live in a

Figure 7.4: Management Scheme of Small-scale *Johkasou*



residence connected to the public sewerage system, which gives them an opportunity to compare services. In terms of fairness, the “Municipal *Johkasou* Installation Program”—a program in which *Johkasou* are installed, owned, and maintained by the municipality, which in turn collects the same fee from *Johkasou* and sewerage users, as explained in Section 7.3.4. This system guarantees equality among users. However, this program is not the most widespread as the burden on municipalities, financially and in terms of human resources, is higher than that of other programs.

Creating a law specifically to strengthen regulations for improving the management of onsite sanitation systems, as done in Japan with the *Johkasou* Act, is a rare undertaking demonstrating that the Japanese government takes the matter of onsite sanitation seriously, making it a nationally regulated system, whereas in many other countries onsite sanitation is neglected, unregulated, and not addressed as a national priority, despite being the prevalent sanitation system in rural and many urban areas.

7.2.4 The Impact of the *Johkasou* Act for Good Public Service Delivery, Sustainability, and Accountability

Establishing a national certification system for the workers involved in *Johkasou* maintenance and desludging was pivotal in ensuring a quality of service in a standardized manner, while formalizing and giving pride to a profession essential for guaranteeing a healthy living environment, particularly for a profession that does not receive enough appreciation and can experience social exclusion in some countries with the poorest carrying out informal septic tank desludging and sewer cleaning.

Considering the situation before and after the implementation of the *Johkasou* Act, it can be said that this legislation had an important impact on the improvement of *Johkasou* maintenance with the increase of the number of maintained facilities, but also a positive impact on the improvement of the quality of the maintenance itself as each procedure and task prescribed by the law and related ordinance are precisely described, standardizing maintenance operations. Figure A7.5 shows an example of a checklist used by operators for *Johkasou* maintenance.

The expansion of the public sewerage system combined with the spread of the *Johkasou* units treating both gray and black water, and the improvement of *Johkasou* maintenance with the enforcement of the *Johkasou* Act contributed to the improvement of the water quality in public water bodies in Japan. As an example, Figure A7.6 shows the long-term improvement trend in river water quality observed in Saitama Prefecture between FY1990 and FY2021 with an environmental standard achievement rate (biochemical oxygen demand [BOD] based) of 95% in FY2021. Over these 31 years, the percentage of the population served by a domestic wastewater treatment facility progressed from 83.5% in FY1990 to 93.6% in FY2021, while the population covered by the public sewerage system increased by about 11% to reach 83.6% in FY2021, and that of the population covered by the *Johkasou* system improved by about 0.5% to achieve 9.5% in FY2021. In addition, it is noted that the number of *Johkasou* treating both gray and black water is now higher than that of *Tandoku-shori Johkasou* treating only black water (239,161 units against 231,746 units in FY2020).

One of the benefits of the *Johkasou* Act and related laws is product standardization. Standardization is key to guarantee the quality of product at the manufacturing stage, the treatment performance of the facilities produced, and prevent unexpected failures and structure collapse due, for example, to an inconsistency in structural strength. Each type of *Johkasou* manufactured in Japan has to be tested and certified by an independent organization approved by the Minister of Land, Infrastructure, Transport and Tourism as prescribed by the

Building Standard Act and the *Johkasou* Act. In addition, *Johkasou* are designed (for example with the inclusion of a manhole cover for each *Johkasou* compartment) and installed with the aim of easing maintenance operations and access, and therefore shortening the time of maintenance operations.

Another important aspect of the law is the monitoring of the newly installed facilities and the annual monitoring inspection carried out by third-party organizations appointed by the governor of each prefecture, which ensure that installation and regular maintenance, including desludging, are done as regulated by the law. This is critical to ensure that the work of the private sector is done properly and without any shortcut that would sacrifice quality, such as dumping fecal sludge in the open to save cost and time on transportation. By prescribing measures delimiting each step of the maintenance procedure and tasks, the *Johkasou* Act and associated ordinance provide the necessary conditions for a service of high quality. As quality standards are high in Japan, it is an important aspect to ensure users' satisfaction, which is one of the foundations fostering people's willingness to pay for the service. The only shortfall of the legal inspections is that there are done at the expense of the *Johkasou* owners. This is often a criticized aspect from customers as they do not always understand the difference between maintenance inspections and legal inspections.

By regulating the business of *Johkasou* maintenance, the *Johkasou* Act creates the proper environment for the companies involved to make sufficient profit and carry out their business in a sustainable manner. With more than 200,000 professionals and more than 45,000 companies involved as of 2015 (MOE 2019), this is also a profitable business that stimulates local economies. Through its certification system, it formalizes a profession (while giving pride to its work force) that is generally not regarded highly in societies, as most activities dealing with waste remain a taboo topic.

Furthermore, having a legislation regulating the whole *Johkasou* system gives another dimension and greater weight to the set of rules to which owners are asked to comply with. Reality shows that it is more difficult for individuals to oppose a law. Indeed, social pressure, still important in Japan where the group prevails over individuals, remains an important lever for compliance. In some instances, the *Johkasou* owners who have not received an annual legal inspection with a specified inspection agency designated by the prefectural governor are notified by mail by the prefecture and asked to comply with this requirement. Receiving such reminders by a regional authority cannot be ignored. It has an impact much stronger than just a reminder that would be issued by the municipal division in charge of wastewater management. Such

social pressure is sufficient in most cases in Japan and explains largely why penalties (Japan is a country that rarely uses coercive measures), although clearly prescribed in the *Johkasou* Act, have rarely been enforced.

7.3 Accountability Mechanisms in Japan

7.3.1 The Cultural Factor

General obedience toward rules but high-quality service expectation

Japanese people usually respectfully follow the rules established by an authority. This is one of the factors that may explain why people accept to pay for sanitation services, but it cannot explain everything. First, people have high expectations when it comes to service quality. Indeed, although people are patient and tend not to loudly voice their dissatisfaction, there is generally no hesitation to file a claim to a company or an authority if a service is poor or not up to a certain standard, which is generally one of the highest quality.

Cleanliness and hygiene

Anyone who has visited Japan has noticed the cleanliness of public spaces, particularly in restrooms, which are often equipped with high-tech toilets displaying a wide range of functions and a high-level of comfort such as a warm seat with a bidet including, for some models, a warm water setting, a self-rising toilet seat, and a warm air dryer. If self-rising seats are increasingly found in public toilets, it is to be noted that almost all private residences have automatic bidet toilet seats, so-called “washlets” as seen in Figure A7.7. Nonetheless, technology and comfort would not be as appreciated in a dirty environment, and therefore, attention is brought to regularly clean and maintain the restroom environment, whether public or private. However, toilets in public spaces such as stations or parks have not always shown such cleanliness, even the opposite. In living memories, public toilets were dirty spaces about 50 years ago. The gradual improvement observed since is one of the consequences of Japan becoming one of the largest-developed economies, as having clean public toilets is one of the characteristics of modern society.

Reminding and guiding rather than punishing

Japan is a strict country when it comes to codes in society and group mentality, but many rules in society are not imposed but recommended. This was true during the COVID-19 pandemic, where staying at home during the peaks of the pandemic was not compulsory, in contrast to the

lockdowns that were imposed in many countries. Similarly, the *Johkasou* owners that do not register and conduct the annual legal inspection of their *Johkasou* are reminded of their legal duty but rarely fined, even if a list of penalties for different situations can be found in the *Johkasou* Act.

The importance of education in making healthy living conditions a habit and understanding that having good sanitation comes at a cost

Understanding the need for and importance of having good sanitation and hygiene, and how they support healthy living, is fundamental for building acceptance and consensus toward the rules and requirements, and the associated costs to achieve these goals. To identify or be reminded the issues, understand each party's responsibility, and obtain consensus about the way to address the issues, there are two crucial aspects: information and education.

The awareness of the importance of sanitation and hygiene starts early in Japan as these subjects are part of school curriculums and taught from primary school. It has been so for many years. For example, textbooks from the era before World War II included descriptions of solid waste disposal. Later, during the period of rapid economic growth when pollution became a major social problem, the programs were revised and education on solid waste was integrated into school curriculums between 1968 and 1970 (Mori 2021). From kindergarten onward, Japanese children are asked to bring a clean towel, a clean handkerchief, and a packet of tissues to school every day. They have their nails checked as well as their towel, handkerchief, and tissues. On a daily basis, they are shown how to wash their hands—which they have to do after arrival in the morning, before lunch, and after outdoor activities—to a point where it becomes natural. Since the beginning of the COVID-19 pandemic, pupils were also asked to wear a mask and check their body temperature every day, which they report on a health observation table stamped by their parents and shown to their teacher in charge.

Education on water, health, and sanitation is part of the school curriculum, usually starting in 4th grade (children of 10 years of age) in primary school but it can be addressed again in other grades, with classes that consist of teaching, research, experiments, and fun activities on these topics. Incorporating these topics in the school curriculum is a recommendation made in the Elementary School Curriculum Guidelines on Social Studies issued by the Ministry of Education (MEXT 2017). To prepare classes on these subjects, teachers have at their disposal numerous resources, which for many of them can be found on the internet, issued by publishers, the departments or divisions concerned in central and local governments, designated inspection agencies for

Johkasou, TV channels, etc. These resources include curriculum content, examples of lessons, and visual materials. Examples of the pictures of such resources are shown in Figure A7.8 and Figure A7.9.

Generally, study in class is supplemented by site visits, such as to a water purification plant, a wastewater treatment plant, a sludge treatment plant, or a landfill or waste disposal site. These sites often include a corner (Figure A7.10) and/or a room dedicated to research and education with books, educational activities, games, short films, and other visual materials for raising awareness and providing further education opportunities to the visitors. In some sites gardens can be found crossed by streams, showing the positive impact of a good water environment on nature and the living environment of fish (Japanese people are attached to nature and the beautiful variety offered by the Japanese landscape).

Incorporating water, sanitation, and hygiene in the school curriculum is a crucial step to make children understand their importance in daily life, how they function, and how it is essential to maintain these services. Education on these topics from a young age is an essential prerequisite for the acceptance to pay for these services at an adult age.

7.3.2 Institutional Capacity

With the implementation of the *Johkasou* Act in 1985, a division specifically dedicated to the *Johkasou* sector called the Office of *Johkasou* Affairs was established in 1987 to promote, among other activities, the spread of *Johkasou* through the subsidy programs for *Johkasou* installation. This office was transferred in 2001 to the Ministry of the Environment and renamed the Office for Promotion of *Johkasou*. Having a division at ministry level focusing only on the *Johkasou* sector is an important asset to promote the diffusion of *Johkasou* facilities and the proper management of the *Johkasou* system throughout the country in compliance with the *Johkasou* Act, as well as to ensure that the law is followed through while amending it when new policy goals are set.

At the local level, the prefectures (WEPA, MOE, and IEGES 2021) relay the policy of the central government and, more specifically, the governors designate one or several inspection agencies, which are public interest corporations acting as independent organizations for the legal inspections required by the *Johkasou* Act. The role of these agencies is to verify the construction and treatment performance of the newly installed *Johkasou* after several months of use (Article 7 of the law), and to carry out an annual inspection to confirm that the desludging and maintenance operations have been done appropriately and that the effluent meets the effluent quality standards (Article 11 of

the law). In some cases, in collaboration with municipalities, visits are made to the households that do not comply with the legal inspection requirements. They meet with the *Johkasou* owners to guide them and make them understand the importance of maintaining their *Johkasou* facility following the prescriptions made in the *Johkasou* Act, which is organized around three pillars: maintenance inspections, desludging, and annual legal inspection.

The municipalities are the authorities in charge of planning for the treatment of domestic wastewater in their jurisdiction, which involves determining the zones demarcating the public sewerage system and the *Johkasou* system. This means that municipalities are the authorities that are the closest to local residents and the first that need to ensure that *Johkasou* facilities are properly managed. Municipalities are the entities that deliver a permit to the desludging companies (also called *Johkasou* desludging vendors) conducting the service in a determined working area of their jurisdiction that is large enough to guarantee sufficient revenues. Therefore, and differently to the *Johkasou* maintenance vendors conducting maintenance inspections, which are not limited in number when registering to the prefecture, desludging companies are not in competition with other companies in their service area, and regarding the desludging fees, the commissioning standard states that: “The amount of the commission fee shall be sufficient to cover the expenses entailed by the service commissioned”. Desludging is a profitable business in Japan, particularly for the private sector, which benefits the local economy. In FY2019 there were 4,162 companies undertaking desludging and more than 16,000 desludging technicians in FY2015 (Table A7.1). The framework of the *Johkasou* sector under the *Johkasou* Act is shown in Figure A7.11.

The installation, maintenance, and desludging services are for the majority provided by the private sector. Any person intending to work in these services has to pass an exam as an external candidate or attend a training course and pass a different exam at the end of it to acquire the necessary national certification. A public interest incorporated foundation called the Japan Education Center of Environmental Sanitation is commissioned by the Ministry of the Environment to conduct these training courses and exams. Such training and national certification structure is not just for the *Johkasou* system; it is also done for the staff involved in the management of the 1,000 plants treating sludge from *Johkasou* and night soil from the remaining vault toilets by the Japan Environmental Sanitation Center, while the Japan Sewage Works Agency carries out similar training and certification on behalf of the Ministry of Land, Infrastructure, Transport and Tourism for the staff involved in the management of the public sewerage system. Such

training and certification structure promoted by the central government for both the public and private sector would be a welcome initiative in other countries where municipalities are in charge of managing waste, including wastewater, in their jurisdiction but lack capable human resources to adequately do so. In addition, certifying those working in the wastewater and sludge sector provides the opportunity to give social status and pride to an industry that often suffers from a negative image.

7.3.3 Data Access and Transparency

Regularly collecting and offering access to data to inform citizens on how a service (here the onsite sanitation service) is provided by the authorities in charge is one of the essential accountability mechanisms to build and maintain trust with the service users. It is also an essential tool to monitor the service quality, assess and manage needs, and allow decision makers to make informed decisions and planning. For the onsite sanitation service provided with the *Johkasou* system in Japan, data are collected annually by each prefecture and gathered with all types of materials related to *Johkasou* management in a website launched by the Office for Promotion of *Johkasou* of the Ministry of the Environment, as shown in Figure A7.12. This website publishes news, events, case studies, the latest and past data related to *Johkasou*, as well as various documents including:

- budgets (including subsidies),
- the percentage of the population that have their wastewater treated and the nationwide diffusion of *Johkasou*,
- legal arrangements,
- policy, guidelines (e.g., guidelines for legal inspections), and manuals about the *Johkasou* ledger,
- grant and subsidies,
- manuals (including the Domestic Wastewater Treatment Facility Development Plan Formulation Manuals, manuals for measures against damages to *Johkasou* in the event of a disaster), and various reports, and
- links to *Johkasou* related organizations.

Information and data on *Johkasou* can also be found on prefectural and municipal websites as shown in Figure A7.13. They generally also provide global information related to *Johkasou*, what is *Johkasou* and what it does, how the technology works, and the differences between the *Tandoku-shori Johkasou* (treating only black water) and the current type (treating both gray and black water). More importantly, these websites publish information on *Johkasou* maintenance (maintenance

inspections, desludging, and legal inspection) and what *Johkasou* managers are requested to do for this purpose as prescribed by the *Johkasou* Act. In addition, they include a list and contact information of the companies registered to the municipality for maintenance inspections, of the companies that have received a permit from the mayor to conduct desludging operations, or in some cases the prefectural governor, and of the one or several agencies designated by the prefectural governor for legal inspections. They also provide application and notification forms.

Municipal websites also publish a number of administrative reports disclosing information such as financial data related to wastewater and sludge management in the municipal jurisdiction, the current situation of wastewater and sludge management and treatment facilities, and long-term plans for domestic wastewater treatment and asset management. Some prefecture websites publish a map showing the areas served by the public sewerage system and those served by the *Johkasou* system, data on the number of *Johkasou* units installed in the prefecture, on the percentage of legal inspections, data on water quality in rivers and the water environment at large, and information on water quality accidents. Data collection, monitoring, and reporting are extensively done at national and local levels in Japan and, therefore, easily searchable, and available.

7.3.4 Sustainable Financing

In the countries not on track to meet the Sustainable Development Goal (SDG) 6.2 target on safely managed sanitation and having low wastewater treatment rates, sanitation is typically an underfunded sector. This not only hampers the needed increase of access to sanitation systems, but also negatively impacts the management of the existing systems and, thus the sustainability of the whole sector. This is particularly true with onsite sanitation systems, which are often privately owned, meaning that their maintenance is left to the free will of the owners, and more often than not, not conducted.

There are different financing schemes for the *Johkasou* system in Japan, which reflect the will to maintain a balance between what is paid by the users of the public sewerage system (including connection) and those of the *Johkasou* system. Despite being an individual property in most cases, the installation of *Johkasou* has been actively promoted by the Ministry of the Environment (MOE) through two subsidy programs: the *Johkasou* Installation Promotion Program launched in 1987 to support private citizens for installing the current *Johkasou* version treating both gray and black water, and the Municipal *Johkasou* Installation Program

launched in 1994 to support the municipalities installing the same type of *Johkasou*.

In the *Johkasou* Installation Promotion Program, the ministry and the municipalities financially support the residents who want to install a *Johkasou*. In this case, house owners are responsible for the installation and O&M of their *Johkasou* facility. The allocated amount of the public subsidy corresponds to 40% of the capital cost; the ratios of the municipal and national expenditures being 2:3 and 1:3, respectively. In addition to bringing fairness with what is paid by those connected to the public sewerage system, such financial incentives to individual properties are justified by the fact that *Johkasou* benefit not only individuals and cities or towns, but also society at large with the improvement of water quality in public water bodies.

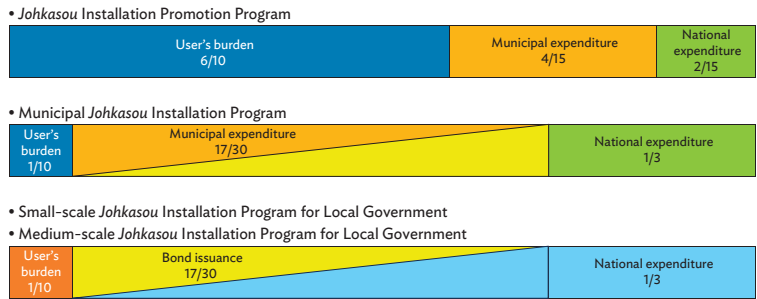
In the Municipal *Johkasou* Installation Program, the municipality is responsible for the installation and O&M of *Johkasou* as a public infrastructure like the sewerage system. Users' burden is 10% of the capital cost, while the subsidy from the central government covers 33.3 % of the capital cost. The local government can issue a local bond for the remaining portion of the capital cost (56.7 %).

There are other municipal *Johkasou* installation programs, which are called "Small-scale and Medium-scale *Johkasou* Installation Programs for Local Government" (Figure 7.5). In these programs, the municipality is also responsible for the installation and O&M of the *Johkasou* units. However, different to the Municipal *Johkasou* Installation Program, there is no direct national subsidy from the central government, but a municipal expenditure for 33.3 % of the cost.

A majority of municipalities are using one of these programs. Out of the 1,718 municipalities in Japan, 1,254 offer the *Johkasou* Installation Promotion Program (MOE 2020), while about 300 offer the Municipal *Johkasou* Installation Program of the Ministry of the Environment (as of FY2016). The latter is less popular among municipalities, even if an increasing number of municipalities are using this program. However, from the viewpoint of the residents, it offers the double advantage of fairly applying the same O&M tariff rates for the public sewerage and *Johkasou* users while having a low burden on users for installation. It also ensures that O&M is carried out systematically for *Johkasou* as it is under the responsibility of the municipality. In contrast, it increases the financial burden on municipalities and the workload on the municipalities that do not have sufficient human resources.

An example of how a local municipality in Japan is using these subsidy programs for effective wastewater management is described in Box A7.1.

Figure 7.5: *Johkasou* Subsidy Programs for Installation



Source: MOE (2019).

To further promote the Municipal *Johkasou* Installation Program, municipalities can use the framework of the Private Finance Initiative (PFI) Act for *Johkasou* installation and O&M. The type of PFI scheme for a *Johkasou* PFI project is build, transfer, and operate. The municipality receives a subsidy and tax allocation from the central government and pays a contract fee to a special purpose company (SPC), which is composed of different organizations involved in the *Johkasou* sector such as installation and maintenance vendors. In turn, the SPC select operators who are responsible for *Johkasou* installation and O&M, while *Johkasou* users pay the municipality a fee for the capital expenditure and operation expenses of their *Johkasou*. The legal inspections are conducted by a designated inspection agency at the expense of the municipality. *Johkasou* PFI projects have the advantage of decreasing the overall cost burden and workload on municipalities, as well as improving the *Johkasou* maintenance as it is taken care of by the operators from the SPC. With such projects, municipalities can also utilize private funding and the technology and business know-how of the companies installing and maintaining the *Johkasou*. However, far fewer municipalities have adopted this scheme, but the Ministry of the Environment is hoping to triple the scale of the PFI business over the next 10 years.

In line with the goal of improving water quality in public water bodies, the Ministry of the Environment and some municipalities provide subsidies and guidance manuals to municipalities to promote the conversion of the old type *Johkasou* (*Tandoku-shori Johkasou*: 48.4%

of the total *Johkasou* installed in Japan in 2020 [MOE 2022a])—which, by treating only black water was an effective barrier for the protection of public health against the diseases caused by pathogens either from direct contact or by consumption of affected living organisms, but had a detrimental impact on the environment—with the current *Johkasou* version treating both gray and black water (51.6% of the total *Johkasou* number in 2020 [MOE 2022a]). The Ministry of the Environment has provided an additional subsidy since 2019 to support private residents for the funding of the piping works associated with the conversion of the current *Johkasou* type.

O&M is the usual weak spot of onsite sanitation systems and the portion that is less effectively carried out as willingness to pay for it is typically low. Compliance with O&M requirements in Japan is satisfactory, but it is the result of important efforts from prefectures and municipalities, as well as the institutional and legal mechanisms around the *Johkasou* Act that have established a strong environment with clear mandates and responsibilities. To promote the three pillars of O&M for *Johkasou* required by law—more than three maintenance inspections, one desludging operation, and one legal inspection per year for small-scale *Johkasou*—and for fairness with the usually lower fees paid by public sewerage system users, a number of municipalities provide subsidies to which can apply *Johkasou* owners. The amount of these subsidies, what they cover, and their duration differ from one municipality to another, and usually pay solely for a portion of the annual O&M cost. To receive such incentives, *Johkasou* owners have to satisfy a number of criteria, for example proving that all the legal requirements for *Johkasou* O&M have been carried out and that the effluent quality of their *Johkasou* complies with the effluent quality standards. These subsidies only apply to the users of the current type of *Johkasou*, which is another lever to incentivize the conversion from the old type *Johkasou* to the current one. An example showing different forms of O&M subsidies in several municipalities is shown in Table A7.2.

As a result of these efforts, the percentage of the *Johkasou* complying with the legal inspection after installation to confirm that *Johkasou* have been properly installed and achieve good treatment performance has reached 96.8% in 2020 (MOE 2022b), while the percentage of *Johkasou* complying with the annual legal inspection has risen from 46.4% in 2007 to 63.9% in 2020 (MOE 2022b). It should be that the data collected are for the mandatory legal inspections: the one after installation and the one to carry out every year. It is most likely that the percentages for maintenance inspections and desludging operations are higher than those for the annual legal inspection as some customers consider the annual legal inspection as another and unnecessary maintenance

inspection. Nonetheless, these improving results show the benefit and importance of not only having subsidies targeting the installation of wastewater treatment systems, but also for their operation and maintenance.

7.4 Conclusion on Accountability Mechanisms in Japan

In Japan, conscious mechanisms have been put in place for greater accountability and improved service delivery. For onsite sanitation in Japan, accountability translates into:

- clear public mandate to plan, manage, and deliver safe, equitable, and sustainable (onsite) sanitation services for all citizens
- robust and comprehensive legal and regulatory system
- data transparency
- legal inspections by third-party organizations
- subsidy systems to promote onsite system construction and good management
- public-private partnership for the operation and maintenance of onsite sanitation systems and centralized night soil/sludge treatment plants
- people's participation and greater civil society engagement: citizens can approach the municipality whenever they have a grievance redressal
- targets and monitoring framework in place
- training and certification system for human resource development
- use of diverse technical solutions tailored to local context

One may wonder what is the need for a law to regulate the onsite sanitation system and why the *Johkasou* Act stipulates meticulously and in detail the responsibilities of each party involved in the *Johkasou* system. This is a fundamental question for accountability mechanisms. History shows that Japan experienced several decades ago severe pollution episodes due to poor sanitation. It is understood that, as sanitation is generally considered as taboo, people (users, manufacturers, constructors, maintenance vendors, desludging operators, etc.) tend to take shortcuts and do wrong things such as dumping fecal sludge in the open to reduce transportation cost as seen in some countries, or not in the appropriate manner, if they are not properly regulated. This is particularly true with onsite sanitation facilities as they are, in most cases, individual properties. The fact that sanitation is perceived as a

taboo can be found anywhere. It is therefore a sector that needs to be well staked and regulated to function properly as done in Japan.

7.4.1 Key Lessons that Developing Countries can Learn from Japan on the Implementation of Accountability Mechanisms of Onsite Sanitation Management Systems

In the context of accountability, the Japanese experience in implementing onsite sanitation management offers valuable lessons. While the focus is not solely on the Japanese experience itself, there are key insights that can be drawn from an accountability perspective. The first and most important lesson is to make sanitation a public mandate and to communicate it explicitly through regulations, monitoring, third-party agency inspections, and transparent subsidy mechanisms. In contrast to some countries where regulations may exist but lack effective implementation on the ground, Japan has successfully established a clear mandate. This mandate is explicitly communicated and monitored. Regular inspections by third-party agencies and annual inspections from a statutory point of view ensure that the mandate is implemented.

The second important lesson is the importance of having a clear framework for setting and monitoring targets. At the national and municipal levels, there are institutions and training entities responsible for setting targets for sanitation conversion. This approach, which focuses on targets and monitoring progress, helps to increase accountability. Although the specifics of the target-setting and monitoring structure may not be extensively detailed, the existence of such mechanisms ensures accountability in achieving set goals. While the specific details about civil society engagement, social audits, and citizen participation in the early stages of the Japanese onsite sanitation regulations are not widely known, it can be inferred that these elements were present and contributed to accountability. Over time, citizen engagement has become a normal practice, reflecting the importance of participatory governance and the government's responsiveness to citizen questions and concerns.

A third lesson is the use of public-private service contracts for monitoring and maintenance activities, such as the periodic lifting of sludge. These contracts elaborate well-defined key performance indicators (KPIs) and involve third-party agencies to evaluate and validate service quality. By establishing clear service level KPIs and monitoring mechanisms, these contracts contribute to accountability. They also ensure that the sanitation management system is operating effectively and efficiently. For example, the public-private service

contract can specify the frequency of sludge removal, the level of sludge that should be removed, the disposal process, and the cost of the service. These KPIs can be monitored by third-party agencies to ensure that the contractor is meeting the requirements of the contract. This monitoring and validation mechanism ensures that the contractor is held accountable for the quality of their service. In addition, these contracts can provide a clear framework for the allocation of responsibilities, which helps to ensure accountability. For example, the contract can specify who is responsible for maintaining the system, who is responsible for monitoring the system, and who is responsible for responding to issues that arise. This clear allocation of responsibilities ensures that the system is operating effectively and that any issues are addressed in a timely and efficient manner.

Fourth, citizen engagement is another crucial lesson. The Japanese approach involves citizen participation through websites, information sharing, and public grievance addressing mechanisms at the municipal level. This engagement improves accountability by increasing transparency and providing opportunities for public feedback. Transparency and public feedback are essential for enhancing accountability because they increase the visibility of the sanitation management system. By disclosing financial information related to subsidies, project costs, and disposal costs, stakeholders can hold the government accountable for how funds are being used. Disclosing this financial information on public websites enhances data transparency and promotes sustainable financing. This accountability aspect enables stakeholders to access information about available subsidies, project costs, and the expenses associated with sludge disposal.

Lastly, institutional capacity building plays a significant role in ensuring accountability. In the context of sanitation projects, capacity building can take many forms, including training programs for sanitation workers, community education campaigns, and the establishment of institutional structures that support effective sanitation management. A tangible example of capacity building in the context of sanitation projects is the certification process led by the Japanese national government through a training academy. The certification process ensures that qualified personnel are deployed in the sector, which strengthens institutional capacity by aligning with regulatory requirements and providing a pool of skilled workers to carry out sanitation management activities. This focus on human capital aligns with the regulatory requirements and strengthens institutional capacity, thereby enhancing accountability.

Accountability tools such as consultation with stakeholders, data transparency, and standardization are used globally, including in Japan.

While accountability is not significantly different between countries, the response to these tools may vary based on societal and cultural maturity. In Japan, there tends to be compliance with the prescribed guidelines, whereas in other countries, there may be more questioning and resistance. The tools themselves are the same, but the response can differ. It is worth noting that accountability tools, including disclosure, information, and consultations, are frequently utilized in the context of developing countries like India, Bangladesh, and Nepal. However, the response to these tools may be different in other countries.

In developing countries like India, implementing an effective accountability mechanism for sanitation faces many challenges. One major challenge is the lack of robust monitoring systems, which hampers the success of sanitation regulations even when they exist. Monitoring agencies may also have inadequate capacity or unclear roles and responsibilities, leading to confusion and inefficiencies. Inclusivity and stakeholder engagement are also crucial for successful implementation. Merely adopting a policing approach is insufficient; efforts should focus on collaboration and understanding the needs of different stakeholders, particularly sludge operators and low-income communities. Finally, the existing subsidy mechanisms for low-income communities are often poorly structured. Designing appropriate subsidy systems that help households with poor septic tanks upgrade to new systems is crucial for ensuring affordability and increasing uptake of onsite sanitation systems.

In summary, the Japanese experience in implementing onsite sanitation management offers valuable lessons for developing countries. To increase accountability, governments should make sanitation a public mandate and communicate it explicitly through regulations, monitoring, third-party agency inspections, and transparent subsidy mechanisms. It is also important to have a clear framework for setting and monitoring targets, establish public-private service contracts for monitoring and maintenance activities, involve citizen engagement, and focus on institutional capacity building. In contrast, there are many accountability mechanism issues in developing countries such as India. There are several issues such as lack of robust monitoring, inadequate capacity of monitoring agencies, need for inclusive stakeholder engagement, and development of suitable subsidy mechanisms for low-income communities. In addressing these issues, governments can strengthen institutional capacity, align with regulatory requirements, and promote sustainable financing for effective sanitation management. This can be achieved by adopting good practices such as standardization, rigorous examination, certification, and employment opportunities.

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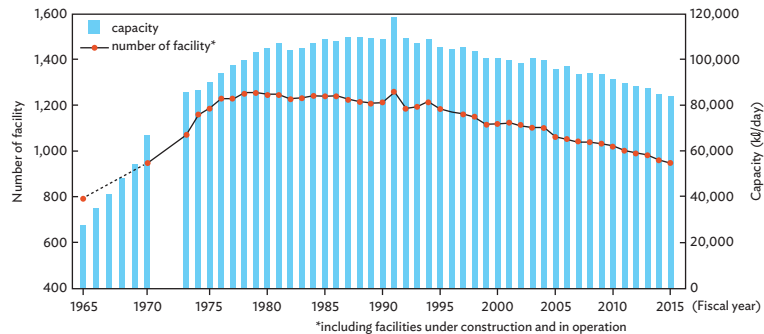
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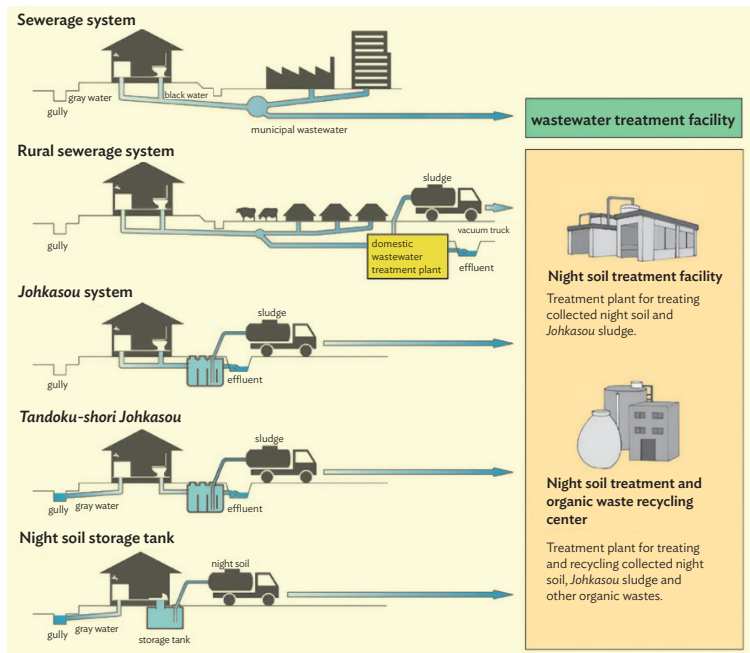
Appendix

Figure A7.1: Trends in Number and Capacity of Night Soil/Sludge Treatment Facilities in Japan



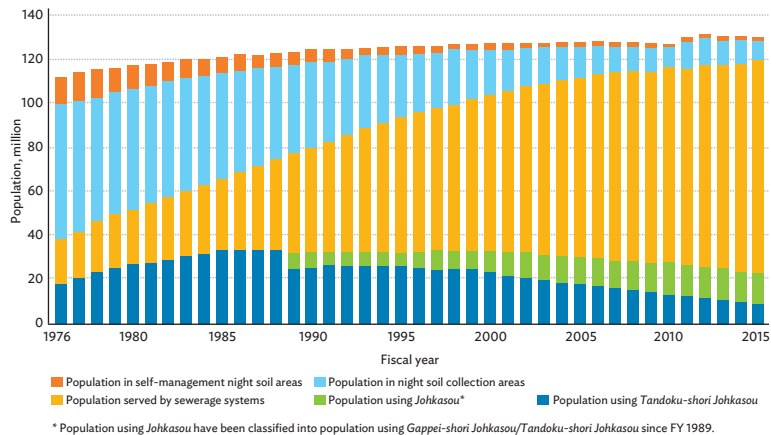
Source: MOE (2019).

Figure A7.2: Major Night Soil and Domestic Wastewater Treatment Systems in Japan



Source: MOE (2019).

Figure A7.3: Population Trend for Night Soil and Domestic Wastewater Treatment in Japan



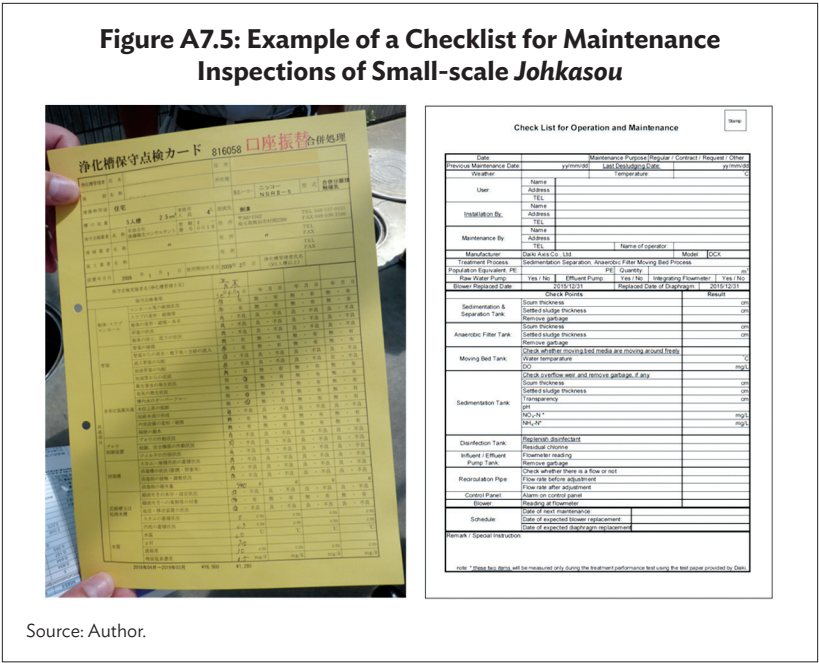
Source: MOE (2019).

Figure A7.4: Example of Small-scale Johkasou



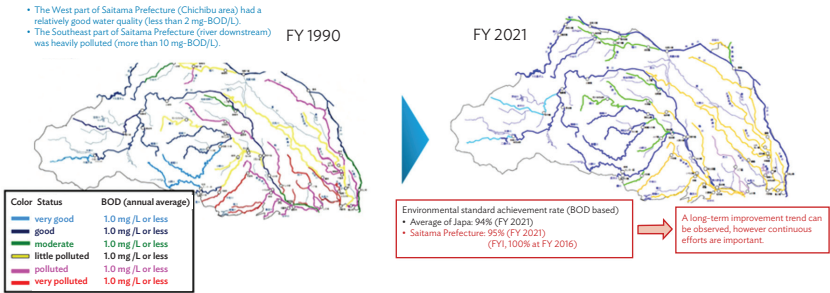
Source: Author.

Figure A7.5: Example of a Checklist for Maintenance Inspections of Small-scale Johkasou



Source: Author.

Figure A7.6: Status of River Water Quality in Saitama Prefecture in FY1990 and FY2021



Source: Saitama Prefecture. Presentation Material from 10th International Workshop on Decentralized Wastewater Treatment in Asia, 2022.

Figure A7.7: Advertisement for Japanese Bidet Toilet



Source: Toto (2022). <https://www.toto.com> (accessed September 2022).

Figure A7.8: The “Destination of Used Water”
(educational video for schools on the public sewerage system
made by NHK, one of the main Japanese public broadcasters)

NHK for School 先生向け OFF ばんぐみ一覧 プレイリスト おうちで学ぼう! 学びをひろげよう ヘルプ リンク集 先生向けとは



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ねらい

地域の人々の生活にとって必要な飲料水の確保のため、計画的、協力的に事業が進められていることを見る。

内容

台所やお風呂、トイレなどでわたしたちが使った水は、どこにいくのでしょうか? 道にあるマンホール。その下をのぞいてみると…。下水道というごれた水をはこぶパイプがはうめくがされています。よごれた水は、この下水道を通過して、下水処理場に集められます。下水処理場は、わたしたちが使ったよごれた水をきれいにするところです。長い時間をかけて、ごみやなどのよごれを取りのぞき、水をきれいにします。きれいになった水は、最後に川に流されま

使った水のゆくえ

台所などで使われた水は、下水道を通過して下水処理場に集められ、そこできれいになって川に戻されます。

関連キーワード: 水 下水 下水道 下水処理場 川

シェアする 🔍 🐦 📘

🔍 この動画へのリンクをコピーする

Source: NHK (2022). https://www2.nhk.or.jp/school/watch/clip/?das_id=D0005402081_00000 (accessed September 2022).

Figure A7.9: Aiming for Clean Water from Homes!
(Educational Publication for Primary Schools from
the Designated Inspection Agency of Gifu Prefecture
for Johkasou Legal Inspections)



Source: Gifu Prefectural Environmental Management and Technology Center (2012).

Figure A7.10: Educational Corner Managed for Research and School Visits at Omiya South Purification Center
(treatment plant for sludge from *Johkasou* and night soil from remaining vault toilets)



Source: Author.

Table A7.1: *Johkasou* Technicians and Vendors (as of end FY2015)

Qualifications/Vendors	Registrants/ Number of Vendors	Business Content	Legal Basis
<i>Johkasou</i> operator	80,042	Operation and maintenance	<i>Johkasou</i> Act
<i>Johkasou</i> installation worker	86,595	Installation/construction	
<i>Johkasou</i> technical supervisor	29,794	Management of <i>Johkasou</i> with 501 PE or more	Enforcement of regulations of <i>Johkasou</i> Act
<i>Johkasou</i> desludging technician	16,021	Desludging	
Registered <i>Johkasou</i> inspector	1,280	Legal inspection	
Specified inspection agency	65	Legal inspection	<i>Johkasou</i> Act
<i>Johkasou</i> manufacturer	18	Research, development, and manufacture	
<i>Johkasou</i> maintenance vendor	12,435	Operation and maintenance	
<i>Johkasou</i> desludging vendor	5,291	Desludging	
<i>Johkasou</i> installation vendor	28,356	Installation/construction	

PE = population equivalent.

Source: MOE (2019).

Figure A7.11: Framework of the *Johkasou* Sector under the *Johkasou* Act

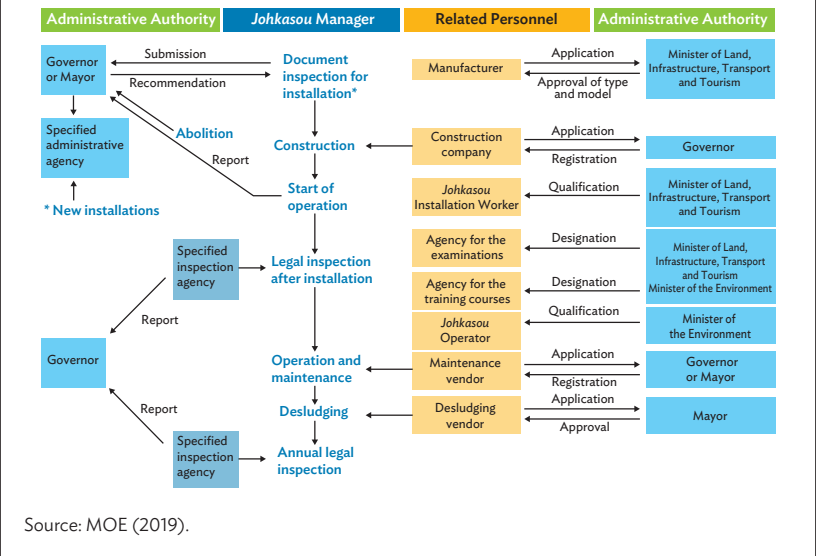


Figure A7.12: Excerpt of the Ministry of Environment's Website Dedicated to the *Johkasou* System (English page)



Source: Ministry of Environment data from Office for Promotion of *Johkasou*. <https://www.env.go.jp/recycle/jokaso/en/> (accessed October 2022).

Figure A7.13: Excerpt of the Page on *Johkasou* from Fuji City Official Website, Shizuoka Prefecture (partly translated into English)



Source: Fuji City Official Website. <https://www.city.fuji.shizuoka.jp/kurashi/c0405/fmervo000000zxh.html> (accessed October 2022).

Box A7.1: Wastewater Management in Ōme City, Tokyo

Meeting with two representatives (section manager and assistant manager) of the Sewerage Engineering Division, Environment Department of Ōme City

Ōme is a city located about 70 kilometers to the west of Tokyo, with about 132,000 people (FY2020). The development of the public sewerage system was favored as a means to extensively spread flush toilets and was first developed in 1972 using a separate sewer system. It remains to date by far the main sanitation system used in the city, covering 99.3% of the population as of end of FY2017. However, in recent years, the wastewater management plan of the city was revised due to population decline and changes in social conditions. Preliminary research showed that using the *Johkasou* system would be cheaper in some areas than the previously planned sewerage expansion, while preserving the water quality in the river running through the city (Tama River). A plan for *Johkasou* development was established in FY2014 resulting in *Johkasou* being preferred in some areas previously designated for the expansion of the public sewerage system. In April 2015,

continued on next page

Box A7.1 *continued*

the city embarked on the “Municipal *Johkasou* Installation Program,” in which users pay a small contribution for *Johkasou* installation (about 10% of the construction cost for a 5 population equivalent [PE] *Johkasou*), while the city ensures the maintenance of the facilities for a user charge similar to what is paid by sewer users. However, as *Johkasou* maintenance generally costs more for the users than for those of the sewerage system, a portion of the general account of the municipality is transferred to the *Johkasou* sector. As the wastewater charge is paid together with the water charge, there is no issue with unpaid bills. If the fee of the sewer user charge is revised in the future, the *Johkasou* user charge will be revised as well.

One of the specificities of Ōme City is that the residences located outside an area covered by the sewerage system and having previously installed a *Johkasou* can join the Municipal *Johkasou* Installation Program and transfer the *Johkasou* maintenance to the municipality. However, if the *Johkasou* is the old type treating only black water (*Tandoku-shori Johkasou*), it has to be converted to the later type treating both gray and black water in order to join this municipal program (about 60% of the *Johkasou* currently in use are the old type *Johkasou*). This program also offers the advantage for customers to pay only for the volume of water they consumed. Accordingly, even if they have a 5 PE *Johkasou* (the size of the *Johkasou* unit is calculated using the residence floor area) but are a family of three people, they will only pay for the amount of water used, contrarily to those using *Johkasou* in a city under a different program, as they usually have to pay for the cost of maintenance based on the *Johkasou* size and regardless of the number of users. Before launching this municipal program, the city used to subsidize a portion of the cost for *Johkasou* desludging. As for public relations activities, each area of the city hold information meetings, but only half of the targeted households usually attend such meetings. In addition, the content of the *Johkasou* service is published in Ōme City’s municipal journal: “Guide for Living”. Other information is shared via notification letters sent once every 2 years to the owners of the old type *Johkasou* (*Tandoku-shori Johkasou*) and those using vault toilets with a night soil storage tank to encourage the conversion to the *Johkasou* treating both gray and black water.

Regarding feedback from customers, they are generally satisfied with the service and there is no complaint about the fee as the charge paid for wastewater treatment depends on the exact amount of water consumed. The municipality has received some rare complaints about a lack of communication with maintenance inspection vendors who sometimes do not come at the inspection scheduled time.

Source: Author.

Table A7.2: Example of Municipal Subsidies for Johkasou Operations and Maintenance

Name of Municipality	Subjects of Subsidy	Amount of Subsidy (approx. \$)
Fujisawa City, Kanagawa Prefecture	D	Approx. \$20 in case of 2 m ³ + approx. \$7 x (α (m ³)-2 m ³)
Fukaya City, Saitama City	M, D	Approx. \$140
Fukuroi City, Shizuoka Prefecture	M, D, LI	(M + D + LI of Johkasou) – Sewer service fee (assuming)
Iida City, Nagano Prefecture	D	Min (approx. \$110, or half of desludging fee)
Kakogawa City, Hyogo Prefecture	M, D, LI	Approx. \$140
Kawagoe City, Saitama Prefecture	LI	Approx. \$50
Kiyosu City, Ehime Prefecture	D	40% of desludging fee
Kumagaya City, Saitama Prefecture	M, D, LI	Approx. \$110 in case of 5 PE
Machida City, Tokyo Metropolitan	M, D, LI	Approx. \$140 in case of 5 PE
Matsumoto City, Nagano Prefecture	D	Half of desludging fee, maximum approx. \$140
Mitoyo City, Kagawa Prefecture	M, D, LI	Approx. \$210
Ogose Town, Saitama Prefecture	M, LI	Approx. \$70
Tachika City, Tokyo Metropolitan	D	Around approx. \$70 (depending on tank volume)
Tatebayashi City, Gunma Prefecture	D	Approx. \$70 in case of 5 PE
Yokkaichi City, Mie Prefecture	M, D, LI	Approx. \$90 in case of 5 PE

D = desludging, LI = legal inspection, M = maintenance inspection, m³ = cubic meter, PE = population equivalent.

Note: The exchange rate at the time this table was made was \$1 = ¥140.

Source: Ministry of Environment, Japan. Presentation Material from 10th International Workshop on Decentralized Wastewater Treatment in Asia, 2022.

PART II

Case Studies

8

Automated Construction Permit and Development Control Process of Dhaka City: Prevailing Policies and Reform Suggestions

*Kamrul Hasan Sohag, Rhyme Rubayet Rudra,
Md. Nabil Sharif, and Yasir Arafat*

8.1 Introduction and Background of the Study

Asian cities are extremely densely populated, and the developing countries hold the world's densest urban areas. Urban population in developing countries will double from 2010 to 2050 (Pojani and Stead 2015). Development control techniques are required for this. Critics claim that high-density areas are "bad for personal growth and social development," citing problems such crowded living conditions, psychological stress, individual anonymity, and unsatisfactory social relationships. Dhaka, the capital of Bangladesh, is one of the megacities with the highest growth rates globally. The unpredictable transformation that has occurred in Dhaka and its environs is the result of poor urban planning implementation and the lack of a long-term vision. The Dhaka Metropolitan metropolis is now the busiest and most densely populated city on the planet. The Dhaka Metropolitan Development Plan lacks an integration policy that could lead to shared aims and objectives across the various factions. The plan ignores the geographical aspects necessary to coordinate the growth and management of Dhaka (Rahman and Chowdhury 2015). In Dhaka, there are no regulations governing road crossings. As a result, the city is not required by law to manage crossings (Chowdhury 2014). Due to significant land infill, Dhaka is

seeing an abundance of land and house building projects, much like the outskirts of metropolitan areas of many capitals in emerging countries (Alam and Ahmad 2010).

Any master plan must include public input (Mitchell 2013). A company by the name of Minupria and Macfarlane created the first master plan for the city of Dhaka in 1958. This plan was created for a 20-year period under the direction of the Dhaka Improvement Trust. In this instance, instead of conducting socioeconomic research, the trust presumes the needs of the local populace (Kabir and Parolin 2012). The Dhaka metropolitan region Integrated Urban Development project was launched in 1981 with the help of the Asian Development Bank. One of the project's key goals was to offer a lengthy planning approach for the growth of the Dhaka metropolis. Even that plan's suggestion had not been implemented by the authority by 2000 (Zaman, Lau, and Mei 2000).

A survey was conducted on the urban planning stakeholders in different professional categories like engineers, architects, and town planners who were enrolled with Rajdhani Unnayan Kartripakkha (RAJUK) and different consulting firms engaged in the detailed area plan preparation process. Over 300 samples were collected. The stakeholders were involved in building design, soil investigation, structural integrity of buildings, and the urban planning process. This survey was conducted to know about their opinions, complaints, and recommendations about the current development control mechanism and the current participation of citizens in the planning and implementation process of RAJUK. This study also focuses on how the existing loopholes of the planning and implementation process of RAJUK can be minimized by citizens' participation.

8.2 Literature Review

Involvement through participatory development with tackling the “feeling of community” concept elements grows with trust among people, society cooperation, and cooperation with the authorities. These elements point to the fundamental idea of “social capital,” which is built on three interconnected dimensions of bonding, bridging, and linking (Claridge 2018). Trust in a person's opinion or anticipation of an object's behavior, future plans, or accomplishment (Weingran 2007). Recently, the aspect of “linking” has entered the picture, and its benefits can help remove any hesitation about connecting with the locals and the authorities. This encourages people to become more conscious of their rights and to feel confident to engage in decision making so they can create their own destiny.

Many country examples are discussed in current discussions about planning involvement, and some of these important ideas are covered in this chapter. Studies have looked at how urban movements affect how people participate in master plans (Martínez 2011). In addition, surveys of experiments and early versions of information technology (IT) applications may be found in some papers. Essays on geographic information systems, three-dimensional models, communication tools, and computer games for participatory planning (Hanzl 2007), assess a municipality's attempts to actively include inhabitants in reconstruction planning. Many articles on the future of places help to understand how easily accessible, cost-free technology can remove participation barriers, while encouraging innovation and expression (Wilson and Tewder-Jones 2019). Finally, some papers discuss citizenship participation strategies (Burke 2007). It has been observed that technologies are employed as a tool to involve citizens in the planning process. Although governments have established a variety of strategies to encourage participation, these approaches frequently fail to produce a meaningful means of communicating citizens' desires for places (Wilson and Tewder-Jones 2019).

8.3 Methodology

The study was built on the collection of primary and secondary data. Approximately 300 classified professionals including engineers, architects, town planners, landowners, developers, and regular citizens, were questioned via a survey to ascertain their level of impression among planning stakeholders concerning the urban development philosophy and vision, people's participation, and predominant development policy measures of the RAJUK detailed area plan.

About RAJUK

The Town Improvement Act of 1953 established RAJUK as the legally recognized planning, development, and development control agency for the greater Dhaka, Narayanganj, and neighboring districts. RAJUK is an independent organization led by a chairperson and five government employees who are tasked with overseeing five distinct departments.

Research Area

The research area was Dhaka city, which is the capital city of Bangladesh and has become the 26th megacity and the 10th most populous city in the world (ESCAP 2018).

Figure 8.1: Location of Study Area



Source: RAJUK Official Website.

Dhaka is situated along the Buriganga river (Ishtiaque, Mahmud, and Rafi 2014) (Figure 8.1) and above the mean sea level of 4 meters. The entire boundary is divided into two regions: the Dhaka North City Corporation and the Dhaka South City Corporation. These two administrations are composed of 36 and 57 wards, respectively (Swapan et al. 2017). It was the eleventh largest megacity with 17 million population (Khalequzzaman et al. 2017).

Data Collection and Processing

A sample of respondents were questioned to learn more about public involvement in the master plan production process. The respondents included land developers, owners, planners, architects, and engineers,

among other professions. The data were thereafter entered into the Statistical Package for the Social Sciences tool to obtain the desired results from the dataset.

Research Objectives

The objectives of the present experiment are to:

- (1) Represent the complete framework of the development control process and also show perceptions of the stakeholders.
- (2) Represent the existing process of the development control mechanism, people's participation, and assess stakeholders' satisfaction level toward the system.
- (3) Represent inclusive sanitation of Bangladesh at a glance.

8.4 Existing Development Control Mechanism of RAJUK

The development control mechanism is the most sensitive instrument in an unplanned and spontaneously developed city. Dhaka is the nucleus of all categorized development activities in Bangladesh. Recently, RAJUK initiated a revision of the detailed area plan and enacted Dhaka Metropolitan Building (Construction, Development, Preservation and Removal) Regulations 2008 in accordance with the provisions of the Building Construction Act 1952 and the Town Improvement Act 1953. These guidelines and norms govern how RAJUK conducts its development control role. Each building, erection, or excavation within the boundaries of RAJUK requires authorization or approval from the Building Construction Committee, which is designated in accordance with the Town Improvement Act of 1953. Any sort of structure construction, whether it is residential, commercial, or industrial, needs to have its plan authorized and must adhere to the land use restrictions outlined in the master plan, urban area plan, and detailed area plans. The rules are changed as necessary. There are currently 26 building construction committees in operation, with authorized officers serving as member secretaries.

Building Plan Approval Process in Dhaka

The Town Improvement Act of 1953 established RAJUK, a statutory and lawful body responsible for planning, directing, and monitoring development in the greater Dhaka, Narayanganj, and neighboring districts. A plot owner must apply for a land use approval prior to building

anything to ensure that it complies with the master plan’s suggested uses for the site. The plot owners receive a “No Objection Certification” of land use clearance if the applied land use supports the master plan’s concept. The owners apply for authorization of the building plans for the site and the building’s detailed architectural drawings. A landowner must obtain the “land use clearance” and “approved building plan” from RAJUK prior to beginning any kind of project.

Development Control Perception

The study reveals people’s increasing awareness of environmental degradation with 13.89% of respondents mentioning it (Table 8.1). Healthy construction does not mean bulky and tall buildings, rather buildings with healthy dwelling units with enough air and ventilation. Urban green space is the direct outcome of a successful development control mechanism.

Table 8.1: People’s Perceptions Regarding Development Control Mechanism

Subject	Number	Percentage
a. Planned urbanization	157	16.77
b. To prevent environmental degradation	130	13.89
c. Density control	123	13.14
d. Healthy construction	100	10.68
e. Promote green space	111	11.86
f. Deviation control of building	95	10.15
g. Rapid construction permit	64	6.84
h. Sustainable urban development	145	15.49
i. Not willing to respond	4	0.43
j. Others	7	5.21
Total	936	100

Source: Field Survey (2022).

Preferences of Development Control Methods

Block-based development policy is a new dimension of town planning in Dhaka. In this process, land accumulation is encouraged by facilitating a larger block of land that is provided with services and enough height for accommodating more people. About 16.20% of respondents prefer block-based development. Site and service is a housing development approach used in Dhaka and other cities for low-income groups. It provides affordable land plots with essential infrastructure like water, electricity, and roads, improving living conditions, and encouraging planned urban growth. Site and service is the commonly used traditional method in Dhaka, and is preferred by 10.59% respondents. Compulsory land acquisition, a bureaucratic top-down approach practiced in the case of government projects in Dhaka, is liked by 7.53% of survey respondents. Land readjustment has never been practiced in Dhaka, which is preferred by 14.92% of stakeholders. The role of the private sector is increasing day-by-day as well as being popularized, reflected in 9.18% of respondents' choice. Guided land development is conducted by infrastructure facilitation and is preferred by 15.94% of respondents. Public-private partnerships are becoming popular, preferred by 13.39% of stakeholders (Table 8.2).

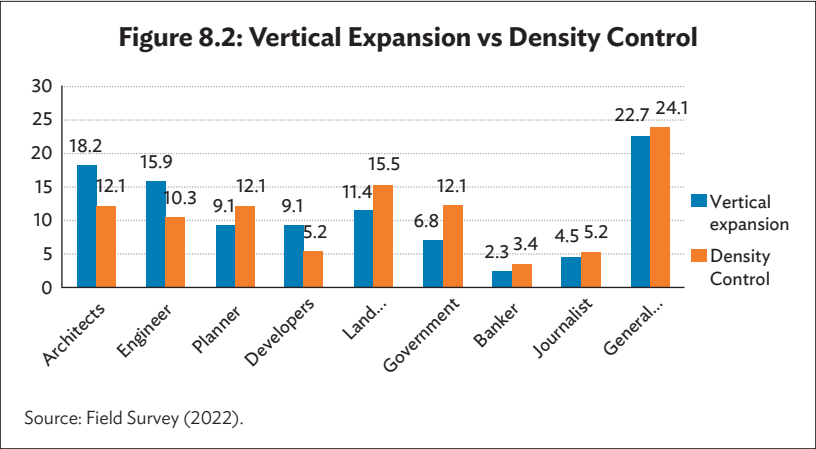
Table 8.2: Preferences on Selecting Development Control Methods

Subject	Number	Percentage
a. Block-based development policy	127	16.20
b. Site and service	83	10.59
c. Compulsory land acquisition	59	7.53
d. Land readjustment	117	14.92
e. Redevelopment	90	11.48
f. Promote private sector	72	9.18
g. Guided land development	125	15.94
h. Facilitating public-private partnerships	105	13.39
Decentralization, land acquisition, and others	6	0.76
Grand Total	784	100

Source: Field Survey (2022).

Professional Paradigm Shift in Development Control Philosophy Choice

The general scenario regarding the development control vision was shifted as per professional attachments of the respondents. Every profession justified the vision requirement for the city as per their professional views, perspectives, and business. Vertical expansion is preferred by professionals such as architects, engineers, and developers due to considering the acute shortage of buildable land. Planners, landowners, bankers, journalists, and general citizens preferred to control density by perception of development control philosophy selection. Development control philosophy perception varies in terms of professional attachment of the development control stakeholders (Figure 8.2).



Participation Method in the Development of the Detailed Area Plan

The process of preparing a plan incorporates a number of strategies for involving the public including socioeconomic surveys, participatory rapid appraisal, social mapping, stakeholder meetings, written seminar remarks, and public hearings. About 50% of the respondents had no chance to take part in the creation of any plans.

Table 8.3: Methods of Participation in Detailed Area Plan

Modes	Participant Frequency	Percentage
b. Socioeconomic survey	19	6.33
c. PRA session	13	4.33
d. Social mapping	20	6.67
Decision making process	1	0.33
e. Stake holder meeting	20	6.67
f. Seminar	24	8.00
g. Written comments	11	3.67
h. Respondents	9	3.00
i. Public hearings	17	5.67
j. In all stages of plan preparation	1	0.33
Not willing to participate	16	5.33
Did not participate in any stage	149	49.67
Grand Total	300	100.00

PRA = participatory rapid appraisal.

Source: Field Survey (2022).

Level of Participation in Preparing Building Construction Rules, 2008

About 22.74% of participants said that the opinions of the citizens were neglected. Another 22.74% stated that there was no scope for general public engagement in the creation of the building construction guidelines for 2008. About 18.79% of people believe that the Institution of Engineers Bangladesh, the Institute of Architects Bangladesh, and the Bangladesh Institute of Planners vocational involvement was guaranteed. Private builders' comments were disregarded according to the Real Estate and Housing Association of Bangladesh, a professional body of housing investors, which mentioned 5.8% in its responses. 7.8% of those surveyed mentioned strong participation as a positive idea. 8.35% of respondents said that no participation was guaranteed, and the building construction rules preparation process was completely bureaucratic (Table 8.4).

Table 8.4: Participation Level in Creating the 2008 Building Construction Regulations

Degree of Participation	Frequency	Percentage
a. Strong involvement	34	7.89
b. Bureaucratic and no participation	36	8.35
c. Contribution of professionals as IEB, IAB, BIP was ensured	81	18.79
d. Public opinions disregarded	98	22.74
e. Developer's opinion and REHAB were ignored	25	5.80
f. No provision of participation of general people	98	22.74
g. No provision of participation of local people	5	1.16
h. Lack of involvement of urban planner from preparation to execution	1	0.23
i. Not willing to respond	53	12.30
Grand Total	431	100

IEB = Institution of Engineers Bangladesh, IAB = Institute of Architects Bangladesh, BIP = Bangladesh Institute of Planners, REHAB = Real Estate and Housing Association of Bangladesh.

Source: Field Survey (2022).

Level of Satisfaction in Contribution

The degree of access to the planning and judgment process that people have depends on their level of involvement satisfaction. According to the report, 6.33% of those polled are extremely satisfied with their ability to contribute to urban planning strategies, while 19.00% of respondents are satisfied overall. Regarding their involvement in policy making, about 31.00% are neither satisfied nor dissatisfied. Roughly 35.33% of people are unsatisfied (Table 8.5).

Table 8.5: Participation Satisfaction Level

Satisfaction Level	Frequency	Percentage
a. Highly satisfied	19	6.33
b. Satisfied	57	19.00
c. Neither satisfied nor dissatisfied	93	31.00
d. Dissatisfied	106	35.33
e. Highly dissatisfied	24	8.00
f. Not willing to respond	1	0.33
Grand Total	300	100

Source: Field Survey (2022).

Level of Satisfaction with RAJUK Service

The consequence of progress control efforts is represented by the level of pleasure that is properly justified. According to the report, 9.0% of participants are extremely satisfied with the service they received from RAJUK, compared to 22.33% who are satisfied overall. Concerning RAJUK’s services, 31.33% are neither happy nor dissatisfied. Regarding RAJUK’s operations, about 24.00% are unsatisfied, while 11.67% are extremely displeased (Table 8.6).

Table 8.6: People’s Level of Pleasure with RAJUK Service

Degree of Satisfaction	Frequency	Percentage
a. Highly pleased	27	9.00
b. Pleased	67	22.33
c. Neither pleased nor displeased	94	31.33
d. Displeased	72	24.00
e. Highly displeased	35	11.67
I am not sure	1	0.33
No answer	4	0.67
Grand Total	300	100.00

Source: Field Survey (2022).

Level of Satisfaction with RAJUK Service

The level of fulfillment with service delivery is associated with people’s involvement in policy making. To fulfill its legal obligations of the planning process, development, and development control and to satisfy its customers, RAJUK should implement a methods process. In order to increase equality in policy participation, gender-segregated data were gathered (Table 8.7).

Table 8.7: Respondents’ Cross Tabulation

		Frequency	%	Valid %	Cumulative %
Valid	Male	200	66.7	66.7	66.7
	Female	100	33.3	33.3	100.0
	Total	300	100.0	100.0	

Source: Field Survey (2022) and author’s analysis.

Information was gathered from several professional groups, who are active participants in Bangladeshi planning. As stakeholders become more knowledgeable about the problems, they become more proactive in their engagement in decision making. Cross-tabular correlation indicates that policies are relevant at higher levels of participation and customer experience. This means that the client who get straight service delivery—the clients—should have taken part in the creation of the plan.

**Table 8.8: Level of Participation
and Customers Satisfaction Correlation**

		Degree of Satisfied with RAJUK Service	Level of Satisfaction in Participation
Degree of satisfied with RAJUK Service	Pearson Correlation	1	0.286**
	Sig. (2-tailed)		0.000
	N	300	300
People's participation satisfaction level	Pearson Correlation	0.286**	1
	Sig. (2-tailed)	0.000	
	N	300	300

Note: ** = statistical significance of $p < 0.01$.

Source: Field Survey (2022) and authors' analysis.

**Process of Strengthening Development
Control Mechanism**

About 19.10% of stakeholders want a building monitoring system established and 17.68% suggested fully automated development control activities. The implementing agency should be equipped with modern demolition equipment was mentioned by 7.87% of respondents. About 17.55% of the responses mentioned it is significant to increase the technical capacity of building departments. It is important to increase logistics and recruitment of specialized skilled staff was viewed in 11.10% and 12.00% of the responses, respectively (Table 8.9).

Table 8.9: Stakeholders' Suggestions on Strengthening Development Control Mechanism

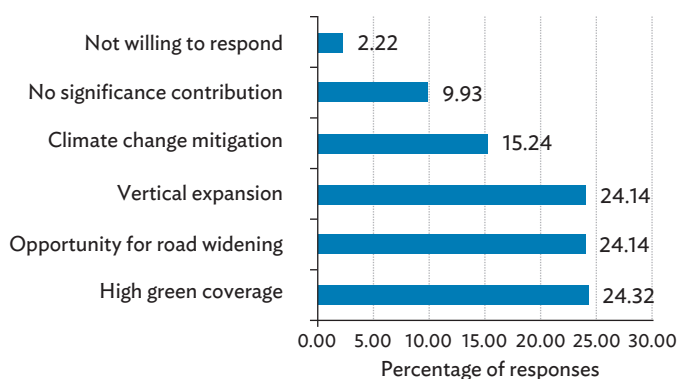
Subject	Number	Percentage
a. Establish building monitoring system	148	19.10
b. Automation of development control activities	137	17.68
c. More demolition equipment	61	7.87
d. Remove the grey point within the policies	104	13.42
e. Increase technical capacity of building department	136	17.55
f. Increase logistics	86	11.10
g. Recruit more skilled staff	93	12.00
h. Digitalization and institutional development of RAJUK	10	1.29
Grand Total	775	100.00

Source: Field Survey (2022).

Stakeholders' Perceptions on Floor Area Ratio

The Building Construction Rules of 2008 established the floor area ratio (FAR) (Ministry of Housing and Public Works 2008). About 24.32% responses are in favor of FAR that increases green coverage of the city. People mentioned the significance of FAR in contributing to vertical expansion and opportunities for widening narrow roads by 24.14% responses for both the categories (Figure 8.3).

Figure 8.3: Stakeholders' Perception of Floor Area Ratio



Source: Field Survey (2022).

People’s Perceptions in Service Delivery

Under the existing policy framework of development control system, people lack proper information and awareness regarding the service as mentioned by 20.87% of the respondents. About 18.36% of the respondents mentioned the interference of brokers. About 10.68% were concerned with misbehavior of officials, and 16.36% with noncooperation of officials. The respondents significantly of about 18.20% of them mentioned about inappropriateness of policy of the Detailed Area Plan. The expenditure of construction permission was too high, as mentioned by 3.34% of the respondents (Table 8.10).

Table 8.10: People’s Perceptions in Institutional Service Delivery

Subject	Number	Percentage
a. Lack of information and awareness	125	20.87
b. Interference of brokers	110	18.36
c. Misbehavior of the officials	64	10.68
d. Lack of cooperation of officials	98	16.36
e. Inappropriate DAP policy	109	18.20
f. Higher expenditure	61	10.18
g. Bureaucratic procedure that is unnecessary lengthy	3	0.50
h. Miscellaneous tendency of corruption and lack of accountability	9	1.50
i. Unwilling to reply	20	3.34
Grand Total	599	100

DAP = detailed area plan.

Source: Field Survey (2022).

Comments and Recommendations from the Public on the Floor Area Ratio

FARs were enacted in the Building Construction Rules 2008 for many reasons. About 24.32% of people mentioned the significance of FAR in its contribution in increasing green coverage, while 24.32% of respondents mentioned a new opportunity in widening narrow roads. Another group of 24.14% respondents mentioned that FAR contributed significantly to promoting vertical expansion (Table 8.11).

Table 8.11: People's Opinions on Floor Area Ratio

People's opinion	Frequency	Percentage
a. Higher green coverage	142	24.32
b. Opportunity for road widening	141	24.14
c. Vertical expansion	141	24.14
d. Climate change mitigation	89	15.24
e. No significant contribution	58	9.93
f. FAR should be increased to protect agricultural land	1	0.17
g. Role in ground water recharge	1	0.17
h. Construction safety	1	0.17
i. Unwilling to reply	10	1.71
Grand Total	584	100.00

FAR = floor area ratio.

Source: Field Survey (2022).

People who are more interested and used to approve plans in the previous rules are not interested in FAR. They responded that there is no need for FAR in the development control process. FAR was introduced in the development control mechanism of Dhaka city for many reasons including increasing higher green coverage, opportunity for road widening, vertical expansion, climate change mitigation, and other reasons that are correlated with each other (Table 8.12).

Table 8.12: Correlation Matrix between Floor Area Ratio and Stakeholders' Notions

	Floor area ratio	Higher green coverage	Road widening scope	Vertical expansion	Climate change mitigation
Floor area ratio	1				
Higher green coverage	0.96	1			
Road widening scope	0.98	0.97	1		
Scope of vertical expansion	0.96	0.91	0.91	1	
Climate change mitigation	0.21	0.04	0.14	0.20	1

Source: Research analysis (2022).

Professionals expressed opinions about the quantitative allotment of sanctioning FAR. About 43.70% professional respondents are optimist and commented that the existing FAR values are sufficient. About 36.30% of responses were in favor of increasing the FAR values and another 20% wanted to decrease them.

Table 8.13: Peoples Suggestions Regarding FAR

People's Suggestions	Frequency	Percentage
FAR value should be decreased	60	20.00
FAR value is sufficient	131	43.70
FAR value should be increased	109	36.30
Grand Total	300	100

Source: Field Survey (2022).

Automated Functions for Development Control Mechanism

RAJUK has decided to implement an automated development control process. An automated development control process is the process of doing all development control-related works such as land use clearance service, construction permit service, and occupancy certificate using software and databases (Yaakup et al. 2007). Around 12,000 construction related permits are issued every year by RAJUK using the construction permit automation system built and operated by Technohaven (Technohaven 2021). Before automation, construction-related permits used to be processed in an average of 6 months, with some cases taking up to several years. Urban planning stakeholders contributed to policy suggestions for a vibrant automated development control process for Dhaka City. The scope of the system is to enhance online facilities to allow submission of applications for clearance, construction permit, appeal or renew, and internal workflow facility for RAJUK to process, approve the applications, and issue land use clearance and construction permits. Existing automated functions so far conducted are:

- Automated land use clearance service
- Automated construction permit service
- Issuance of occupancy certificate
- Inspection and penalization process

- Online appeal process of rejected clearance and permit
- Renew of expired clearances, permits, and certificates
- Deregistration or cancellation of clearance and construction permits

Data Validation

The implementation of online forms of paper applications used in RAJUK allows users to enter the information into the relevant fields and will validate data accordingly for different types of integrations.

System Integration

An application programming interface (API) is a set of rules and protocols that allows different software applications to communicate and interact with each other. In this case, the API integration between the Bangladesh Investment Development Authority (BIDA) and the relevant systems (such as those managed by RAJUK or other government agencies) would enable seamless data exchange and communication between their platforms. BIDA is a significant government agency that facilitates investment. It is integrating its systems with API technology to streamline the process of obtaining land use clearance and construction permits, making it more efficient for investors and businesses. It is entrusted to coordinate the World Bank's Ease of Doing Business with assistance from the International Finance Corporation. RAJUK has made systematic reforms for quick service delivery, which is integrated with BIDA in order to monitor the process.

API integration with the Election Commission for national identity document

- API integration with Engineers Institute
- Internal connectivity of construction permit to land use clearance
- API integration with Estate Department
- API integration Online Payment Gateway

System Facilities

System facilities encompass online application facilities for all types of applicants, comment sheets for each applicant, checklists for specific applications, print facilities, and a dynamic system workflow. In the system, administrative users can add or remove stages as needed. The system consists of an online national identification verification process.

System Security

The system is equipped with controlled access according to role. It is secured with an automated payment environment consisting of data security, data back up, and fault tolerance.

8.5 Citywide Inclusive Sanitation

The Dhaka Water Supply and Sanitation Authority (WASA) is in charge of providing sanitation services. This independent institution reports to the local government ministry. The whole sanitation network for the city must be planned, designed, and implemented by Dhaka WASA. The network was initiated as a route of network sweeper passages during the Mughal Period, which was linked with the nearby Buriganga River and the nearby lakes. Even the sewers of exclusive areas like Gulshan, Banani, and Baridhara are connected to Gulshan Lake. A sewerage treatment plant was not preplanned as per urban growth.

Three interconnected criteria can be used to define citywide inclusive sanitary conditions: clear responsibility, strong accountability, and resource planning and management that is appropriate for the task at hand. Urban sanitation systems that have been implemented have a focus on controlling and financing the piping infrastructure for sewage. The main goals of citywide inclusive sanitation are to prioritize high-quality sanitation services while achieving equity, safety, and sustainability in distribution. The community of nongovernment organizations (NGOs) plays a significant part in providing sanitary services in Dhaka. NGOs have stepped in in a variety of ways where the state sector and major donors have been unable to support solutions, from the creation of public-private collaborations for inclusive intake and treatment programs in bigger initiatives (e.g., Water and Sanitation for the Urban Poor, Shifting the Water, Sanitation, and Hygiene, and Environmental Governance Landscape in Small Towns in Bangladesh”), to operating a treatment plant and collection and transportation services (e.g., the AID foundation with backing from *Stitching Nederland’s Virilities* in Jhenaidah). In an effort to expand sustainable citywide sanitation, the International Training Network, a center of the Bangladesh University of Engineering and Technology, has started a new project. The project includes expertise from the prior collaboration with the Bill & Melinda Gates Foundation to increase national capacity for citywide inclusive sanitation and fecal sludge management (Financial Express 2021).

8.6 Conclusion and Recommendations

Rapid transformation in urbanization policy is a continuous process accommodating people's demands for technological change around the globe. The development of unrealistic, ineffective policies that cause issues in the development control process—which is crucial for promoting a business-friendly environment and facilitating investment in the planned built environment—is the result of duplication and a lack of coordination among intersectoral agencies. Institutional capacity building is the prime concern for sustainable environmental development. This study recommends the following:

- A geographic information system should be established for the sustainability of the development control process.
- The manual land information system of the government should be replaced with an automated special database.
- The road database should be automated to provide allocation of the FAR.
- Law enforcement agencies should be strict in arranging mobile courts, penalties, and imprisonment of the middle people who are often blamed of cheating the general populace for getting services.
- The RAJUK database should be digitally interlinked with plans and programs of other departments.
- An automated building monitoring system based on satellite or any kind of remote sensing image for deviation control should be introduced.
- RAJUK should be equipped with more professional employees such as architects, engineers, and town planners for delivering quick responses and disposal of institutional services to the people.
- Development control process should be more transparent, accountable, and people-centered in delivering institutional services to its customers.
- Environmental sustainability should be the prime concern in development control policy formulation and its execution in providing institutional services.
- Development control policy formulation such as the preparation of master plans, detailed area plans, building rules, and regulations should be followed by participatory process with stakeholder participation and consensus for its sustainability.

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9

Market Borrowing by Small and Medium-sized Urban Local Bodies using a Pooled Fund Mechanism for Urban Infrastructure in India

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9.1 Introduction

By agreeing to implement the Sustainable Development Goals (SDGs) in 2015, all the United Nations (UN) member countries have agreed to work toward providing access to clean water and sanitation services as per SDG 6. The main objective of this goal is to ensure that water is available to all, managed sustainably, and with appropriate sanitation facilities (United Nations 2015). As per the UN Water's SDG 6 progress report in 2022, there were 2 billion people who did not have access to safe drinking water, 3.6 billion people did not have access to safely managed sanitation services, and 2.3 billion people did not have access to hand washing facilities (UN-Water 2022). The current rate of progress needs to be doubled to achieve universal access to sanitation services by 2030, with substantial investments being made for the same (OECD 2018; United Nations 2019). It is important to note that even though there is recognition that the water and wastewater sectors' development depends on the level of investments, the efforts for the same are not commensurate with the same (OECD 2019).

Due to rapid urbanization in India, the second most populous country in the world, water demand has increased approximately threefold during the past 5 decades. Wastewater infrastructure

availability and the associated management of water resources have not kept pace (Sethi 2019). In 2017, in India 163 million people did not have access to safe water, and 210 million did not have improved sanitation (Sarkar 2019). As per the NITI Aayog report in 2019, 75% of households did not have access to drinking water on the premises, and 84% of rural households lacked pipe water access (NITI Aayog 2018). India's Ministry of Water Resources estimates that water demand will increase to 843 billion cubic meters (bcm) by 2025 and 1,180 bcm by 2050 in a high-demand scenario (NITI Aayog DMEO 2021). However, current water availability stands at 695 bcm. The total water availability in the country is still lower at 1,137 bcm as compared to the demand. This also highlights the urgent need to pay attention to water resources and their better management to avoid water scarcity (NITI Aayog 2018). The rapid increase in population has also led to increased requirements for sanitation services and facilities. Sanitation infrastructure lagged behind that of water for some time, with many not having access to sanitation services. However, the situation has improved in the last decade. As per the National Annual Rural Sanitation Survey (NARSS), an independent survey commissioned by the Government of India, for the fiscal year 2019–20, 98% of households in the open defecation-free villages had access to toilets. However, only 77% of households in the non-open defecation-free villages had access to toilets. The report states that the number of households practicing open defecation has decreased from 6.7% in NARSS Round 2 (2018–19) to 5.6% in NARSS Round 3 (2019–20) (Ministry of Jal Shakti 2020).

The water supply provision in Indian cities is the responsibility of the urban local bodies (ULBs), which govern the urban areas. The ULBs, organized as the third tier of government, rely on a combination of self-finance (taxes) and devolutions from state and central governments to provide civic services in their jurisdictions. ULBs in India differ substantially in their size and scale in their ability to raise self-finance, with larger ones in a relatively much stronger situation than their small and medium-sized counterparts. However, the scale of investments required for implementing various water supply and sanitation infrastructure works is beyond the financial ability of most of the ULBs. For a long time, the service levels provided by the ULBs were far below the accepted national and international standards. Many cities did not have access to continuous pressurized drinking water supply, were prone to disruptions and the quantity and quality supplied was below the desired standards (Ahluwalia 2011). The initial set of service level measurements and comparison with prescribed standards presented a grim picture across all the dimensions of coverage, quality, quantity, and customer service. Until the time the Ministry of Urban Development

had formulated the service level standards, there were no uniform metrics to compare the performance of the ULBs in the country. A lack of financial strength and continuous institutional support resulted in the ULBs being viewed as falling short in their delivery of municipal services. They struggled to demonstrate both procedural accountability and the outcomes from various policy actions that were been undertaken (Mukherji 2002).

One of the early initiatives to improve accountability in the system was the report prepared with the assistance of the World Bank titled “Developing a Regulatory Framework for Municipal Borrowing in India” (World Bank 2011). The report indicates that there is substantial reluctance in the ULBs to borrow from commercial or market sources. The near hassle-free system of state and central financial support for developing water and sanitation projects means that the ULBs were not keen to explore commercial or market borrowing, which would entail a rigorous scrutiny of their performance. A grant-based financing structure did not incentivize the ULBs to either improve their physical performance or actively seek opportunities to maximize their revenues, reflecting in weaker accountability (Kapoor and Pati 2017). The Government of India has configured numerous financial schemes to support the country’s water and sanitation sector’s development. These schemes provide initial capital expenditure support, often requiring contributions from the respective state governments. The Government of India encourages the configuration of market-based instruments to broad base the sources of financing of the sector and improve the fiscal strength of the subnational entities to borrow on their own. Two unique pooled funds were launched in Tamil Nadu (in 2002) and Karnataka (in 2005) to support the ULBs to access the capital market to raise debt to finance their water and sanitation projects. The structure involved participation by parastatal agencies in the respective states, exploration of credit guarantee mechanisms, and the launch of municipal bonds. These pooled fund structures were viewed as pioneering efforts that would give incentives to how the water and sanitation projects would be financed. It is expected that the issuing municipalities would need to develop stronger transparency and reporting structures in financial management, operational performance, and service delivery standards, hence achieving overall accountability standards. The Ministry of Urban Development configured the Pooled Finance Development Fund scheme in 2006, promoting the structure adopted in the two pilot projects (MOUD 2008). The objective of the initiative was to accelerate the capital market borrowings by the ULBs to meet their investment needs, particularly in the water and sanitation sectors. However, no further pooled finance structures have been developed in the country

since then. The uptake of municipal bonds by the ULBs also has been sporadic in India, with an initial period of action between 1997 and 2005, followed by a lull for about a decade. The bond issuances started picking up in 2017 due to a push by the government through another urban rejuvenation initiative. The reluctance of the ULBs to approach the capital markets is due to a combination of supply-side and demand-side constraints emanating from their perceptions of accountability in the provision of municipal services.

This chapter aims to examine the key constraints that hinder mainstreaming structures that facilitate capital market borrowings and the links with the accountability of ULBs. The analysis has been undertaken through the case studies of the two pilot water and sanitation pooled funds and analyzing the trajectory of the launch of municipal bonds in India. This chapter focuses on pooled financing and municipal bonds and how they have been utilized in India to advance the sector by discussing cases of two pooled funds—the Karnataka Water and Sanitation Pooled Fund Trust (KWSPFT) and the Water and Sanitation Pooled Fund (WSPF) Tamil Nadu.

The rest of the chapter is structured as follows. Section 9.2 briefly sets out the literature review. The Indian water supply and sanitation financing landscape is presented in Section 9.3. The details of the two pilot water and sanitation pooled funds are set out in Section 9.4. The discussions are presented in Section 9.5. The policy implications are set out in Section 9.6, and the conclusions are presented in Section 9.7.

9.2 Literature Review

In the United States (US), municipal bonds have been raised by the local authorities to meet the financing gap in implementing infrastructure projects such as schools, highways, and other public infrastructure. The source of finance for municipalities up to 1996 remained largely their own tax revenues and transfers from the central government. The borrowings from the capital markets have become a strong option after the issuance of unsecured bonds by Rio Janeiro in international capital markets. While the purpose of this particular instrument was to refinance its expensive debt, the self-issued bonds by the municipalities for financing various infrastructure projects became popular over a period. The US federal government had provided a financing and credit underwriting structure in 2000, which eliminated the need to seek guarantees from this central government. The credit requirements for banks could be met through two independent rating agencies providing their rating perspectives or the municipality providing its own issuer rating or support and/or endorsement by the provincial government.

Currently, the US has a bond market the size of \$3 trillion per annum (Brancaccio, Li, and Schürhoff 2020). Cities have preferred municipal bonds to reduce the cost of financing (reduction in the interest rate) compared to a loan from a commercial bank (Samonikov et al. 2017).

While these initiatives helped encourage the subnational entities to explore the capital markets, the uptake by the small and medium-sized cities faced constraints due to the smaller issuances with associated higher costs. The situation was also similar in Latin America from where the concept of subnational entities borrowing from the market started. The challenges that these municipalities face include (i) ratings of the cities and states are limited by the rating of the federal government, thereby impacting the creditworthiness and seeking larger issuances, (ii) the economic condition of the country and international capital markets influenced the performance of subnational issuances, (iii) the transaction cost of obtaining international credit rating is high as there are only a limited number of rating agencies, and (iv) to curtail the unhindered issuances, many countries have brought in fiscal restrictions such as the fiscal responsibility laws in Brazil, Colombia, and Peru (Platz and Schroeder 2007). Subsequently, multilateral development agencies such as the World Bank encourage the adoption of pooled finance structures through various parastatal agencies to counter small and medium-sized municipalities' challenges.

The US, Canada, and some European countries have adopted pooled financing mechanisms for the development of different infrastructure projects (Ghodke 2014). Under a pooled finance mechanism, an intermediary or a parastatal agency issues a bond in the capital markets supported by credit enhancement. The instruments are rated by rating agencies, which depend on the final beneficiaries' underlying debt obligations (cities) and the available credit enhancement. It then passes on the money raised to the cities for infrastructure investments. Pooled financing allows small and medium-sized cities to come together and invest in their projects. Also, it helps in the reduction of transaction costs when compared to the local body raising funds on its own. This mechanism helps investors better diversify the financial resources provided (Chattopadhyay 2006, 2015; World Bank 2011; Singh 2012; Khan 2013). There are many international agencies, such as Netherlands Water Boards Bank (NWB Waterbank), Aquafin (Belgium), the Agences de l'eau (river basin-based Water Agencies, France), and the US Environmental Protection Agency, which have been playing an active role for a long time. The Philippine Water Revolving Fund and the Kenya Pooled Water Fund are examples of emerging economies that have established intermediary agencies (Alaerts 2019). Such agencies also play an important role in creating a trustworthy environment for

both the public and private sectors for better implementation of the mechanism (Mahalingam 2009).

The performance of the pooled finance mechanism is a mixed bag and varies substantially from developed economies to developing countries. The following constraints hamper the adoption of pooled financing in developing countries: (i) the size of the infrastructure projects is small, leading to higher transaction costs, (ii) the domestic capital markets are not fully developed and are not diversified to include the participation of and channel savings from different stakeholders, (iii) the subnational entities in developing countries lack a strong credit history and do not have adequate project development capacity, and (iv) the political and institutional ecosystem in developing countries do not always encourage full cost recovery and consequently give confidence of debt service (Bond, Platz, and Magnusson 2012).

9.3 Water and Sanitation Financing in India

The state governments in India undertake the provision of water and sanitation services, as the constitution of India includes these services in the state subject list. There is recognition that due to such a large population, it will be difficult for the states alone to work on such an important issue. Thus, many initiatives are being supported by the central government by providing partial financial support for the implementation. At the state level, different ULBs are responsible for implementing water and sanitation projects (Kumar 2022). Traditionally, water and sanitation projects have been financed by debt and equity. The ULBs have used a combination of commercial debt and guaranteed debt lending for their water sector investments. Commercial debt is availed as institutional loans from banks or financial institutions such as the Housing and Development Corporation and the Life Insurance Corporation. State financial institutions can also provide debt financing to infrastructure projects without an explicit state guarantee (Bulow and Rogoff 1990). For self-financing of water and sanitation projects, the ULBs depend on taxes, tariffs, and transfers. In India, the ULBs have restricted autonomy for levying taxes, fees, and duties for raising funds. They depend on their respective state governments for funds for project implementations. Most ULBs do not have strong balance sheets, which restricts them from approaching commercial lenders for borrowings (Mahalingam 2009). Multilateral agencies have been a substantial source of finance for the water sector across the globe for a long time. Even though development assistance is available, many countries cannot avail of that due to the existing financial constraints and debt levels, which limits their capacity to borrow further. Also, due to structural

deficiencies in the public financial systems, it becomes more difficult for countries to absorb the available assistance (Pories, Fonseca, and Delmon 2019). In India, multilateral and bilateral agencies such as the Asian Development Bank, the World Bank, the Japan International Cooperation Agency, and Germany's KfW (a state-owned investment and development bank) have been active in extending sovereign lending for water and sanitation projects.

The Government of India has been undertaking numerous initiatives to augment the country's water supply and sanitation facilities for many decades. The Central Rural Sanitation Programme was launched in 1986 to provide a better quality of life and provide women with much-needed privacy and dignity. This scheme had a financial outlay of \$138 million (Government of India 2006). Even though this scheme had a high level of subsidy provision, it did not yield the results as per the expectation. In 1999, the same scheme was extended as the Total Sanitation Campaign (TSC), which focused on creating awareness in rural communities and educating them about sanitation, thus creating demand for sanitation facilities. The TSC had a total financial outlay of approximately \$2,881 million (George 2009). In 2012, Nirmal Bharat Abhiyan was launched as the successor of the TSC. This scheme's main objective was to provide access to sanitation by covering rural communities at a maximum level with a total outlay of approximately \$1,193 million (Ali 2013). The focus on the urban sector, including water services, has come to the national limelight with the launch of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), which consisted of reforms that the ULBs need to undertake to improve their financial state, and required contributions from state and local bodies to avail central assistance. The scheme was launched in 2005 with an initial period of 7 years (which was further extended by 2 years), with the contribution shares by the central government, state government, and ULBs being set out based on the type of the ULB (Kundu 2014). The government subsequently launched Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in 2015, which was a water and sanitation sector-focused initiative. This initiative aimed to improve the service provision in 500 cities across the country (MOHUA 2019).

In 2014, the Swachh Bharat Mission (SBM) was launched with the objective of provision of universal safe sanitation services in India. This mission aims to eliminate open defecation from rural areas with the help of behavioral change by constructing both individual and community-level sanitation facilities and deploying monitoring mechanisms for both toilet construction and its use (MDWS 2021). This mission is divided into two components—SBM Urban (SBMU) and SBM Grameen (SBMG). As per the SBMU dashboard, until July 2022, a total of 6.26 million

individual household latrines and 642,210 community and public toilets were constructed under the SBMU (MOHUA 2022b). Under the SBMG, almost 110.1 million toilets were built, an increase of more than 61% since the beginning of the mission. More than 600,000 villages have declared themselves open defecation-free villages (DDWS 2022). The SBM has been extended until 2025–26 with a financial outlay of \$18,829 million, which is more than 2.5 times of the Phase I financial outlay (PIB 2021).

The Jal Jeevan Mission (JJM) has been allocated \$8,031 million in the national budget of 2022–23 with an objective to provide tap water to 38 million households during the year. About 87 million houses have been covered under the JJM since the beginning of the mission (Government of India 2022). In addition, the Government of India has launched numerous schemes that address water and sanitation in the periphery, including flood management and border areas programs, flood forecasting, human resource development and capacity building, infrastructure development, research and development, ground water management and regulation, and river basin management (Ministry of Jal Shakti 2022).

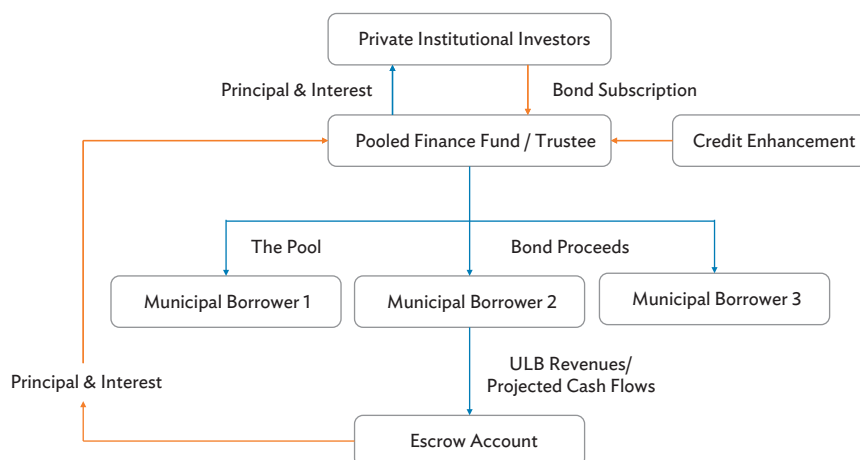
The galloping investment requirements in the water and sanitation sector far outstripped the abilities of the ULBs and state players to raise finances over the period. Hence, there was a need to develop financing mechanisms that could help mobilize financial resources by increasing the operational efficiency of the service providers, raising tariffs so that they are sufficient for cost recovery, and more public resource allocation to the sectors. Raising commercial borrowing through municipal bonds and pooled funds was considered an attractive option (Chattopadhyay 2015; Hutton and Chase 2016). In India, municipal bond issuance dates back to the mid-90s—with Ahmedabad (\$23.56 million) and Bengaluru (\$34.9 million) issuing municipal bonds. In 1994, the Indo-United States Agency for International Aid (USAID) Financial Institutions Reform and Expansion (FIRE-D) project was launched to support the development of infrastructure projects by making the domestic capital market access and supporting the evolution of the debt markets. Post implementation of the FIRE-D initiative, 10 ULBs (Bangalore, Ahmedabad, Nashik, Madurai, Visakhapatnam, Nagpur, Indore, Chennai, Hyderabad, and Ludhiana) issued municipal bonds for financing the infrastructure projects (Kapoor and Pati 2017). To date, ULBs from all over India have raised \$493 million by issuing 43 municipal bonds. Almost 88% of these issuances have been by the ULBs, and the remaining through Karnataka and Tamil Nadu pooled bonds. Approximately 53.5% of the overall bond issuance was deployed toward water supply and sanitation projects (PIB 2020; The Economic Times 2021; MOHUA 2022a). The municipal bond issuances in the country can broadly be categorized into

three phases (Phase I 1997–2005, Phase II 2005–2016, and Phase III from 2017 onward). Many of the larger municipalities participated in Phase I of the municipal bond issuances due to the favorable interest rate regime and the Government of India's guidelines to support the tax-free status of the instruments issued. The Phase II period coincided with the launch of the JNNURM, which had substantial grant availability. Although the JNNURM required municipal reforms in order to make them financially stronger, ULBs had lesser incentive to access the bond markets due to the availability of grant financing. The Government of India is encouraging cities to have themselves credit rated under the AMRUT mission. An incentive scheme was also announced to support the early bird ULBs issuing municipal bonds. The Securities Exchange Board of India provided regulations for a listing of municipal debt securities in 2015 (SEBI 2017). Together, there has been a substantial uptake of municipal bond issuances post-2017.

The Government of India launched the Pooled Finance Development Fund scheme in 2006 to provide credit enhancement to the ULBs seeking to access the capital market, depending on their creditworthiness by using the state-level pooled finance mechanism. Other objectives of the scheme included the cost reduction of borrowing and the development of the municipal bond market (MOUD 2006). This scheme was set up with an initial amount of \$83.26 million as a credit rating enhancement fund (MOUD and PA 2003). This pooled financing mechanism was expected to support the smaller ULBs that do not have strong balance sheets and thus do not have direct access to the domestic capital market. It was expected that through this mechanism, municipal bond issuance would be done for smaller projects from multiple urban local bodies under a single fund or umbrella structure (Singh 2012). This mechanism was also expected to help in mitigate risk for the investors and encourage them to invest in infrastructure projects and thus helping reduce the government burden. Also, this mechanism was expected to reduce the transaction cost and interest rates (as compared to raising funds individually by the respective ULBs) (Khan 2013). Figure 9.1 shows the basic structure of the pooled financing fund mechanism.

Even though it seems that this mechanism could have been able to provide the solution to the issue of having inadequate sources of financing and the advantages that accrue in the financial discipline due to exposure to commercial borrowing, no other pooled finance structure was used to raise finances for the water and sanitation sectors.

Figure 9.1: Common Structure of the Pooled Fund Mechanism



ULB = urban local body.

Source: Adopted from Jain (2021).

9.4 Pilot Water and Sanitation Pooled Funds

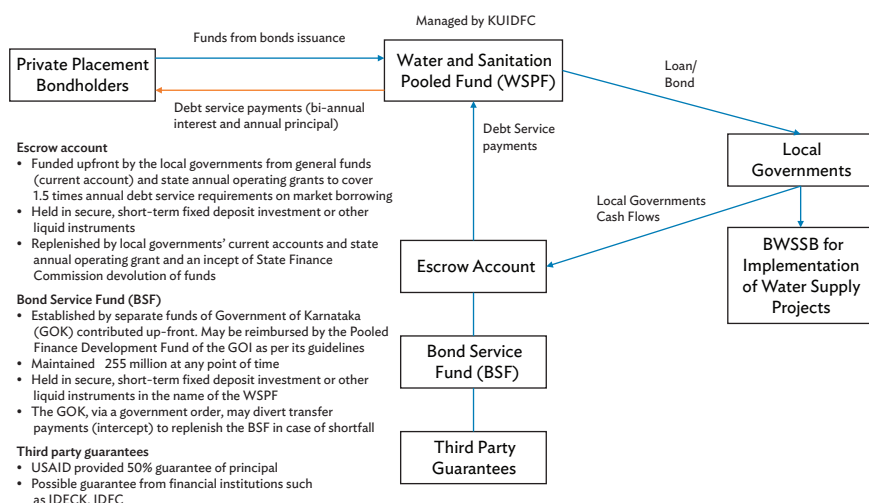
Karnataka Water and Sanitation Pooled Fund (KWSPF)

For part financing of the water supply component of the Greater Bangalore Water Supply and Sanitation Project (GBWASP), the KWSPF raised funds to provide eight ULBs on the periphery of Bengaluru. The KWSPF was structured by the Government of Karnataka-owned financial intermediary, the Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC). The physical construction of the GBWASP was implemented by the Bangalore Water Supply and Sanitation Board (BWSSB), a parastatal agency responsible for providing water supply and sanitation services in the greater Bengaluru area. The estimated project cost was more than \$123 million. The project was funded through numerous sources, including mega-city loans from the Government of India (28%), grants (20%), and market borrowings by the KWSPF (19%). The remaining project cost was provided by project beneficiaries as a one-time beneficiary capital contribution (33%) at the time of approval of building plans (Gunawansa and Hoque 2012; Smoke 2019). The KWSPF worked as a financial intermediary between

the ULBs and the capital market. It floated municipal bonds by pooling ULB revenues for lowering the interest rates and spreading out the risks. USAID provided 50% guarantee on the principal for this fund. Apart from the guarantee provided by USAID, revenues accumulated in the escrow account worked as a further cushion/safeguard. The KWSPF issued 1,000 tax-free municipal bonds at 5.95% for 15 years (Gunawansa and Hoque 2012; Smoke 2019).

Figure 9.2 shows the financing mechanism for the fund.

Figure 9.2: Greater Bengaluru Pooled Financing Mechanism



BWSSB = Bangalore Water Supply and Sanitation Board, GOI = Government of India, IDECK = Infrastructure Development Corporation (Karnataka) Limited, IDFC = Infrastructure Development Finance Company Ltd., KUIDFC = Karnataka Urban Infrastructure Development and Finance Corporation, USAID = United States Agency for International Development.

Source: Adopted from Thantrategy (2020).

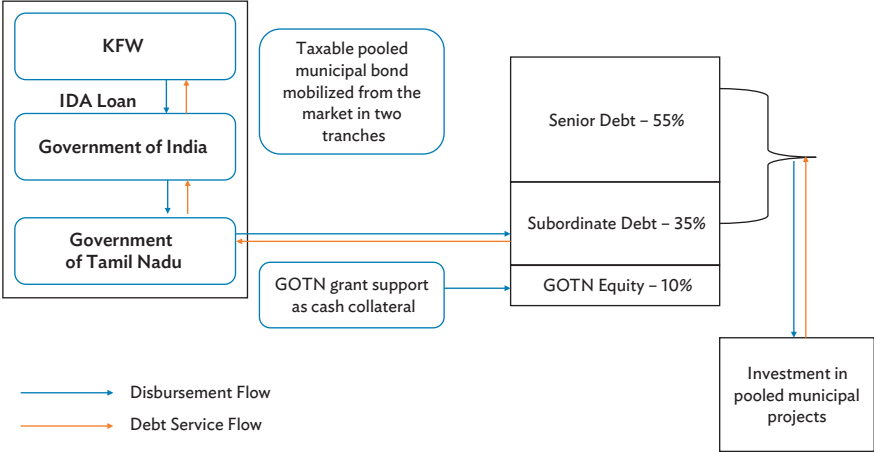
The project had a target of expanding the coverage by 450,000 connections in the eight ULBs and has achieved more than 100,000 connections (Hoque 2012). Water access increased from 51% in 2009 to 72% in 2014 (USAID 2018).

Tamil Water and Sanitation Pooled Fund (WSPF)

The Tamil Nadu Urban Development Fund (TNUDF) was set up as a trust in 1996 with the objective to develop infrastructure in the urban areas of Tamil Nadu. The TNUDF was established to provide long-term debt to urban local bodies without any sovereign guarantee (World Bank, IDB, and PPIAF 2020). TNUDF was the first local body to raise funds through pooled fund structure by issuing municipal bonds worth \$6.31 million. This pooled fund had aggregated projects from 14 municipalities of the Chennai Metro Area. A special purpose vehicle was established as a trust “Water and Sanitation Pooled Fund” (WSPF) under the Pooled Finance Development Fund. The WSPF was set up for the issuance of the tax free municipal bonds for financing the sewerage projects in six villages (Virudhunagar, Ambattur, Pallavaram, Kancheepuram, Ramanathapuram, Namakkal) and a water supply project in Salem. The total project cost for implementing these projects was \$38.43 million (Singh 2012). The funds raised were expected to be used to retire the high-cost debt of water and sanitation projects in the participating ULBs. A comprehensive credit enhancement structure was put in place to provide comfort to the investors. This structure had different components, such as a debt service reserve fund, escrow accounts of each municipality, a mechanism to intercept state revenue to the municipalities, and a partial credit guarantee provision from USAID. (World Bank, IDB, and PPIAF 2020) Figure 9.3 shows the financing mechanism for this fund.

Since its inception, the WSPF has raised \$55.83 million through multiple issuances (\$6.31 million (2002), \$1.56 million (2008), \$17.90 million (2010), \$9.09 million (2012), \$8.55 million (2013), and \$12.39 million (2017) (TNUIFSL). However, this amount is perceived to be small in relation to the state’s requirements of infrastructure investments (World Bank, IDB, and PPIAF 2020). Table 9.1 and Table 9.2 provide the details of WSPF.

Figure 9.3: Financing Mechanism for Water and Sanitation Pooled Fund



IDA = International Development Association, GOTN = Government of Tamil Nadu.

Source: Adopted from OECD (2017).

Table 9.1: Financial Performance of Tamil Water and Sanitation Pooled Fund (\$ million)

	2015-16	2016-17	2017-18	2018-19	2019-20
Total Bonds Issued (until mentioned FY)	27.83	27.83	37.84	37.84	37.84
Outstanding bond balance	24.01	21.60	28.38	25.13	16.93
Redeemed sum	3.82	6.23	9.46	12.72	20.91

FY = fiscal year.

Note: For conversion, authors considered the dollar rate of 30 August 2022.

Source: Annual reports of various years (TNUISL).

Table 9.2: Bond Balances over past 5 Years
(\$ million)

	Dec 2002	Apr 2008	Sep 2010	Aug 2012	May 2013	May 2017	Total
Amount mobilized in INR crores	3.81	0.84	10.41	6.38	6.38	0.00	37.84
Bond balance as on 31 March 2016	0.32	0.50	10.41	6.38	6.38	0.00	24.01
Bond balance as on 31 March 2017	0.16	0.34	8.33	6.38	6.38	0.00	21.60
Bond balance as on 31 March 2018	0.00	0.17	5.43	6.38	6.38	10.02	28.38
Bond balance as on 31 March 2019	0.00	0.00	3.62	5.11	6.38	10.02	25.13
Bond balance as on 31 March 2020	0.00	0.00	1.81	0.00	5.11	10.02	16.93

Note: For conversion, authors considered the \$ rate of 30 August 2022.

Source: Annual reports of various years (TNUIFSL).

9.5 Discussions

Both the pooled finance structures in Tamil Nadu and in Karnataka have been implemented with the assistance of the parastatal agencies (TNUDF in Tamil Nadu and KUIDFC in Karnataka), which provide financial and technical assistance to the ULBs in urban sector projects. This existing parastatal institutional mechanism was leveraged in both states for the issuance of bonds under the pooled finance mechanisms and for undertaking the servicing of bonds. Both the pooled fund structures have a credit enhancement through a partial guarantee for the principal amount and a structured payment mechanism resulting in obtaining a “AA” high credit quality. The credit enhancement was achieved through a combination of (i) escrowing the revenues of the participating ULBs, (ii) earmarking a portion of the State Finance Commission devolutions, (iii) creating a bond service fund, and (iv) guarantee of 50% of the bonds principal by USAID if required. The USAID’s guarantee was priced at 0.75% of the ceiling amount as an origination fee and 3% of the ceiling amount as a one-time utilization fee.

The debt service repayment capability of the ULBs in Karnataka and Tamil Nadu varies substantially. The ULBs in Tamil Nadu have prior experience in borrowing, and hence debt servicing, as the proceeds from

the bond issuance were meant to replace the high-interest loans that they already have.

In contrast, the ULBs in Karnataka do not have prior experience servicing debts. They were also hampered by the changes in the state's taxation structures in 2002–03 that removed water development cess and development charges and additional duties on transfer of properties from the purview of the finances of the ULBs. This has resulted in substantial weakness in the ULBs' finances and, consequently, their ability to service debt. The structure adopted in Bengaluru enabled the ULBs to cooperate with each other and two other parastatal agencies (BWSSB and KUIDFC) in order to implement the water expansion project. The pooled financing mechanism was able to address the issue of restricted autonomy of the urban local bodies of Bengaluru that were looking to raise financing for infrastructure development. Without this structure, and merely reliant on the 74th Constitutional Amendment Act, 1992, the ULBs were sufficiently empowered with adequate risk sharing with the state government, leading to their financial weakness (Garg 2007). The projects under the GBWASP were also delayed substantially, and the monies from the bond proceeds but not drawn down immediately. There was an initial reluctance from the citizens to pay for the higher upfront costs, resulting in delays in construction and consequently delaying the utilization of capital market proceeds. The water rates were revised, and different payment mechanisms were introduced by the water agency catering to the demands, which improved the acceptance levels of the citizens (Ranganathan, Kamath, and Baindur 2009).

The pricing of the Tamil Nadu WSPF bonds was 270–290 basis points above the government securities rate, while that of the KWSPF was 7–47 basis points above the government securities rate. This indicates that the Karnataka pricing was fine, implying that the initiative was undertaken to reduce the burden on the participating ULBs. Both the bond issuances have been privately placed, with participation from the banks and private provident funds. In both instances, the bondholders have been repaid in full and on schedule. The ULBs involved have made numerous transfers to the escrow account in Tamil Nadu. However, these transfers have not strictly adhered to the planned schedule due to fluctuations in their own revenue streams. As the project was being implemented by the BWSSB in Karnataka, the ULBs were not tested on the debt servicing obligations. Moreover, the water supply and sanitation service provision obligations of the ULBs in Karnataka were taken over by the BWSSB. This has resulted in the disconnect between the accountability aspects of the ULBs, their fiscal position, and the willingness to deploy the bond issuance proceeds toward infrastructure

service provision improvement. The success of the WSPF in Tamil Nadu can be attributed to the strong regulatory and legal framework and ULBs' accounting and reporting transparency levels, drawing on the support provided under the USAID's FIRE-D project. This improved level of transparency allowed the ULBs to be more effective in their interaction with the capital markets and enabled the structuring of long-term financing (Krishnan 2007).

The pooled finance structures in the country were primarily used for water projects and a few sanitation projects, and to a much lesser extent for other urban infrastructure projects, even though the mechanism can be extended to all urban services (as the Tamil Nadu mechanism provides for in its objectives). The use of pooled finance structures to core sanitation projects has been limited. The sanitation projects do not have an established business model (in terms of ring-fenced costs and revenues), they tend to be relatively smaller in size, involve participation of numerous stakeholders, and need a relatively higher operations and maintenance expenditure for a longer operational period.

Post implementation of these two funds in 2006, the Government of India approved the Pooled Finance Development Fund Scheme for providing a way for ULBs to access the capital market with the support of credit enhancements and depending on their creditworthiness through the state-level pooled finance mechanism. This scheme encouraged state governments to grow the competency of the ULBs for fulfilling preconditions of bond issuance. This scheme also motivated states to create their own parastatal agency for pooled financing (MOUD 2008). This scheme did not work that well due to many reasons. The JNNURM was launched in 2005 and had provision of grants, which were preferred by the ULBs over the option of issuing bonds due to the repayment attached to bonds. If they opted for bonds, it would have increased the weighted average cost of capital for ULBs as the cost of bonds raised from the market would be at any point in time much higher than government grants. This also motivated ULBs not to opt for bond issuance.

Even though these mechanisms were supported by credit enhancements from the multilateral agency, the creditworthiness of ULBs was always a concern as it was untested by investors before. The ULBs would need to adhere to strict timelines and procedures related to debt service requirement amounts being transferred to the escrow accounts added to the ULBs' reluctance. Other obstacles were the lengthy and complex approval process, very little credit enhancement aid, and stretched timelines for receiving tax-free status for bonds. Operationalization of the state pooled financing entities was delayed in most of the states. There was an absence of a process guidance framework for ULBs (World Bank, IDB, and PPIAF 2020).

The municipal bond market, being a new asset class in India's financial system, has not fully developed, leading to a lack of investor understanding of how risk mitigation is addressed. The municipal bond offerings in India typically are structured issuances with high great quality. Most bond issuances have financial covenants that require escrow account management and debt service coverage ratio standards. The complex credit enhancement structures, with the associated high transaction and maintenance costs, were not easy to comprehend (World Bank, IDB, and PPIAF 2020). ULBs are still considered riskier compared to corporations. The state's financial condition also impacts the financial position of the ULBs as there might be unpredictable financial devolutions and/or transfers from the state, which might not be enough to meet the bond servicing obligations. There is a lack of transparency in the budgeting and accounting systems of the ULBs, except for a few big cities. In the past, ULBs, who had issued bonds, did not have proper implementation mechanisms in place in terms of project evaluation and management, which led to inefficient utilization of the financial resources raised—e.g., in Ahmedabad and Nashik. These inefficiencies also led to defaults and interest cost increases for the ULBs. There is no regulatory provision for insolvency of the ULBs compared to corporations. This absence of regulatory provision can be another reason investors were willing to subscribe to such bond issuances (Chattopadhyay 2006, 2015; World Bank 2011; Singh 2012; Khan 2013; World Bank, IDB and PPIAF 2020).

The ULBs depend on the functional and financial devolutions from their respective states, which do not provide much capacity for full-service delivery, resulting in a weak financial position. The annual budgeting process of the ULBs is dictated by available funding or potential grants that are available. They do not have multi-year plans for infrastructure investments as a routine practice (not required under their statutory planning processes). The project development and preparation activities were driven by the technical specifications required for asset creation rather than focusing on service delivery, sustainability, and bankability. Most urban renewal missions have capital grants (although tied to performance standards or reforms), and the same has not improved the creditworthiness of the ULBs. The focus of the ULBs is to completely utilize the available grants rather than measuring how they have contributed to the service delivery improvement and reform implementation. The disclosure of financial information by the ULBs and the parastatal agencies alike is weak, which makes due diligence by potential investors problematic.

There were a few other issues related to the financial stakeholders, like banks and insurance companies. For banks, there was a clear case

of an asset-liability mismatch as they would be holding short-term liabilities. Hence, the long tenure of bonds and also the illiquid nature of the bond market were not attractive for the banking companies.

In summary, a weak fiscal situation and inadequate information disclosure of ULBs combined with a narrow financial base constrain the municipal bond market. The ULBs traditionally did not have any incentive nor accountability pressures to seek commercial borrowing. A plethora of schemes and initiatives offering fiscal support in the form of grants is not assisting the ULBs' transition to a credit-worthy borrowing entity characterized by strong balance sheets. In essence, commercial financing has been crowded out.

9.6 Policy Implications

Water supply and sanitation infrastructure investments continue to be a priority for many cities and states in India. Given the limitations of public sector financing, it is essential to broaden the sources of financing. The ULBs that have revenue surpluses need to be increased to participate in a pooled financing mechanism, as revenue surplus does not automatically translate into an equivalent of investment ability. It would be useful to integrate grant-based schemes and missions with the market debt requirements. The pooled finance operating frameworks could be modified with guidelines on interest rates aligned with the debt instruments of similar ratings, interest earned on the funds being utilized to subsidize the interest on loans and incorporate put/call options after a period to attract short-term investors. The adoption of pooled finance mechanisms can provide a stronger platform for implementing projects such as core sanitation services, as the elements of the mechanism can potentially mitigate the challenges by making funds accessible to projects of all sizes, improving the creditworthiness of the participating ULBs, providing cash flows for a longer time, and better coordination abilities.

The growth and development of municipal bond markets internationally still indicate that this avenue needs to be pursued with stronger institutional and governance reforms. The pool finance mechanism conceptually can still provide a platform for small and medium ULBs to access capital markets. The policy and institutional governance structures relevant to capital market borrowings need to be strengthened substantially. The states need to enable the urban local bodies and parastatals with greater accountability and authority alignment through appropriate frameworks and steady and predictable financial devolution. The ULBs would need to incorporate multi-year investment planning in their budgeting processes. The enabling

framework consisting of the processes and guidelines for offering a bond and the subsequent servicing requirements needs to be set out by the respective states. It would be useful to have a programmatic effort to Enable larger cities to tap the capital markets. The urban renewal missions could be refocused, requiring the ULBs to strengthen their balance sheets and take commercial debt on their books.

9.7 Conclusions

The objective of this chapter is to review the performance of two pooled finance mechanisms used in Tamil Nadu and Karnataka, along with the issuance of municipal bonds for the improvement of water and sanitation services. Although these two initiatives have been successful and are followed by a Government of India initiative to develop a national pooled finance fund to support the small and medium-sized ULBs to access capital markets, there have been no other attempts to create such financing mechanisms. The launch of urban renewal missions that provided access to grant financing, combined with the continuing fiscal stress of the municipalities led to a dip in the number of bond issuances over the period. Only in recent years have the larger municipalities approached the capital markets to raise finances. ULBs continue to be reluctant to access commercial borrowing without a nudge from the central and state governments. The fundamental tenets of pooled finance mechanisms continue to be relevant, albeit with appropriate modifications to the Institutional and governance systems.

A typical mechanism for international pooled funds operates as an intermediate entity that, with the help of credit enhancements, borrows funds from the market, and the proceeds of bonds are used for purchasing debt obligations for participating ULBs. This mechanism relies on either the creation of a new entity or leveraging the existing financial intermediary for issuing municipal bonds to the investors and lowering the interest and transaction cost for the ULBs (Billand 2006). Many urban local bodies are not willing to take debt due to their structural characteristics and have not approached the capital markets through municipal bonds. Existing high levels of debt and lack of a strong balance sheet are the reasons why many urban local bodies do not want to raise financing through this mechanism (Pories, Fonseca, and Delmon 2019). Another reason is the excessive dependence on grants. As highlighted by Mahalingam, before the Jawaharlal Nehru National Urban Renewal Mission, ULBs were attempting to finance the gap with their own revenues and other debt mechanisms (Mahalingam 2009). The introduction of large central grants to the ULBs made it easier to finance the gap. However, this led to unexpected negative

outcomes in terms of urban local bodies not evaluating the project's viability or looking for private sector involvement. (Mahalingam 2009). Having parastatal agencies like the KUIDFC and the TNUIFSL allows better implementation of the pooled financing mechanism as they have expertise in the water and sanitation sectors, and they also have know-how about raising financing through various modes.

Addressing the inconsistencies in the way the pooled finance mechanism has been structured, along with a guidance on the interest rate regime and options for investors to exit at defined intervals, could help the policymakers to adopt the initiative better. A programmatic approach to nudge the ULBs to strengthen their balance sheets and to access commercial borrowing could see a wider uptake of municipal bonds in the country and also witness associated accountability gains. The characteristics of ULBs in urban India are similar to those in the rest of the developing world, and hence, the learnings from Indian experiences have direct applicability to other nations in the developing world.

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10

Critical Review of the Self-Help Group Model for Managing Fecal Sludge Management Services: Implications For Accountability

Shubhagato Dasgupta and Shaivi Kulshrestha

10.1 Introduction

Accountability is a cornerstone of well-functioning and continually improving service delivery systems (Adserà, Boix, and Payne 2003; Cavill and Sohail 2005). Specific to sanitation, the Citywide Inclusive Sanitation (CWIS) framework emphasizes “accountability” as a critical system function that helps produce safe, equitable, and enduring services (Schrecongost et al. 2020). Many countries and cities in the Global South are adopting non-sewered sanitation as a mainstream approach to citywide sanitation. By its design, non-sewered sanitation comprises of on-site sanitation systems and require fecal sludge management (FSM).

This chapter focuses on the evolution of the FSM system in Dhenkanal, a small town in Odisha, India. As the FSM system in Dhenkanal municipality—the first small Indian town to implement such a system—has evolved, the routes of accountability have transformed too. Before the establishment of the FSM system and for a short time afterward, the municipality provided desludging services and managed the disposal of fecal sludge itself. However, in 2020, the municipality contracted out the operation of desludging vehicles and fecal sludge treatment plants (FSTP) to area-level federations (ALFs) comprising multiple women’s self-help groups (SHGs). The resulting “SHG model” is being rolled-out across the state of Odisha in urban service sectors like drinking water and solid waste management. Although the SHG

model is undergoing wide deployment and gaining traction nationally, its impact on accountability of the citywide sanitation system is not well documented, investigated, or understood. The application of the SHG model for service delivery is emerging as an alternative to more traditional forms of private sector participation or corporatization of services and hence more research is required to understand its ramifications on accountability and sustainability.

In this chapter, we document and analyze the evolution of the citywide FSM system in Dhenkanal to answer the research questions: What is the existing institutional arrangement for FSM service delivery in Dhenkanal and what role do SHGs play? How did the institutional accountability arrangements evolve and what questions does it raise on the durability of the SHG model for urban service delivery in Odisha? The analysis of the role SHGs are playing in delivering sanitation services and the institutional accountability arrangements at play is then used to discuss the final research of this study, i.e., what are the conditions under which the model could be scaled-up across sectors and countries?

10.2 Literature Review

Emergence and Spread of the SHG Model in India

In India, the SHG model emerged as an alternative banking strategy wherein the financial needs of the previously unserved sections of the poor, especially rural women, could be addressed and fulfilled (Reddy et al. 2007). The SHG movement in India can be traced back to the late 1970s when nongovernment organizations (NGOs) started the small-scale promotion of SHGs to enable access to credit amongst the poorer sections, which were often neglected by the traditional banking sector (Parthasarathy 2015; Reddy 2008). In the late 1980s, the National Bank for Agriculture and Rural Development (NABARD) partnered with NGOs to pilot the SHG initiative, and its success resulted in the Reserve Bank of India accepting SHGs as an alternative credit model in 1990 (Parthasarathy 2015; Reddy 2008). The early 1990s also witnessed the launch of the Tamil Nadu Women's Empowerment Project—the first state-sponsored program, supported by a multilateral donor agency, in India to incorporate and utilize the SHG model. Subsequently, in 1992 NABARD initiated the SHG Bank Linkages Programme at the national level. The program promoted and monitored the SHGs, routed funds for capacity building initiatives, and played a crucial role in creating an enabling policy environment for the SHG model in India (Parthasarathy 2015; Reddy et al. 2007). The program received support from the central and several state governments and multilateral donor agencies

(Parthasarathy 2015). The main objective behind the promotion of SHGs during this phase was to promote savings and enable access to credit for income-generating activities, in essence, acting as a tool for poverty alleviation through the promotion of livelihoods (Kalpana 2005; Reddy 2008). Moreover, empowerment of the poor, women, and marginalized was also sought through the SHG movement (Parthasarathy 2015).

The late 1990s marked a paradigm shift in the evolution of the SHG model as the state governments in India started taking an active role in promoting SHGs (Parthasarathy 2015; Shylendra 2018). The involvement of state governments was catalyzed by the potential of the SHG model for poverty reduction and women empowerment (Reddy et al. 2007). The state governments of Andhra Pradesh, West Bengal, Kerala, Rajasthan, Odisha, and Tamil Nadu led the formation of SHGs under various state-level programs supported by multilateral and bilateral donors (Shylendra 2018; Reddy et al. 2007). Thus, during this phase, state governments became key promoters of SHGs as opposed to NGOs and development organizations in the earlier phase (Reddy 2008; Shylendra 2018). This period also marked a change in approach wherein the ability of microfinance to function as a “silver bullet” for poverty reduction was questioned, and a more cautious approach was emphasized, which underscored the importance of “protectional” aspects of microfinance (Kalpana 2005). In addition, empirical studies highlight the link between initial life circumstances and the possibility of successful entrepreneurship (Hulme and Mosley 1996 as cited in Kalpana 2005). Therefore, the “wage versus self-employment” debate emerged wherein creating specific and different interventions to meet the needs of “differently endowed” households was emphasized (Kalpana 2005). This debate stressed the protectional aspects of microfinance, where different sections of the poor must be targeted with “specific interventions (wage, self-employment, or social security plus wage employment)”, as needed (Kalpana 2005). Currently, in Odisha, the Department of Mission Shakti is converging with other government departments to promote wage-based employment (Government of Odisha n.d.).

From the mid-1990s onward, SHG federations started to emerge, promoted by NGOs and governments and supported by donor agencies to provide financial and nonfinancial services to the SHG members (Reddy 2008; Shylendra 2018; Reddy et al. 2007). Many State governments have since created an enabling institutional environment for supporting the SHG movement and spending public funds on capacitating SHGs (Reddy et al. 2007). For instance, state government initiatives such as Mission Shakti in Odisha, Kudumbashree in Kerala, and Indira Kranti Patham in Andhra Pradesh promote SHG federations for implementing poverty

reduction programs and initiatives (Reddy et al. 2007). Moreover, the SHG federations have evolved into multipurpose organizations that provide financial, livelihood promotion, or social (including capacity and awareness building) services to their members (Reddy et al. 2007). Therefore, the objectives of the SHG movement in India are changing and diversifying as the model continues to evolve.

Research on SHGs delivering water and sanitation services in India is limited as the involvement of SHGs in implementing government schemes is a relatively new phenomenon—one that is currently evolving (Reddy 2008). Since 2000, SHG federations have been incorporated in the initial design of various multilateral and bilateral donor-funded projects (Reddy 2008). Government departments have also started adopting these federations as their “partners” and “delivery agents”, recognizing the potential of SHG federations to expand beyond the initial mandate of the smaller SHG groups (Reddy et al. 2007). The SHG federations are now seen as “credible implementers” or facilitators of many development programs and projects, and the federations work in tandem with local institutions and government departments (Reddy et al. 2007). Many government departments have engaged SHG federations in delivering services and implementing programs, including water and sanitation, where federations are paid for delivering the services (Reddy et al. 2007). For instance, SHG federations in Andhra Pradesh, West Bengal, Madhya Pradesh, Odisha, and Kerala are participating in a wide range of government welfare and developmental activities (Reddy et al. 2007).

The economic impact of the SHG model in India has been commendable, evident from the remarkable growth rate in the number of SHGs linked to formal financial institutions (Kalpana 2005; Reddy et al. 2007). For instance, the SHG Bank Linkages Programme has successfully linked 1.6 million SHGs in India with the traditional banking sector, and ₹6.8 million worth of loans has been disbursed to the SHGs up to 2005 (Reddy 2008). Moreover, evidence also suggests that the SHG model leads to women’s social, economic, and political empowerment in the long run (Brody et al. 2016). However, the SHG movement has also faced several constraints, such as limited capacity building support from promoters, the inability of the members to take up livelihood activities, and limited engagement with social issues such as gender equality and social empowerment (Reddy et al. 2007). Moreover, Kalpana (2005) also highlights the stark regional disparities in the growth of SHGs in India, with the southern region accounting for 63% of SHGs linked to banks, availing 79% of bank credit as of 2004. This high regional disparity is highlighted as a cause for concern in the academic literature (Kalpana 2005). Additionally, while the SHG model

leads to greater political participation and members of SHG groups exhibit high social capital and improved social network (Kumar et al. 2019), another issue which may be a cause for concern is the political use of SHG groups owing to the potential for building “clientelist relationships” with the members by directing funds or resources and using members to influence voting decision (Wyatt 2013). For instance, evidence from Tamil Nadu suggests that SHG groups were formed prior to local elections for the disbursement of “election gifts” and the groups became defunct shortly after the elections (Wit and Berner 2009).

The SHG federation strategy aims to address some of the issues faced by small SHG groups by bringing them together to unlock economies of scale, provide greater access to resources and services for SHG members, facilitate market linkages, and ensure the sustainability of the SHG movement in India (Shylendra 2018; Reddy et al. 2007). However, federating SHGs is an evolving model, and there are some emerging issues model that must be addressed while going forward, such as the imperfect design and structure of federations, greater vulnerability of federations being captured by political interests owing to their larger size, and federations’ failure to offer services to SHG members (Reddy 2008; Shylendra 2018).

Frameworks for Understanding Accountability in Service Delivery

Governments across the globe in discharging their responsibility of delivering public services, have come to realize that making services work requires robust and accountable institutional arrangements (World Bank 2004). Schedler (1999) conceptualizes the need for public accountability as a continuing concern for reining in political power to prevent abuse by subjecting it to institutional constraints. Therefore, accountability is often used as a shorthand for “democratic accountability” (Goetz and Jenkins 2002).

In essence, two fundamental attributes form the foundation of the accountability framework—answerability and enforcement (Schedler 1999). Answerability refers to the obligation to inform and explain the decisions and actions, whereas enforcement refers to the ability and capacity to impose sanctions for poor performance (Schedler 1999; Goetz and Jenkins 2002). However, strengthening accountability relationships by improving answerability and enforcement alone does not produce desired results (World Bank 2004). Improving service delivery outcomes also requires improvement in delegation, finance, performance monitoring, information dissemination, and enforcement (World Bank 2004).

In the chain of service delivery, three key actors are present in the accountability framing: citizens or clients, policy makers, and service providers (World Bank 2004). Generally, accountability mechanisms operate through vertical or horizontal mechanisms that link actors in accountability relationships (Narayan 2002; Goetz and Gaventa 2001; Schedler 1999). Vertical accountability mechanisms enable citizens to hold politicians and policy makers accountable by exercising a “voice” (Narayan 2002; Goetz and Gaventa 2001; World Bank 2004). On the other hand, horizontal accountability mechanisms enforce inter-governmental accountability within and between government agencies (Narayan 2002; Goetz and Gaventa 2001; Goetz and Jenkins 2002). The strength of the accountability relationships between these actors—or the capacity of actors—determines the outcomes of service provision (World Bank 2004).

When citizens hold politicians or policy makers accountable, and policy makers, in turn, hold service providers accountable, the “long route of accountability” emerges (World Bank 2004). However, the long route of accountability is riddled with issues. For example, the citizen “voice”, often exercised primarily through elections, may suffer due to a weak electoral system or political patronage (Goetz and Gaventa 2001; World Bank 2004). On the other hand, the inability of policy makers to ensure that the service provider delivers services weakens the horizontal accountability mechanisms (World Bank 2004). Furthermore, a clear distinction between the policy maker and service provider is not always forthcoming, resulting in weak monitoring and enforcement (World Bank 2004).

Problems along the long route of accountability can be fixed or bypassed using multiple strategies, including (i) strengthening the relationships between actors, (ii) increasing citizens’ engagement in the workings of the institutions, and (iii) strengthening clients’ power over service providers (Goetz and Gaventa 2001; World Bank 2004). The latter—termed as the “short route of accountability”—enables clients to directly hold the service providers accountable in a competitive market for services through monetary transactions (Goetz and Gaventa 2001; World Bank 2004). However, competitive provisioning of public goods and services is often marked with market failures, thus necessitating government intervention and rendering the short route undesirable (World Bank 2004).

Governments use a variety of models for service delivery, such as central or local government provision or contracting out services (World Bank 2004). Government contracting out public services to community-based organizations is increasingly gaining traction in the developmental sector (Crook and Ayee 2006). However, the sustainability of community-

based organizations assuming the responsibility of service delivery is critically dependent on an enabling institutional environment and the robustness of internal accountability mechanisms within these organizations (Mansuri and Rao 2004). Additionally, poor people's membership-based organizations face financial and technical constraints (Mansuri and Rao 2004). Therefore, investing in local organizational capacity is key (Narayan 2002). Moreover, adapting lessons to the local political and social context and establishing monitoring and evaluation systems are also essential for successful service delivery by community-based organizations (Mansuri and Rao 2004).

10.3 Methodology

This chapter uses the authors' practice research from implementing Project Nirmal in Dhenkanal, Odisha. Project Nirmal was implemented in two small towns of the Odisha pilot demonstration for FSM to improve city-wide equitable approaches for sanitation and develop capacity of the state and cities for sanitation service delivery. Over 5 years of Project Nirmal's implementation, many studies were undertaken to better understand and structure interventions, including situational analysis consisting of primary surveys, baseline and ethnography study of sanitation in the poor communities, city sanitation plans, FSTP technical and service delivery options, and business plans for FSM in Dhenkanal. Besides this, a number of stakeholder meetings were held at the state, city, and community level. This study relies on a secondary review of the qualitative and quantitative data generated during the project along with key informant interviews with government officers and nongovernment project partners.

10.4 Evolution of the Accountability Framework for Fecal Sludge Management in Dhenkanal

According to the Constitution of India, sanitation¹ is a state subject; states are authorized to promulgate the regulatory framework for sanitation in their respective jurisdictions. The responsibility of delivering sanitation services is further devolved to urban local bodies (ULBs) in the urban areas, as per the 74th Constitutional Amendment.²

¹ Entry 6, List II, 7th Schedule, The Constitution of India, 1950

² Item 5 & 6, Schedule 12, The Constitution of India, 1950

Odisha is the 11th largest state in India with approximately 7 million urban population (16.7% of the state's total population). As per the national census conducted in 2011, around 33% of the state's urban households were defecating in the open, whereas among the 65% urban households with individual toilet facilities, 52% were dependent on onsite sanitation (OSS) systems. This high dependence on OSS systems was mirrored in the small town of Dhenkanal (population approximately 67,500 in 2011) where a centralized sewerage system was absent. According to the findings of the baseline survey conducted during Project Nirmal, nearly 33% households in Dhenkanal were defecating in the open, while 57% depended on OSS systems (Dwivedi, Chhabra, and Dasgupta 2020).

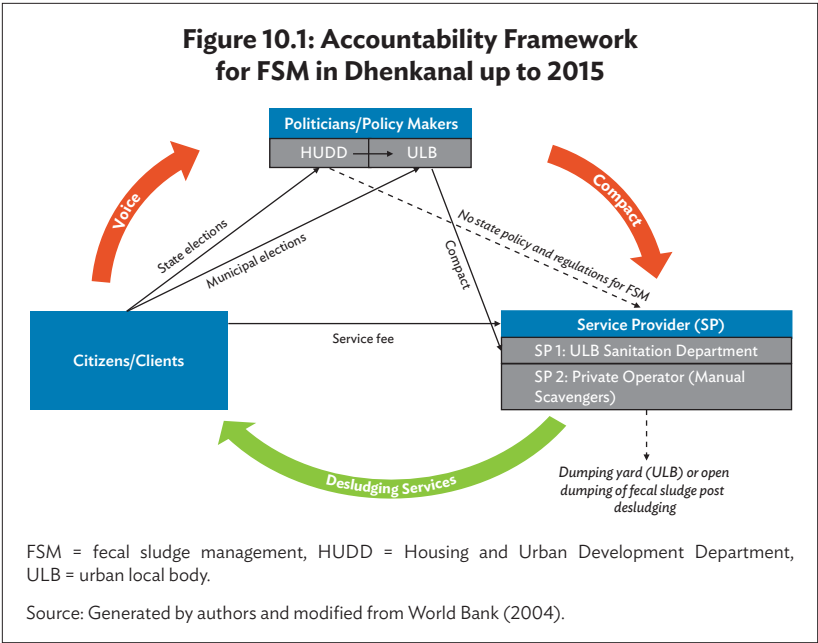
In Odisha, the Housing and Urban Development Department (HUDD) is the nodal department responsible for ensuring the planned growth of urban areas with adequate infrastructure and services provided to the citizens. In addition, the HUDD provides finance and technical support to the ULBs. At the city level, Dhenkanal municipality is responsible for implementing sanitation interventions and delivering services, including desludging services for OSS systems and operating fecal sludge treatment facility.

Before Project Nirmal (up to 2017)

Prior to Project Nirmal, while in principle, the HUDD and the Dhenkanal ULB were mandated to create an enabling policy ecosystem for sanitation services at the state- and local-level, respectively, no state-level policy or regulations on FSM existed in Odisha (Figure 10.1), despite a heavy reliance on OSS systems in the state's urban areas. Moreover, the institutions were riddled with low awareness regarding their mandate on FSM, coupled with limited capacity to plan for and deliver FSM services. However, the “voice” relationship between citizens and policy makers was strong as periodic elections were held once every 5 years at the state and municipal level.

The municipality's sanitation department acted as the frontline provider of desludging services. However, most of the OSS systems were emptied informally by manual scavengers, despite its prohibition as per the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act 1993. Consequently, manual scavengers fell outside the purview of the formal institutional arrangement for sanitation.

Before the construction of a treatment facility, two crucial elements of the sanitation value chain—treatment and reuse—were completely missing, raising concerns regarding environmental pollution and public health.



Project Nirmal (2015–2019)

The launch of the Swachh Bharat (Clean India) Mission in 2014 put a spotlight on sanitation in India as the program set out to achieve open defecation-free status by October 2019. Around the same time, Odisha also witnessed an increase in advocacy efforts for decentralized sanitation solutions owing to a high prevalence of OSS systems in the state. Consequently, in 2015, the Centre for Policy Research (CPR) and Practical Action, with support from the Bill & Melinda Gates Foundation and Arghyam, initiated “Project Nirmal” in partnership with the HUDD, district administration, and municipal governments as a pilot demonstration for FSM in two small towns of Odisha, including Dhenkanal.

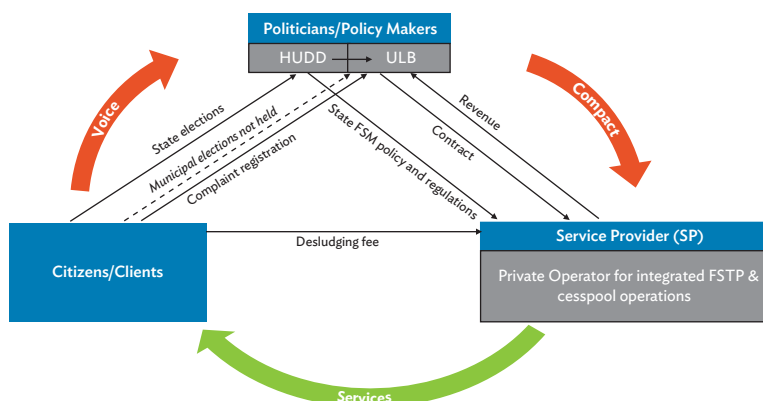
To strengthen the existing institutional arrangement for FSM in Odisha, the HUDD prepared the Odisha Urban Sanitation Policy (2017) with technical assistance from CPR under Project Nirmal (Figure 10.2). The Odisha Urban Sanitation Strategy was also developed to facilitate the policy’s implementation, detailing the institutional framework and the roles and responsibilities of actors at all scales. Moreover,

the HUDD prepared Model Fecal Sludge and Septage Management Regulations (2018) to facilitate the adoption of FSM, and the Dhenkanal municipality passed FSM bylaws based on the model regulations.

In November 2018, the Dhenkanal municipality signed an agreement with Practical Action for integrated operation of cesspool vehicles and fecal sludge treatment plant for 1 year. Practical Action further contracted out the operation to Blue Water Company—a private operator based in Karnataka specializing in operating wastewater infrastructure. The integrated service delivery during the 1-year period was funded by donor agencies (Bill & Melinda Gates Foundation and Arghyam), and the revenue generated from desludging services was transferred to the Dhenkanal municipality.

During the implementation phase of the project, the relationship between citizens and the ULB was weak as no municipal elections were held during this period. However, citizens were able to voice concerns regarding poor quality of service as a complaint redressal mechanism was instituted wherein clients could register complaints in a dedicated FSM call center. Moreover, state-level sanitation policy and regulations created an enabling environment for FSM service delivery.

Figure 10.2: Accountability Framework for FSM in Dhenkanal during Project Nirmal



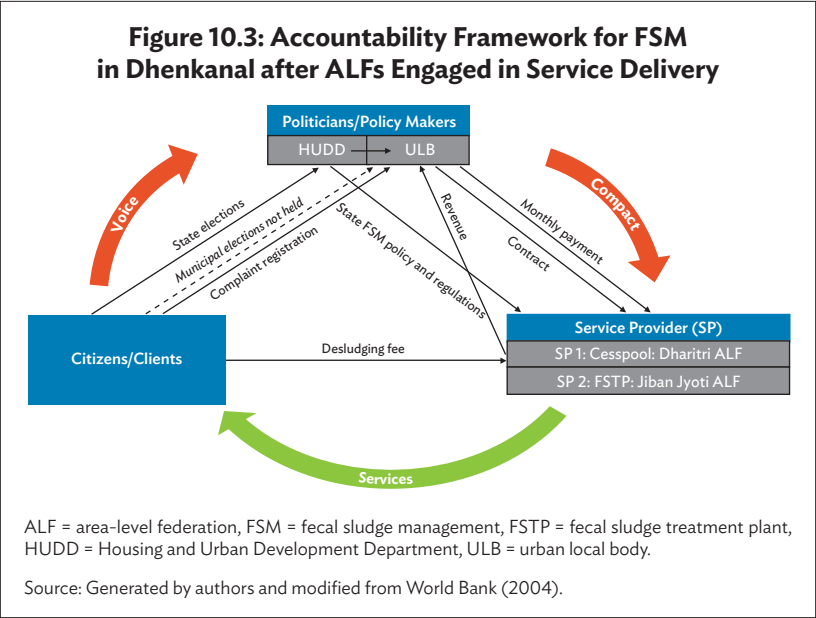
FSM = fecal sludge management, FSTP = fecal sludge treatment plant, HUDD = Housing and Urban Development Department, ULB = urban local body.

Source: Generated by authors and modified from World Bank (2004).

Engaging Area-Level Federations in Sanitation Service Delivery (2020–2021)

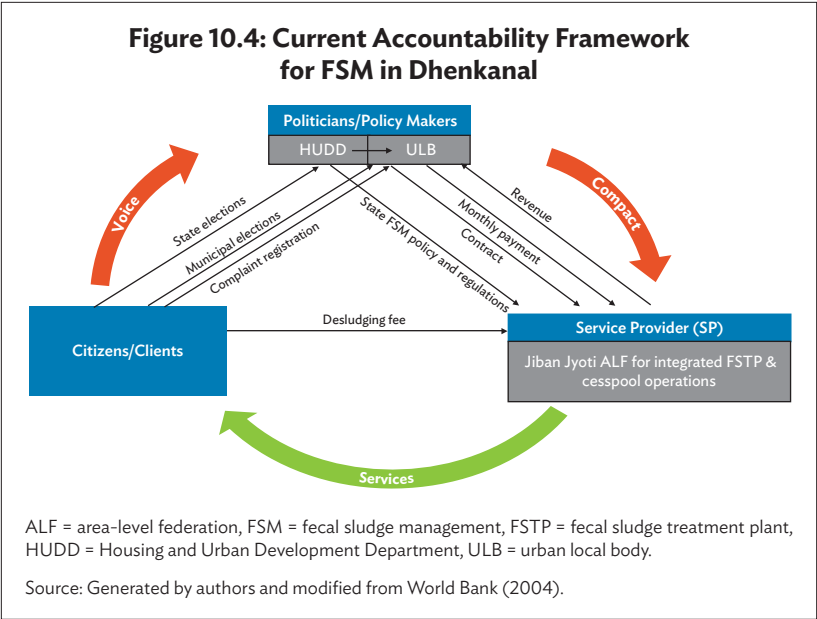
After the contract with Blue Water Company lapsed in 2020, the Dhenkanal municipality contractually engaged two ALFs comprising women’s SHGs: Dharitri to handle the cesspool operations and Jeevan Jyoti to handle the treatment operations (Figure 10.3). The concept of incorporating ALFs in service delivery systems benefits from the vibrant culture of SHGs in Odisha that is codified in the state’s Mission Shakti program. The program focuses on women’s empowerment and has organized nearly 7 million women in the state into 600,000 SHGs (Government of Odisha 2022).

While the revenue sharing and complaint registration models remained the same as before (transferred back to the ULB), the cost-sharing model changed when ALFs were engaged in service delivery. The idea behind adopting the SHG model in sanitation service delivery did not primarily emerge from a need to strengthen accountability or improve service delivery outcomes. Instead, it was a policy decision predicated on empowering local women by providing avenues for income generation. Consequently, the entire cost of operation was borne by the ULB through monthly payments and the SHG members were paid a fixed monthly income, as stipulated in the contracts.



Current Situation

Since 2021, Jiban Jyoti ALF has been entrusted with the integrated operation of cesspool vehicles and the fecal sludge treatment plant in Dhenkanal (Figure 10.4). Moreover, in 2021 their contract was amended under the urban–rural convergence pilot, and the ALF is now responsible for providing desludging services to the neighboring rural population as well. In 2022, municipal elections were held for the first time since the implementation of Project Nirmal, strengthening the voice of the citizens and their relationship with the politicians and policy makers.



10.5 Results

Since the institutionalization of a formal FSM system in 2018, the long route of accountability is at play in Dhenkanal with a single service provider—a private operator or an ALF—operating cesspool vehicles and the treatment facility, except for a short period where two ALFs were managing cesspool and treatment operations separately. Before 2018, the municipality provided mechanized desludging services to its citizens. However, inefficiencies in municipal services resulted in a high

dependence on manual emptying. As a result, despite market competition for emptying services, they were replete with market failures due to negative externalities from the open dumping of untreated fecal sludge and unlawful manual emptying practices. Moreover, the lack of a vibrant market economy for mechanized emptying services in the town further acted as a deterrent for competitive desludging services, necessitating the public provision of desludging services.

Over the years, the evolution in the institutional framework for FSM in Odisha has strengthened the long route of accountability, specifically, the horizontal accountability mechanisms. Project Nirmal emphasized strengthening existing institutional arrangements by building awareness regarding the roles and responsibilities of organizations and enhancing capacities related to FSM. In addition, creating an enabling environment at the state and local level—state policy and regulation for FSM—resulted in stronger relationships between actors and institutions linked within the horizontal accountability mechanism. Moreover, where previously, Dhenkanal municipality's sanitation department was delivering mechanized desludging services and the municipality was also entrusted with policymaking, the separation between the service provider and policy maker was opaque. However, since 2018 strengthening the more complex long route has conferred the separation of the two, resulting in more robust monitoring and enforcement mechanisms codified in the contracts between the ULB and service providers. Thus, this separation minimizes the conflict of interest between those who hold accountable and those who are held accountable.

Notably, since 2018 when Blue Water Company first started delivering integrated FSM services, the institutional framework has to a great extent remained the same and the most substantial difference emerging from the SHG model adopted in 2020. ALFs are, in essence, a group of SHGs in Dhenkanal federated at the area level within a city to enhance their capacity for delivering services at the city level. While the SHGs receive work orders from the ULB to create community infrastructure and operate and manage built community assets, ALFs receive work orders for managing both area-level and city-level services. However, improving service delivery outcomes was not a consideration for delegating service delivery to ALFs. Instead, empowering local communities and facilitating women entrepreneurship formed the basis of this policy decision. Therefore, a robust enabling environment for FSM created during and after Project Nirmal in Odisha, along with the capacity building and handholding support received by SHG members from the Dhenkanal municipality, has played the most critical role in the success of this model.

10.6 Discussion

As discussed in the literature as part of the short route to accountability, competition among service providers based on the level and pricing of services could often lead to market failures, rendering the short route of accountability becoming less desirable in particular situations (World Bank 2004). The strength of the short route of accountability is critically dependent on the adequacy of the service providers' capacity to meet the service level benchmarks and the demands of the citizens. Moreover, the short route may fail where market competition for services does not exist. However, even when competitive services are offered, citizens' willingness and ability to pay for quality services will also critically affect the short route. Consequently, market failures and equity concerns constitute the normative justification for governments assuming the reasonability for provisioning public goods and services (Goetz and Jenkins 2002; World Bank 2004). Crook and Ayee (2006) further point out that in theory it may be possible to "marketize" certain public services, however, households may themselves opt out from certain services, yet high negative externalities from such arrangements necessitate government intervention. The case of Odisha and Dhenkanal in particular, emphasizes this constraint of the short route to accountability. As observed in Dhenkanal before an FSM system was put in place most households relied on manual scavenging, despite a legal prohibition on it and a municipal desludging service being in place. Even as the FSM system was put in place the government's priority to provide universal services posed limitations on the full deployment of the short route of accountability, i.e., market provisioning of services. The policy makers remain of the view for good reasons based on past experiences that the short route of accountability can only play a limited role in FSM, given the nature of FSM services as a public good and that the risk of service failure could jeopardize public health for the population at large.

Due to the inherent limitations as analyzed by policy makers in Odisha and Dhenkanal, especially the limited number of capable private operators and the low affordability levels among users, the emphasis has been on strengthening the long route of accountability. The World Bank also correlates the success of service delivery outcomes along the long route with the strength of the accountability relationships between actors (World Bank 2004). A well-functioning long route of accountability is critically dependent on and affected by the capacity of the government—state and local level—to create robust service delivery monitoring mechanisms to ensure efficient service delivery

and sustained implementation. This is observed in Dhenkanal as well, where strengthening of accountability relationships over the years, specifically between policy makers and service providers has resulted in improved service delivery outcomes. Therefore, since the short route of accountability is applied in a limited fashion through the SHG model, it is incumbent on the long route to function well if services are at acceptable levels for the users and the environment.

According to Mansuri and Rao (2004), the success of community-based initiatives, such as SHGs involved in service delivery, is a factor of the local political, social, and institutional context where an enabling institutional environment is critical for the long-term sustainability of such initiatives. Lessons from the SHG model in Dhenkanal also highlight the importance of an enabling institutional environment that critically impacted the strength of the horizontal accountability mechanisms—between policy makers and service providers. However, Crook and Ayee (2006) raise an important question regarding how well public agencies adapt to changing roles—from service providers to setting policy directives, monitoring performance, and managing contracts. Therefore, as Odisha scales-up the SHG model for FSM, waste management, and water supply across all its 115 ULBs, the long route of accountability must be further strengthened by the state playing a more active role in benchmarking and regulating the services and institutional performance across the ULBs.

Moreover, while developing robust monitoring and evaluation systems is considered as a backbone of well-functioning accountability mechanisms (Goetz and Gaventa 2001; Goetz and Jenkins 2002; Narayan 2002; Schedler 1999; World Bank 2004), the SHG model should be understood as being more “developmental” in nature than the standard private sector accountability relationships as they need both capacity building and finance alongside review and enforcement of standards. Service delivery failures and inadequate local organizational capacity are intrinsically linked (World Bank 2004), however, the question of local organizational capacity becomes even more critical when community-based organizations are involved. As Mansuri and Rao (2004) note, when community-based groups take up the responsibility of delivering services, investing in their capacity becomes critical. Lessons learned from the SHG model categorically underscore the importance of building capacities of the SHG members for enabling them to deliver services effectively.

In Dhenkanal, given the nature of technology, the SHGs are generating greater employment for women, which was the original objective of the SHG movement in Odisha. However, in doing so, they also simultaneously constrain the FSM sector. Schedler (1999)

notes that a fundamental attribute of the accountability framework is “enforcement” where actors are not only questioned but they are “punished” through negative sanctions. Thus, the policy maker’s ability to impose sanctions for poor performance is crucial for well-functioning horizontal accountability mechanisms (Goetz and Jenkins 2002; World Bank 2004). However, the SHG model may limit the scope for negative sanctions, in essence undermining the strength of accountability mechanisms. Community-based groups require capacity building and handholding support (Mansuri and Rao 2004), and the inability of the SHG members to perform as stipulated in the contract would require the ULB to appoint and re-train new SHG members, which itself disincentivizes stronger enforcement by the ULB. Moreover, community-based organizations often have limited financial and technical capacity (Mansuri and Rao 2004); therefore, if technology needs upgradation or service standards need improvement, the SHGs as service providers, can contribute only in a limited way.

Therefore, lessons learned from the SHG model in Dhenkanal reveal that the longer-term success and sustainability of the SHG model depend on three crucial factors. First, given the weak technical capacity of the SHG members, the technology used to deliver service should be subject to minimal changes or upgradation such that it does not render the SHG members incapable of operating the system. Second, as the World Bank (2004) posits, if financial allocations do not reach the frontline service providers, there are weak incentives for efficient service delivery. Therefore, SHG workers should be compensated at acceptable benchmarks over a long period, and payments should remain competitive. Last, Crook and Ayee (2006) document the potential pitfalls of the politicization of service delivery wherein contracting out services to community-based organizations may create room for local political interest groups to appropriate service delivery contracts. Such political appropriation can lead to reduced service efficiency and become a hurdle for further improvements or interventions (Crook and Aye 2006). Therefore, for a well-functioning long route of accountability, the contracts between ULB and ALFs must be transparent, well-monitored, and not politicized.

Notwithstanding the potential pitfalls the SHG model faces, its successful implementation in Dhenkanal has led to the state-wide scaling-up of the model. The decision to replicate the model across Odisha is predicated on three conditions that determined its success:

- (1) ULBs are not encouraged by the authorizing institutional environment to hire staff in-house for FSM service delivery. Hence, outsourcing operations remains the only option for ULBs.

- (2) Outsourcing service delivery to SHG members has been successful due to the public support extended to the model through a number of national and state-level programs. Alongside this, the willingness of Odisha and the ULB to build the capacity of SHGs and its members specifically for FSM to ensure efficient delivery and operation of services, has determined the model's success.
- (3) The absence or weak presence of the private sector in FSM service delivery has limited options for outsourcing services, making engaging with SHGs desirable.

The potential to replicate the SHG model for FSM service delivery in other states across India is imminent and highly possible as the three conditions listed above that led to the success of the model in Odisha apply to other states as well. Consequently, the presence of these enabling conditions exhibit a high likelihood for the successful adoption of the SHG model across India. However, the potential to replicate the model in other countries will be determined by whether the enabling conditions discussed above are present. The set of enabling conditions in other countries may or may not differ from those in the Indian context. Additionally, other country-specific drivers may also enable the adoption and replication of the SHG model in other countries. Therefore, country-specific conditions will determine the scope for replicating the model successfully.

The authorizing institutional environment supports the scaling-up of the SHG model. For sustainable FSM service delivery through the SHG model, the existing authorizing institutional environment should continue to be robust, but incrementally improve as well to ensure that service levels do not drop. However, another way to ensure sustainable service delivery would be to create positive change in demand for services and increase the financial capacity of the service providers. Currently, there is no incentive in the system for the service provider to improve efficiency; the SHG members receive a fixed monthly wage, and the full cost of services is not borne by the citizens. Instead, if citizens are able and willing to pay the full cost of service delivery, a condition can be imagined where multiple ALFs may bid for service delivery contracts and the increase in their financial capacity results in increasing service delivery efficiency. The authorizing institutional environment can also be strengthened by ensuring incremental improvements in service quality and demand. Improving the long route would require monitoring and enforcement and the short route through increasing affordability and willingness to pay among citizens for the service and improving the financial conditions of the SHG.

In conclusion, the SHG model has been successful to this point to become viable and is being deployed across the state with some success. The longer term success and sustainability of the model will depend on how both the long and short routes to institutional accountability are continuously strengthened as the authorizing institutional environment around urban service delivery changes in the state going forward.

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11

Accountability Mechanisms and Institutional Arrangements in Sanitation Projects

Punita Nook Naidu and Shameera Natasah

11.1 Introduction

The 2021 Joint Monitoring Programme (JMP) mentioned that in 2020, approximately 26% of the world populace (2 billion people) are still unable to have “safely managed drinking water”—meaning lacking safe and available water at home. In the case of “safely managed sanitation”, around 46% of the global population (3.6 billion people) is lacking access to a toilet or latrine that allows for the treatment or safe disposal of feces. In addition to that, 29% of the world populace (2.3 billion people) did not have access to any handwashing facilities with soap and water at home (WHO and UNICEF 2021).

The direct impact from the lack of sanitation infrastructure is the inability to provide the desired services, which is detrimental to public health. The indirect consequences overflow into the socioeconomic and socio environment landscape as a whole. A summary from several studies indicates that (but not limited to):

- Improvement in sanitation reduces environmental enteric dysfunction and helminth reinfection (Strunz et al. 2014).
- While there is less direct evidence for sanitation reducing symptomatic episodes of diarrhea, it remains good evidence that hygiene and handwashing decrease diarrhea (Bartram and Cairncross 2010). This shows the relativity of improvement in sanitation must be accompanied with supporting features such as having access to water supply or reasonable quality to perform necessary activities effectively.

- There is evidence that improvements in water and sanitation facilities can improve staffing in both educational (Adugna, Dery, and Gomme 2001) and health (Henderson and Tulloch 2008) facilities and reduce absenteeism in schools (Jasper, Le, and Bartram 2012).

Hence impactful sanitation interventions that include flush or pour flush toilets, pit latrines, composting toilets, or connections to onsite or offsite systems, safe emptying, conveyance, treatment, and disposal or reuse are required to address one of the most basic human necessities. Cumulative individual actions affect the community and surrounding ecosystem. In recent years, there has been an increased focus on improving sanitation in developing countries through various projects and initiatives funded by international agencies. These projects often need to maneuver through complex institutional arrangements. Therefore, it is essential for the funding agencies to ensure there are accountability mechanisms in place to enable successful delivery of the projects and long-term sustainability.

The significance of sanitation needs is not questionable, however the inability of countries and cities to provide the services sustainably is a serious challenge. Sanitation has been associated with market failure (Tremolet 2013). Cities still fail to expand the coverage, provide services effectively, and achieve the desired outcome. Despite huge investments having been made either through national budgets, loans or grants from donor agencies, many countries are still unable to close the gaps in the sanitation sector (Annamraju, Calaguas, and Gutierrez 2001).

The initial support provided by international funding and donor agencies for the sanitation sector has been largely concentrated on the physical infrastructure as required by the fund recipient. Since then, these agencies have begun focusing on socioeconomic and socioenvironmental components related to the sanitation sector as the fundamental outcomes desired to be achieved from the sponsored projects (Winpenny 2003). The agencies have played an active advocacy role with national governments, provincial and city officials to build-in consideration in the identification, development, and prioritization of projects.

The shift in approach adopted by international funding and donor agencies could have been motivated by various reasons such as:

- infrastructure failing due to poor operation and a lack of effective maintenance

- financing scheme for sustainable services are either nonexistent or lacking
- projects could have been designed on the philosophy of sanitation as a basic human right and public good but operated as private goods with expectation of full cost recovery for the services to be rendered
- insufficient institutional arrangements and accountability mechanism
- lack of coordination and engagement with all stakeholders
- lack of proposed projects' outreach to various communities, appropriation to cultural norms and taboos, and other social aspects (Kelkar and Seetha Ram 2019)

We are living in a constantly changing environment, exposed to trends that significantly change how we operate as individuals, communities, cities, and countries. However, one aspect that does not shift is the need and dependence on the provision of water and sanitation services. In fact, modern lifestyle has created greater demands, higher expectation of services, and larger consumption of water that leads to the generation of more wastewater. It is further compounded with rapid urbanization and growing cities that challenges the utilities to continue servicing people effectively and feasibly. Where there are some forms of regulatory structure for the sanitation sector, the arrangements are heavily skewed toward control on the activities of private operators but lax in the creation of robust environments for the private sector to participate. Meanwhile in situations where the authority and service providers are the same entities, it blurs the distinction between enforcer and “enforcee”.

To ensure that no one is left behind in receiving appropriate sanitation provisions, a citywide inclusive sanitation (CWIS)¹ (Gambrill, Gilsdorf, and Kotwal 2020) context is used as a framework in designing

¹ The framing of a CWIS covers everybody including targeted specific unserved and underserved groups such as women, ethnic minorities, the urban poor, and people with disabilities who benefit from adequate sanitation service delivery outcomes that protect public health and the environment. In a CWIS, human waste is safely managed along the whole sanitation service chain, effective resource recovery and reuse are considered; a diversity of technical solutions is embraced for adaptive, mixed, and incremental approaches; and onsite and sewerage solutions are combined, in either centralized or decentralized systems, to better respond to the realities found in developing country cities. Cities need to develop comprehensive approaches to sanitation improvement that encompass long-term planning, technical innovation, institutional reforms, and financial mobilization. They will need to demonstrate political will, technical and managerial leadership, to focus on durable drivers for innovation, and to manage funding for sanitation in new and creative ways.

the needs of a given city. For the countries or cities to achieve sanitation provisions meeting the Sustainable Development Goal (SDG) 6 targets encompassing the CWIS context, it goes beyond funding demands. It is critical to have a robust institutional arrangement with clear assigned accountabilities for every scope in sanitation service delivery to ensure it can function safely, at scale, over time, and inclusively.

11.2 Institutional Arrangements and Accountability Mechanisms in the Sanitation Sector

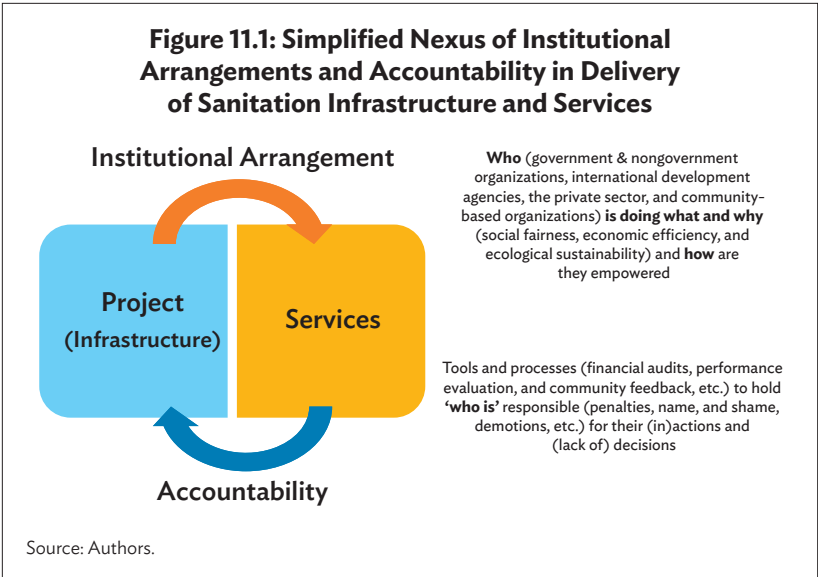
Institutional arrangements refer to the structures and processes that are put in place to manage and implement sanitation projects and rolling out the services. These can include government agencies, nongovernment organizations, international development agencies, the private sector, and community-based organizations. These organizations play different roles and have different responsibilities in the implementation of sanitation projects, and effective coordination and collaboration among them is crucial for the success of the projects.

Appropriate institutional frameworks are pertinent to promote social fairness, economic efficiency, and ecological sustainability in the management of sanitation (Savenjie and Van der Zaag 2008). Notwithstanding the various intervention tools for sanitation and water management, the efficacy remains below par due to poor institutional frameworks. Numerous instances of poor service delivery and failed water and sanitation projects are rooted in weak institutional arrangements (AfDB, UNEP, and GRID-Arendal 2002). Ambiguous institutional mandates for planning and management and limited institutional capacity to coordinate and make do initiatives are the primary causes of this institutional weakness. The repercussion of the said causes will result in deteriorating services that could lead to ineffective cost recovery, and ultimately failed investments that are unable to meet the projection of current and future demand (Scott, Cotton, and Govindan 2003).

The general interpretation of accountability is referred to as the obligation of relevant authorities to carry out the responsibility for their commitments and actions, present answerable justifications to the people affected by these, and be subjected to a thorough monitoring process and to some sort of enforceable measures if progress is ineffective (Lande Van de and Fonseca 2018). According to Schedler, Diamond, and Plattner (1999), accountability is a multiplex idea which can be conceptualized in multiple different ways but often incorporates

elements of answerability and sanctions. The exploration of this concept of accountability has widely been done by different actors in the water and sanitation sector, however; there is no mutual agreement or understanding regarding the exact definition of the concept, as it is exceptionally multifaceted.

Figure 11.1 captures the nexus between institutional arrangements and accountability co-existing for equitable service delivery.



The water, sanitation, and hygiene (WASH) interventions will only be sustainable when fair weightage of accountability is assigned to the relevant stakeholders. Based on the five-step cycle that has been put forward by Hepworth, Brown, and Brewer (2020), accountability related to the water sector is sequenced firstly starting from introduction of rules, successful execution of responsibilities, reporting, review of performance and lastly effective reactions. An alternative definition of accountability stated by the World Health Organization and United Nations Children’s Fund (WHO and UNICEF 2015) is it can act as a democratic principle that holds elected officials and entities in charge of providing access to water supply and sanitation services accountable for their actions and to respond appropriately to people they serve. In

short, policy makers, politicians, and WASH service providers accept responsibility for their actions and agree to explain why and how they deliver or fail to deliver (Global WASH Cluster, 2009).

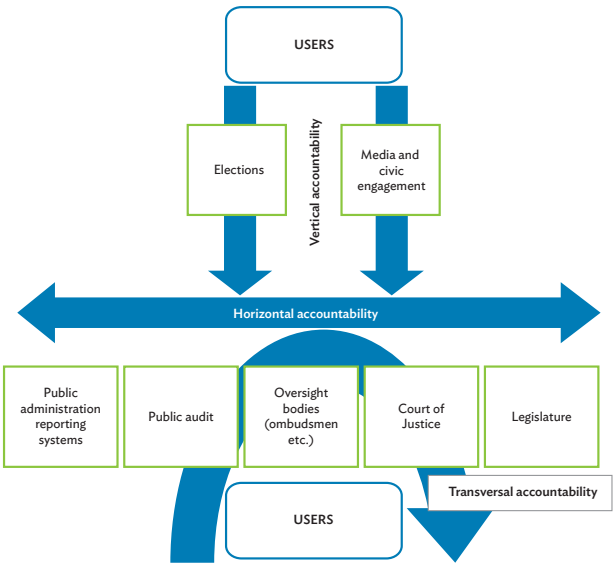
Accountability mechanisms are tools and processes that are used to hold individuals and organizations accountable for their actions and decisions. In the context of sanitation projects, accountability mechanisms can take many forms, including financial audits, performance evaluations, and community feedback systems. These mechanisms are important for ensuring that the funds allocated for sanitation projects are used effectively and efficiently, and that the projects are delivering the intended benefits to the target communities. Implementation of accountability mechanisms will not necessarily result in significant achievement unless the power is distributed appropriately enabling effective civil society participation and empowering the users and service providers to interpret and use these tools. (Velleman 2010).

There are a few distinct types of mechanisms that responsible parties can use to fulfil their obligation to ensure that all citizens have access to WASH services: accountability can be horizontal, vertical, and/or transversal. Accountability has been acknowledged as a key enabler for improvement in water governance. However, it remains difficult to determine the most effective methods for strengthening accountability alliance in the water sector (Sohail and Cavill 2007). Recognizing institutional arrangement lethargy as the core problem had steered numerous external organizations (donors, international institutions, nongovernment organizations, etc.) to focus their support to achieve national accountability on establishing stronger relationships between actors (Tropp, Jimenez, and Le Deunff 2017). An effectively functioning accountability mechanisms can offer better clarity of the governance arrangement and on the obligation of the actors responsible to manage fiscal resource, safeguard water resources and expand control over the actions of public and private stakeholders as well as guarantee minimum quality standards (UNDP Water Governance Facility and UNICEF 2015).

A diagram from Tropp, Jimenez, and Le Deunff (2017) (Figure 11.2) maps out the accountability framework for stakeholders to maintain a reasonable expectation of integrity in the decision-making process of sanitation services delivery.

Horizontal accountability arrangements were formed as a complement for hierarchical accountability. The foundation of horizontal accountability produces an accountability regime where different state actors have the permission to demand explanations or impose fines on another (Goetz and Jenkins 2005). As a result, a robust legal and justice system is the essence of horizontal accountability systems. Mechanisms of internal oversight and balance of powers

Figure 11.2: Multiple Dimensions of Accountability



Source: Adapted from Tropp, Jimenez, and Le Deunff (2017).

within an institution (internal control) or public institution oversight and checks and balances are examples of these.

On the inverse of horizontal accountability, vertical mechanisms link citizens instantaneously to the government. For example, it happens when an individual plays a direct role in holding the powerful authority to account. However, the ability of users to exercise rights in vertical accountability are limited and the outcome is unpredictable. Vertical accountability is exerted through elections with anticipation that the elected officials will deliver the commitments. Alternatively, users can collectively mobilize demand for appropriate action through civic engagement such as social media, public rallies, etc.

Non-direct ways to channel vertical accountability include community engagement, lobbying, and social mass mobilization. Transversal accountability (also known as hybrid) refers to the involvement of citizens and civil society (key players from the vertical accountability arrangements) in horizontal (state-to-state) processes of accountability. This type of mechanism helps to support the horizontal accountability systems, overcome the finite impact of conventional

civil society approaches, and legitimizes the citizens' inclusivity in government oversight functions (UNDP–SIWI 2020; UNDP Water Governance Facility and UNICEF 2015; Tropp, Jimenez, and Le Deunff 2017).

The development of civic engagement and advancement of social accountability mechanisms can be achieved by using horizontal institutions by the public to improve accountability interactions between the state and water users. In this case, social accountability refers to methods that involve civil society in attributing duty bearers to be held accountable for the performance of service provision. Social accountability mechanisms can be used interactively between holding public officials accountable and strengthening the accountability link between services providers and users. In addition, specific accountability domains can be distinguished; in this sense, political, legal, financial, and administrative accountability are the relevant ones (UNDP–SIWI 2020; UNDP Water Governance Facility and UNICEF 2015; Tropp, Jimenez, and Le Deunff 2017).

In the instance of vertical accountability conventional application is through periodic elections and the practice of informal processes to vocalize citizens' opinions as well as to put pressure on policy makers. The following are examples from India, the Philippines, and Malaysia.

India introduced the National Green Tribunal that provides a channel for citizens to hold authorities responsible for their actions and/or inaction. Therefore, a citizen can use the judicial system to mandate the government or private companies to embark on necessary action to provide desired services. The challenge however remains to see the implication of not complying to the decisions made by the tribunal.

The arbitration case brought by Manila Water Company Inc against the Philippine government to challenge the decision made by the government on tariff pricing is one of effective deployment of horizontal accountability arrangement. The concession company contracted by the government to provide water and sewerage services utilized the institutional arrangement provided for within the concession agreement to hold the government accountable for the commitment made in the concession agreement pertaining to tariff pricing. Nevertheless, with the lack of institutional setting to drive planning and service expansions, the focus had been on economic gains and not recognizing sanitation provision as a basic human right. Hence, services are rendered only to those who can afford them.

In Malaysia, the arrangement of transversal accountability can be observed embedded in the Water Services Industry Act, where the regulator, the National Water Services Commission (SPAN), is responsible to designate and provide support to civil society to champion

consumer standards and needs. SPAN is held responsible to prime civil society in terms of providing resources, (i.e., financial and knowledge) to perform its task. The civil society organization is to be independent of the regulator. Despite Malaysia having a detailed institutional arrangement, there is a significant lack of accountability mechanisms to hold SPAN responsible. Until today, SPAN's key performance indicators are not made public.

Accountability Mechanism Matrix and Measurement

Accountability mechanisms appear in many forms as arranged and determined by the institutions. Each country has its unique set of institutional arrangements in place to implement and monitor, and to ensure water and sanitation targets are achieved. "Effective accountability mechanisms" are described by van de Lande and Fonseca (2018) as methods that prioritize transparency, engage a myriad of stakeholders, facilitate, and provide constructive feedback on progress and lessons learned, and are responsive to issues raised by stakeholders.

CWIS centers around a city's service delivery system operations, as influenced by both national and state policies, legal and institutional layouts, and design implementation at the city-level, as well as the subsequent outcomes. It recognizes the inherent gaps and market failures of urban sanitation that creates market incentives for private sector engagement to invest and innovate. Under the monitoring, learning, and evidence (CWIS-MLE) initiative, a comprehensive list of CWIS indicators has been developed to monitor cities' progress toward CWIS. These outcome-based indicators are intended to serve as a reference that may assist in designing the sanitation data systems at different stages (Bill & Melinda Gates Foundation 2020). The main frameworks that have been used as references include the Joint Monitoring Programme (UN-Water 2017), Fecal Sludge Management Tools, City Service Delivery Assessment (Blackett and Hawkins 2016), Shit Flow Diagram (SFD-PI 2018), and the Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) framework (WHO 2017).

The GLAAS framework focuses on the investment and enabling environment for the provision of water, sanitation, and hygiene services (WHO 2014). The GLAAS survey helps to identify the inquiries received related to accountability, which principally demarcates accountability in the context of a human rights framework within WASH (Jimenez et al. 2018). It highlights the obligations of those in power to accept responsibility for their acts (responsibility), explain and justify their actions to those affected (answerability), and to face enforced penalties if their behavior or justification is alleged to be poor (enforceability)

(UNDP–SIWI 2020). This approach of intervention was utilized in the Tushirikishe Jamii and Jua Jimbo projects, which Forum Syd undertook with the aid of the Kenyan government in 2010 and 2014.

Those in positions of authority must have clearly defined roles and performance expectation to be held responsible. Correspondingly, training programs targeting civil society and sector leaders must be planned, which covers lobbying and advocacy actions, civic education, and strategic deployment of the community to participate to uphold the governance process by observing authority to ensure they act transparently and objectively (UNDP–SIWI 2020). Part of the activities in the implementation of projects will include an answerability mechanism that includes public outreach through forums and meetings, to encourage access to information, and conduct social audits on public projects. Dialogue between communities and authorities as part of key decision-making processes for matters pertaining to planning and budgeting, not only offer space for community interaction but provides ownership in jointly identifying solutions to issues faced by public (UNDP–SIWI 2020).

These interactions serve as information sharing and collaborative problem-solving channels for community needs and goals, as well as boost efficiency in processing complaints regarding service delivery. Under the enforceability mechanisms, implementing sanctions and rewards based on service delivery, establishing complaints and grievance mechanisms, and enforcing stakeholder capacity for overseeing the performance of service provision were some of the activities listed, which were aimed to enhance the water sector's regulatory capacity (UNDP–SIWI 2020).

Overall, the use of accountability mechanisms and effective institutional arrangements is essential for the success of sanitation projects. These tools and processes help to ensure that the funds and resources allocated for the projects are used effectively and efficiently, and that the projects are delivering the intended benefits to the target communities.

Resetting the Sanitation Landscape

Institutional needs and accountability mechanisms should be arranged from the “bird’s eye view” perspective to have a macro overview of the sector and remain on course for achieving the desired outcome, as well as to avoid potential missing links and reduce as much as possible the overlapping roles that likely cause disruption in the effective execution of sanitation service delivery. It is essential to expand the scope beyond the standard focus that covers capture, emptying, transport, treatment,

and disposal. The decision makers must be cognizant that institutional needs and accountability mechanisms must be dynamic and fluid to the sector's progression, public expectation, development pattern, and ecosystem demand in the given municipality or country.

The elements that have influence over the sanitation sector and can be impacted by it must be recognized and explored. Some of the fundamental elements are:

- Public health concerns including availability of clean water and hygiene practices
- Housing and building plan requirements to ensure appropriate sanitation solutions within premises
- Drainage infrastructure to carry away partially treated effluent from septic tanks
- Accessibility and right of way to empty the septic tanks
- Enforcement functions at various stages to enable accountability obligated to the relevant agencies on both incentives and penalty

In-depth understanding of these various elements is essential to ensure all the necessary requirements are addressed to design an effective sanitation service delivery, predominantly in ensuring the institutional arrangements are in place and functions cohesively toward the similar outcome. Understanding the landscape of services in entirety is essential to establish who are the key stakeholders influencing or affected along the building block of the sanitation service delivery chain. The institutional arrangements and linkages (i.e., between ministries, government agencies, federal and provincial governments, public and civil societies, the private sector, i.e., corporatized entities, government incorporated companies, etc.) should be mapped. There should be a clarity of the boundary between the enforce and enforced. The affirmation of institutional arrangement structures and their roles must be done through senate, parliament, concessions, contracts, memorandums of understanding, etc.

Figure 11.3 is a comprehensive layout of stakeholders and their roles, even though it does not encompass the elements outside the direct sanitation services delivery.

With regards to sanitation services, accountability and institutional arrangements can be measured and delivered efficiently by having well-defined rules, and the right incentive structures so that is sustainable. A proper accountability mechanism is fundamentally vital to ensure that the rules of the game are clear to all stakeholders, the incentives are properly aligned, sanctions are fairly enforced as well as appropriate configuration on what are the specific roles and how they are empowered to deliver the roles; so that the system structurally fosters accountable behavior.

Figure 11.3: Roles and Responsibilities of Stakeholders Along Sanitation Service Chain



CBO = community-based organizations, DEWATS = decentralized wastewater treatment systems, FS = fecal sludge, OSS = onsite sanitation.
Source: Adapted from WASREB (2020, p11).

The understanding of the overall landscape including all direct and indirect elements will guide the relevant authorities to establish baselines appropriately at national, provincial, and project levels. The baselines are essential to draft relevant policies and regulatory frameworks covering economic, environmental, and social aspects in relation to (but not limited) land, sanitation works or infrastructure, service delivery including accessibility to provide and receive services, building codes for housing and toilet provisions, drainage systems, reuse and recycle features, affordability as well as determination and recognition of sanitation services delivery cost as a public good and/or private good.

The financing roles specific to the public and/or private good for capital outlay and operational expenditure as well as cost recovery mechanism must be explicitly detailed. The baseline should consider when the sanitation services provisions shift from the public good (meeting the minimum standard as basic human right that likely will be subsidized by the government) toward the private good (capability of full cost recovery mechanisms). The baseline will function as a pillar to support the design of appropriate institutional setting and required accountability features. The goals and targets established for national, provincial, and project levels must be allotted to specific agencies and/or task forces to be held accountable for its delivery. In addition, the project and service contracts and/or concession to be made public to ensure transparency and governance that will facilitate in holding all the responsible stakeholders accountable on relevant delivery.

The goals and targets must be set with a view to deep dive into granular details that should consider the following (but not limited to):

- Service delivery standards and targets at various stages including logistics of services planning for desludging, transporting, and treatment of fecal sludge
- User affordability of the sanitation infrastructure and services provisions
- Availability of capacity, resources, and competency to perform the sanitation service delivery and professional certification for various functions
- Ownership of the land and related sewerage and/or sanitation assets
- Project design, risk assessment, and value management
- Operation and maintenance of the assets
- Enforcement mechanisms to ensure septic tanks are desludged properly
- Appropriate social reforms to enable readiness of society for proposed sewerage and sanitation development systems to be put in place (culturally, socially, and financially)

- Consumer empowerment code and customer service charter

Generally, the first milestones (i.e., accessibility to appropriate toilets, minimum water requirement needed, community served, etc.) and last milestones (i.e., service providers, physical access to provide required services, sufficient manpower with proper competency, cost recovery mechanism, etc.) are not explicitly identified. The focus is normally limited directly to sanitation related capital works but not to the whole service chains for effective and sustainable service delivery. Hence there is a need for customized goals and targets at various levels from the ground perspective are essential to achieve the CWIS agenda.

Policies, regulatory frameworks, and determinations driving the sector are drafted and approved at the highest government authority. To ensure it is relevant and palatable to the community at large, suitable stakeholder participation must be designed and rolled out. The degree of influence of public participation in decision making remains vague. Therefore, identification of the direct and indirect institutional arrangements and links (i.e., between ministries, government agencies, federal and provincial governments, civil society organizations, the public as well as the private sector i.e., corporatized entities, government incorporated companies, etc.) and how they would leverage is one of the key elements in helping the institutional arrangements to function as intended and held accountable for their actions.

An integrated evaluation tool to measure CWIS achievement that shows a clear link to the CWIS agenda and the impact the specific proposed project is needed to ensure that rural and urban WASH service providers serve all communities and not just the most convenient and/or wealthy parts of the community. Performance indicators and targets need to be strictly specified and monitored, with incentives and sanctions that encourage delivering services and extending access to those who are harder to reach. The performance indicators of all the relevant authorities must be made public. Presumably, it should likewise have to report progress toward achieving its mandate using data from established and transparent monitoring systems.

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12

Accountability Mechanisms For Effective Sanitation

Dorai Narayana

12.1 Introduction

Urban areas, towns, and cities have historically placed sanitation as a priority. In fact, municipalities in many countries started out as sanitation boards, dealing with solid waste and human excreta management to safeguard the urban population from health risks. But somewhere along the way, the primary objective relating to human waste management has diminished, particularly in developing countries. Particularly, onsite fecal waste management has been relegated to a private status, left to the householder and rudimentary private operators. There is now a huge effort at revival, to put back sanitation, particularly management of black and gray water in its rightful position. In this chapter, sanitation refers to the matters concerning human excreta as well as domestic wastewater. Fecal sludge management (FSM) refers to the management of onsite systems, mainly septic tanks or pits and the emptying of their contents, transport, treatment, and disposal or reuse. Sewerage refers to off-site management of sewage through a piped sewer network and treatment facilities.

Different models of management approaches and institutional arrangements are being tried out. The right model for any city is the one that succeeds in delivering sanitation outcomes (which are public health and well-being, water resource protection, and environmental sustainability) in an effective, efficient manner to all citizens.

Here the key concept is “line of sight”, to ensure alignment of all players to the objective of delivering the optimum outcomes. An equally important consideration is empowerment, balancing accountability with the commensurate resources required to achieve the outcomes.

Among considerations are:

- The predominantly “public goods” nature of sanitation makes the perception of value and benefit different for users, and this poses problems in cost recovery and sustainability, needing innovative solutions, which may involve subsidies and cross-subsidies, affordability considerations (at the householder as well as city level) and gradual cost recovery. With subsidies and indirect cost recovery, accountability line of sight is obscured.
- The provision of appropriate sanitation infrastructure, demand, and service delivery: many cities in the developing world are struggling to get to the first step in sanitation improvements, and here it is prudent to be practical and not set too high standards. An incremental approach is likely to work best, linking interventions to outcomes.
- The bulk of the burden of sanitation is often left to local municipalities that often struggle to find the motivation and resources to do so effectively. Mechanisms involving roles at different levels of the government and the private sector to incorporate a champion, and accountability for policy, regulation, resource allocation, technical assistance, oversight, competition, benchmarking, and monitoring are required.
- Synergies between entities managing water and sewerage systems, onsite systems, solid waste, and other local functions can be exploited for overall benefit.

The institutional and regulatory frameworks form the foundation of accountability mechanisms to ensure sanitation outcomes. There are different models with varying degrees of effectiveness.

In this chapter we will look primarily at the models in Malaysia, Japan, and Singapore that have yielded various extents of success. We will also look at the Philippines and Bangladesh that have achieved limited success and are struggling to achieve better results. Using these models, broad success factors will be derived that may help policy makers and regulators understand the linkage between accountability mechanisms and effective sanitation service delivery in developing countries. In this context “success” would be taken as effectiveness in improvement of sanitation service delivery and sanitation outcomes.

While the scope of sanitation in this chapter refers to human waste management (black and gray water), it is recognized that there are two broad approaches in sewerage sanitation and non-sewerage sanitation, and increasingly, in many cities, these two approaches are converging under the concept of city-wide inclusive sanitation

12.2 Case Studies

12.2.1 Malaysia

Malaysia is often portrayed as a model of sanitation and sewerage management among the developing countries in Southeast Asia. Malaysia follows a multitiered government system: it has a national (federal) government, state governments, and local governments. Historically, as in most countries, sanitation was placed under the jurisdiction of local authorities (municipalities). Under this arrangement, a few of the larger municipalities managed reasonably well, but overall sanitation development was basic, and the focus was on providing minimum sanitation: provision of toilets and rudimentary containments and on demand emptying services were carried out. Smaller municipalities suffered from a general lack of drive, inadequate resources, capacity issues, and were preoccupied with other issues: solid waste disposal, drainage, and road maintenance.

Soon, adverse impacts on the community and water resources became apparent. Rivers were grossly polluted, and tourism suffered (Ministry of Environment and Water, Malaysia). As a consequence, in 1993 Malaysia decided to make a drastic change in approach in managing centralized, community, and onsite sanitation systems. From the previous municipality model, the country adopted the regulator-utility model. This has worked well in improving sanitation in Malaysia in the subsequent period.

The Sewerage Services Act transferred responsibility for sanitation and sewerage to the federal (central) government. Since then, large investments in sewerage infrastructure were made, coupled with excellent sanitation and sewerage management and services, which were provided through a private concessionaire. Scheduled desludging was also an obligation under the concession, although this was not very successful. There was good oversight by the National level Sewerage Services Department (later the National Water Services Commission), and the private concessionaire made a big difference, bringing in expertise from abroad.

Today, nearly 100% of the population has access to toilets and adequate sanitation. About 70% is served by sewerage systems, with functioning off-site treatment facilities. Approximately 20% of the population use properly designed and built septic tanks, and the remaining population use nonstandard septic tanks, pour flush, and pit latrines. Regular desludging is, however, still deficient, with only approximately 10%–20% of septic tanks regularly emptied, the rest being emptied at far less frequent intervals, on request. Treatment

facilities are available for the septage, and all sludge emptied is treated before disposal (IWK).

Since the shift from municipalities to the centralized model, further changes took place in 2006. The Water Services Industry Act was passed to integrate policy, regulation, and service provision for water supply and sewerage (which includes sanitation). The Act provides for separate entities for policy (under the relevant ministry), regulation (by the National Water Services Commission), funding, and providing assets and ownership (under facility licensee), and service provision (by the concessionaire, who will eventually transition to a service licensee). The Act provides for the regulation of other private entities involved in the industry through permits. These provisions have resulted in a clear demarcation of roles and allows check and balance systems. The private sector also brought in innovation and efficiency of operations.

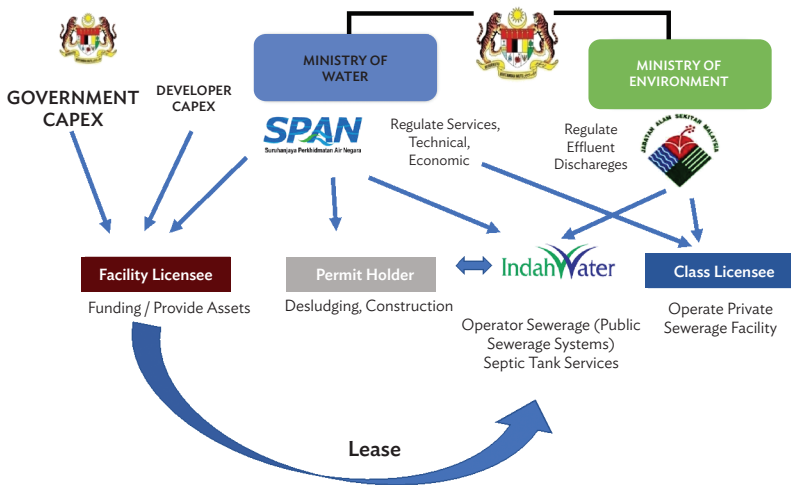
Regulations cover the building and design of septic tanks and sewerage systems, desludging, operations and maintenance. In addition, the sewerage utility has been charged with the responsibility to provide the desludging services and accountability to treat the collected sludge. The inclusion of management (desludging) of onsite systems under the regulations, as well as under the utility accountability is an important aspect that ensures a more holistic sanitation outcome.

The National Water Services Commission is an economic regulator, and among its functions are protecting customers' interests, while also ensuring the business viability of the operators. The operators are required to submit business plans on a rolling basis that enables the regulator to ascertain the business viability and fix appropriate tariffs. However, cost recovery is still deficient, with tariffs stagnant since the early days, as a result of which the government had to buy over the concessionaire and continually subsidize its operations to cover the revenue gap (National Water Services Commission, Malaysia).

In addition, the Department of Environment monitors performance of sewage and sludge treatment plants to ensure compliance with the environmental regulations and effluent standards.

The concessionaire, Indah Water Konsortium (IWK) is currently operating a large number of sewage treatment plants (more than 7,000) and sewer pipelines (about 23,000 kilometers). These serve a population equivalent of over 26 million. IWK has over the years introduced many operational improvements including standard operating procedures and innovations. These include technical innovations using geographic information systems to plan and optimize tanker routes and to monitor desludging tanker movements. IWK operates under a system of performance indicators that are reported to the regulator, covering

Figure 12.1: Overall Sanitation Governance, Malaysia



aspects such as service provision, complaints and resolution, and costs. The overall governance is shown in Figure 12.1.

Accountabilities have been created all the way, with line of sight and alignment of roles and functions. The policy and strategy of sanitation provision is formulated at the national level, and with funding and regulation also coming from a centralized structure, alignment is well facilitated. The central regulator and national utility operators also serve well in this regard.

Other accountability mechanisms include:

- Asset creation is by the government or by private entities closely regulated by the regulator, with products, contractors, and systems subject to standards, guidelines, approvals, and inspections. The regulator, through a certifying agency, inspects and approves all planning, design, and construction of septic tanks and sewerage systems.
- Local governments ensure sanitation requirements are complied with and incorporated before building plans are approved, and constructed properly before the building is given a certificate of fitness for occupation.

- All contractors carrying out sanitation and sewerage installation works must be registered with the regulator. For skilled workers, a system of training and accreditation is adopted.
- Involvement of the private sector as support vendors have made the industry competitive and progressive. Accountability is ensured through contractual provisions.
- Regulations are in place for scheduled emptying of septic tanks. However, these have not been fully enforced.
- All desludging operators are registered by regulator, as well as by the Department of Safety and Health and the Road Transport Department (for vehicle related matters).
- Sludge treatment facilities have been set up nationwide within short distances of all urban areas.
- Training programs for all levels of personnel are provided, and many are accredited.
- The ministry, regulator, and the utility company carry out regular campaigns and awareness programs on desludging and proper care of septic tanks and sewerage systems.
- However, there are some residual areas of concern, including:
- The failure of the scheduled desludging program. This is due largely to refusal of householders. Sustained campaigns and enforcement should be carried out to remedy it. Direct fees imposed for emptying may also have played a role. The regulations were revamped in May 2023, and it is expected that the revised program will see greater success.
- The national-level governance model with a single utility has created a monopoly. The regulator in attempting to deal with this has introduced a system known as Water Industry Regulatory Accounting (WIRA), which all operators must prepare and submit, for effective evaluation of the operators' performance and monitoring of their operational and service delivery.
- There is a sustainability issue due to the tariffs being insufficient for cost recovery. A tariff adjustment is long overdue.
- At present the water operators are separate from the sewerage operators, although the policy and legislation are intended to eventually integrate these.

Nevertheless, Malaysia's experiences in the sanitation sector can be adopted with suitable adaptation by other countries (Narayana 2017).

12.2.2 Japan

Japan is a developed nation which has world class infrastructure, including sanitation facilities. The sanitation system and services provided are top class and enable the people to enjoy a clean, healthy, and nuisance-free environment.

Historically the rapid economic growth in Japan after the Second World War had a toll on the environment, causing serious concerns on the protection of waterways and coastal areas. This resulted in a series of legislation changes to address pollution, which then led to higher emphasis on the development and management of sanitation and sewerage systems.

At ministry level, policy and funding support comes from the Ministry of Land, Infrastructure, Transport, and Tourism for offsite sanitation, and the Ministry of the Environment supports onsite sanitation. The Sewerage Law of Japan sets out the criteria and standards to be complied with for effluent quality, and guidelines for planning, construction, and installation of treatment facilities.

At the operational level, the municipality provides sanitation related services, both for onsite systems and sewerage systems, similar to the overwhelming majority of countries in the developing world, where Local governments are charged with primary responsibility for sanitation.

Funding and financing arrangements allow for a cost-sharing approach among central and local governments, users, and beneficiaries both for capital investment costs as well as and operation and maintenance costs.

Today, approximately 80% of Japan's population of Japan is connected to an off-site sewerage system (ADB 2016). Such solutions are expensive, but due to the economic situation of Japan, it has become possible. However, achieving 100% sewerage coverage is often unachievable for most countries, and that applies to Japan too. Substantial pockets of the country still use onsite systems, especially in the smaller cities. One unique aspect of onsite systems in Japan is the packaged aerated wastewater treatment plants (PAWTP or Johkasou treatment system), which is the standard onsite system in Japan. PAWTP treat both black water and gray water and are considered as wastewater treatment systems. There is a government subsidy program to help people install these systems. A small percentage (about 10%) of premises use vault toilets, or the old type Johkasou, handling only black water, and the conversion from vault toilets and old type Johkasou to PAWTP is a major challenge for wastewater management in Japan (Ministry of Environment, Japan 1983).

In order to ensure a holistic sanitation management for a city, all forms of waste discharges must be regulated. Onsite systems in Japan have been recognized as an environmental concern, and therefore a number of regulatory measures are in place.

First, the proper design and quality of onsite systems must be ensured. These onsite systems are prefabricated and manufactured to proper standards, subject to government approval and performance assessment.

In addition, the installation of these systems is regulated, and this is done through registration of installation contractors. The personnel involved in the installation are also required to be trained and accredited.

For the proper functioning of onsite systems such as the *Johkasou*, they must be properly and regularly maintained and desludged. For this, regulatory controls are in place with obligations on owners to desludge regularly and on the desludging operator to be approved by the municipal mayor. The Onsite System Act (*Johkasou Act*) (1983) stipulates this. The *Johkasou* is an advanced system and intermittent checks, and maintenance of the equipment are necessary to ensure optimum treatment performance; such checks and maintenance services are to be provided by the registered maintenance vendors. The personnel involved in the maintenance services are also required to be trained and accredited (Ministry of the Environment, Japan 2019).

For the treatment of sludge, sludge treatment facilities have been developed nationwide, and the Water Pollution Regulations stipulate compliance to the effluent standard.

As part of the building confirmation system, it is ensured that all new houses and buildings are provided with an appropriate sewerage or onsite system, and regulatory inspections are carried out to ensure compliance.

Major roles are played by the private sector in manufacturing of the prefabricated systems, installations, as well as outsourced operations and maintenance.

Table 12.1 shows some of the issues faced in managing onsite systems effectively, and the response in Japan, which has proven effective. These may be used as a guide in addressing similar issues in developing countries (Hashimoto 2019).

Table 12.1: Typical Challenges Relating to Onsite Systems and Japan's Responses

Challenges	Japan's Response
Design deficiencies	• Structural standards, government approval • Performance testing
Weakness in monitoring of compliance with standards	• Local government officials inspect and confirm compliance to standards
Poor installation	• Contractors are registered and installation workers are subject to examinations
Improper management of sludge	• Onsite System Act (Johkasou Act) regulates proper sludge management • Regular desludging is mandated
Desludging contractors not carrying out satisfactory work	• Approval system for the desludging vendors
Improper treatment and disposal of sludge from onsite systems	• Development of sludge treatment facilities nationwide
Improper operation and maintenance	• Onsite System Act (Johkasou Act) provides for proper method of operation and maintenance • Owners of treatment systems have a legal obligation for proper operation and maintenance • Owners of treatment systems must employ technical supervisor for large onsite systems (≥ 501 population equivalent) • Operation and maintenance contractors are required to be registered
Capacity and skills of personnel carrying out maintenance work	• Personnel involved in maintenance are required to undergo training, certification, and examination
Lack of awareness on the onsite systems among the system owners and local governments	• Training and awareness programs
Ensuring accountability	• Inspection for confirmation by local officials
Inadequate operation and maintenance of the large-scale onsite systems serving commercial users	• Compliance to effluent standard is ensured through monitoring under Water Pollution Control Law

Source: Hashimoto (2019).

12.2.3 Singapore

Singapore is a developed country in Southeast Asia. It is unique in that it is a city state, the urbanized area covering almost the entire country. The political system in Singapore is modelled after the British Westminster system; however, there is only one level of government, i.e., the national government with Parliament enacting laws and the executive carrying out the administration. There is no equivalent of state or local government in Singapore.

The Ministry of Sustainability and the Environment has responsibility for water (and sewerage). The Public Utilities Board (PUB) is a statutory board under the ministry. The PUB is the national water agency, managing Singapore's water supply and sewerage in an integrated manner.

The PUB functions as both regulator and service provider for water and wastewater services. While this arrangement would normally lead to accountability issues, in the unique Singapore situation it works well.

On the regulatory aspect, the PUB is one of the authorities to enforce regulations relating to new developments. Under the Sewerage and Drainage Act, any owner or developer is required to submit applications and plans through a qualified person for development control clearance, which includes PUB clearance (PUB Singapore).

Singapore is 100% seweraged, which is again uniquely possible in the context of Singapore, as a relatively small city state. Singapore has separate drainage and sewerage systems, designed in such a way to facilitate used water reuse extensively.

Tariffs for water and sewage are structured to discourage wasteful water use. A large portion of the overall revenue collected from water tariffs is allocated to the PUB for operation and maintenance costs and to fund new infrastructure.

The PUB, through competitive remuneration and benefits packages, has managed to attract and retain its good workforce, who are competent and motivated.

The PUB also extensively outsources to the private sector, tapping its competitive advantages. Contractual conditions ensure accountability for contract outcomes.

Singapore has succeeded in water management due to a large extent to the way emphasis has been placed on supply and demand management, including management of sewerage and stormwater. The institutions are effective, due to strong political will, coupled with effective legal and regulatory frameworks. The workforce in the PUB is motivated and competent, and this is a factor too. The water-stressed situation, political and strategic aspects of water supply for Singapore are factors that have placed water and sanitation at a priority position in

Singapore with high-level emphasis. Singapore considers all waterways as potential sources of water, and hence the drive to keep them free of pollution.

Singapore has an exemplary governance of the water supply and wastewater management systems, in terms of its performance and accountability. The PUB ranks at the top among comparable urban water utilities in terms of its performance. It must however be noted that this system of governance is particularly suited to the city state and may not be applicable to larger countries which are more complex and diverse in terms of requirements (Tortajada 2007).

12.2.4 Philippines

The Philippines is another moderately large Southeast Asian country. Approximately 5% of the total population is connected to a sewer system. The rest of the population use septic tanks (ADB 2013).

Since the enacting of the 1991 Local Government Act, it was intended that local government units (LGUs) should become self-reliant and relatively autonomous entities. The Clean Water Act (2004) and the National Sewerage and Septage Management Plan set out the national septage management policy. With this, septage management systems at city level began to be introduced, with a focus on larger urban areas.

In Manila, water supply and sewerage is placed under the Metropolitan Water Supply and Sewerage Services (MWSS) and its concessionaires. About 25% of Metro Manila's population uses sewered systems, while the rest use septic tanks or other onsite systems. Outside Manila, local water districts provide piped water supply and sanitation services.

LGUs were supported with technical assistance from the central government, promoting septage management, either as a municipal service, or as a water district program. In practice this has not worked so well due to funding issues and also capacity to implement at local levels. Most LGUs and water districts are deficient in terms of capacity, technical know-how, and funding to effectively carry out this function. While use of septic tanks is widespread, regular desludging and treatment is rare. LGUs mostly focus on water supply.

Even when desludging programs are undertaken, issues of absence of septage treatment facilities are common, and sludge is then dumped in open fields, drains, or other surface waters. Only a few LGUs have enacted ordinances for septage management, and some have installed septage treatment plants.

Dumaguete City provides an example of a municipality that initiated a relatively successful septage management program. Beginning in 2008, the Dumaguete City Water District partnered with the local government

to implement this program. The project was awarded a *Galing Pook* Award for best practices among local governments for its innovation and commitment to the environment.

Dumaguete City through a City Ordinance stipulates:

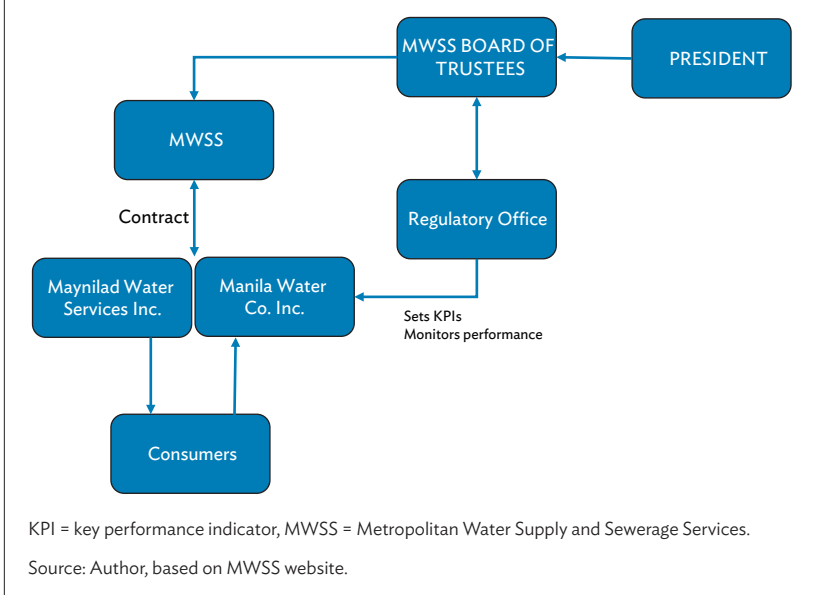
- all homes and buildings must have septic tanks or other approved onsite treatment system
- prohibition of indiscriminate dumping of septage. All sludge to be disposed at a treatment facility
- septic tanks to be desludged every 3–5 years
- creation of the City Septage Management Authority
- establishment and collection of user fee of P2 per cubic meter (m³) of consumed water (about \$0.04 per m³)
- establishment of fines and penalties for violation of the City Ordinance

The Dumaguete City government maintains and operates the septage treatment plant, while the Dumaguete City Water District operated a fleet of eight desludging vehicles. This comprised an effective septic tank desludging service, with treatment of sludge collected. It is worth mentioning that the program, championed by the former Dumaguete mayor bore fruit in the form of a visibly improved environment and more economic activity such as tourism in the city. The waterfront, which used to be highly polluted was transformed and became a popular place for people to recreate.

However, subsequently the program has suffered, with a scaling down of the water district's role, and the city government taking over primary roles. The city reduced the fees to P1.50 per m³ and limited the service within Dumaguete City only.

A different arrangement is in place in the Manila Metropolitan area. Here the MWSS is the owner of all water supply and sanitation service assets, and the functions of service delivery are allotted to two private concessionaires: Maynilad Water Service, Inc. (West Zone) and Manila Water Company (East Zone). The MWSS regulates the performance of the concessionaires against the agreed terms of the Concession Agreement as well as the tariff it can charge its customers (Figure 12.2).

The two concession companies provide piped water, sewerage, and septage management services using their own or contracted desludging trucks, and they also operate several fecal sludge treatment plants. Scheduled desludging services are provided for customers, at least once in 5 years, while demand desludging is available for all.

Figure 12.2: Manila Metropolitan Area Regulator

Outside Metro Manila the use of piped sewerage systems is rare, and very few cities have sewerage systems. Overall, sewerage systems serve less than 3%–5% of the population.

Among issues plaguing the sector in Philippines is the multiplicity of agencies, regulations, and programs, leaving gaps in accountability for implementation and management. Financing and capacity deficiencies at local levels are a further impediment.

12.2.5 Bangladesh

In recent times, Bangladesh has made much progress in sanitation. Latrine access is high, with about 96% of population having access to some form of latrine. Piped sewerage covers about 20% of Dhaka city population (equivalent to about 2% of country population). The remaining population use onsite systems, which constitutes about 94% of country population. This makes fecal sludge management a priority.

Although Bangladesh has a range of sanitation related policies, strategies, and masterplans in place, the management of fecal sludge is below par. Most of the time service is provided by individuals or informal

private service providers. Rivers and canals are grossly polluted by raw sewage and overflowing sludge.

The Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Co-operatives is responsible for the overall governance and development of the sector. Specifically, the LGD is responsible for the development of policies, strategies, plans, and legal instruments, overall planning, identification of investment projects, and coordination and monitoring of sector activities.

The Planning Commission in the Ministry of Planning is tasked with the review and approval of sanitation-related programs and projects, including those planned under the 5-year development plans and annual development programs. The Ministry of Finance then allocates funds for approved projects.

The Ministry of Local Government, Rural Development and Co-operatives is tasked to provide overall guidance to the water supply and sanitation sector (PSB Local Government Division Ministry of Local Government, Rural Development and Co-operatives, Bangladesh 2017).

Bangladesh has 12 city corporations and 325 *Paurashavas* (municipalities). Out of the 12 city corporations, there are separate water and sewerage authorities (WASA) in four large cities. The other city corporations and *Paurashavas* manage their water and sanitation services in conjunction with the Department of Public Health Engineering.

The Water Supply and Sewerage Authority Act 1996 states that responsibilities for water supply, sewerage, and stormwater drainage systems are vested in WASAs. Onsite sanitation systems are not mentioned specifically. The WASAs in large cities have implemented sewerage projects with funding from international lending agencies and also from the Bangladesh government. With the focus on city-wide inclusive sanitation in recent times, the need to manage onsite systems has been recognized by the WASAs, with some sewerage projects also having components to manage onsite sanitation.

The Local Government (City Corporation) Act 2009 assigns responsibility for sanitation on city corporations. Although the term “fecal sludge” is not specifically mentioned, city corporations’ mandate is taken to cover solid waste management, drainage, and management of onsite sanitation.

At the lowest level, the *Paurashavas* are responsible for social services and physical infrastructure. The *Paurashavas* collect and dispose of solid waste and are accountable to ensure a sanitary environment. Again, onsite sanitation and FSM are not specifically mentioned, creating a gray area.

The City Corporation and Paurashava Acts 2010 and the National Sanitation Strategy 2005 have assigned responsibility for urban fecal sludge management. City corporations are required to establish a sanitation division to plan, implement, and monitor city sanitation programs. While this has been done in many localities, there is no specific focus on fecal sludge management. Similarly, the *Paurashavas* in small and medium-sized towns are required to establish sanitation cells or units for planning, implementing, and monitoring sanitation programs.

The relevant laws are:

- Water Supply and Sewerage Act 1996, stipulating the functions of WASAs
- The Local Government (City Corporation) Act 2009, assigns responsibility for sanitation on city corporations
- Environmental Conservation Act 1995 and Environmental Conservation Rules 1997, which contain the requirements for disposal of effluents into water bodies
- Bangladesh National Building Code

Similar to the situation in the Philippines, the issues affecting the Bangladesh sanitation sector appear to be the multiplicity of overlapping agencies and programs, leaving the local municipalities struggling with the issues. The link between accountability and resources is weak and municipalities are lacking in funding and capacity to implement effective sanitation programs (SNV Smart Development Works 2014).

12.3 Review and Summary

We have seen good overall success achieved in Japan and Singapore, substantial success with some areas for further improvement in Malaysia, localized success in the Philippines but with widespread improvement still elusive, and initial advances made in Bangladesh with further improvements on the horizon.

The main players who should be involved in ensuring sanitation outcomes are:

- (1) National government, state, and regional governments, and local (municipal) government
- (2) Regulators for water, sanitation, and environment
- (3) Operators of sewerage systems, septage and FS treatment plants, desludging operators
- (4) manufacturers and construction companies involved in sewerage and sanitation work
- (5) Other local support players

The roles of these players should be aligned, and a mechanism put in place to make them accountable for the various aspects of sanitation. Stumbling blocks often appear due to lack of resources, legislative clout, unclear roles, overlapping jurisdictions, or lack of coordination. Accountability must go hand-in-hand with empowerment, with resources at the disposal of the entity.

Let us now look at the case studies from the different countries from these angles.

Malaysia adopted a very drastic approach of transferring the local government jurisdiction for sewerage to the federal (central) government, and at the same time privatized the service on a national basis to a utility company, in the form of a concession. This resulted in a quick transformation of the sector, which was uniform across all local authority areas. While the approach has many plus points, it is not easily adopted by many countries, where sanitation is firmly a local government function. Nevertheless, the model has learning points (both from the successes and the downsides) which can be adapted to other contexts.

Japan had an early start, and huge resources at its disposal, and has gone on an approach of widespread sewerage solutions in its large cities. Coverage of cities is high, and the efficiencies of sewerage systems and treatment systems are impressive. Even where onsite systems are used, many are high end *Johkasou* type systems which are supported for capital and operational aspects by local government, and work well with regular maintenance. While the operational governance remains at local authority level, there is strong cooperation from the ministry level, with policy, legislative, and funding support. Available resources and expertise are not lacking, and this enables them to live up to their high accountabilities and achieve very good sanitation outcomes.

Singapore has done well, driven by the high priority accorded to water and sanitation management due to the strategic importance of the sector. Moreover, being a relatively small city state, it is easy to have alignment of functions and achieve overall accountability. The country is wealthy and is known for firm political will, and these factors have helped too.

The Philippines presents two examples of well-functioning systems to provide effective sanitation. One, a model for mega cities like Metro Manila, is a regulated concession of two utilities. This model is working well, with water, sewerage, and regular desludging provided on a widespread basis. The model seems sustainable from a commercial perspective as well. Ingredients for success include:

- A regulator, mandated by law to achieve outcomes
- Private participation with elements of competition, providing innovative management approaches

- Realistic targets set and monitored, which are likely to lead to real improvements

This model is worthy of adaptation for other mega cities, with suitable tweaks to account for local differences.

The Dumaguete example was driven by a local champion (the mayor), who initiated and managed to sustain the septage management program, to the benefit of the city. The enabling environment for this is also available for other LGUs in the Philippines, but not many have seen success. One factor is probably the absence of a passionate champion to take up the challenge to its fruition. In fact, in the case of Dumaguete, the program suffered in later years when the cooperation between the city and the water district deteriorated. The example of Dumaguete may also be an example for replication in other countries, provided the national level enabling environment is similar.

Finally, **Bangladesh**, which has made appreciable improvements in basic sanitation during the last several years. The country has put in place legislative and policy frameworks to provide an enabling environment to improve sewerage and sanitation (including fecal sludge management) in large cities and smaller urban areas. The arrangement of central government support for policy and funding, with water and sewerage authorities and city corporations for larger cities and *Paurashava* (municipalities) managing their water and sanitation services looks promising as an enabling environment. Setting of achievable national outcomes, with funding and resources support should enable much greater achievement in the coming years.

Table 12.2 shows a comparison of the enabling conditions for each of the countries in the case studies above, which are relevant to delivering better sanitation.

Table 12.2: Comparison of Enabling Conditions Deliver Better Sanitation

Policy Support, Governance, and Stewardship					Legislation and Regulation	Funding and Cost Recovery	Role Definition and Private Sector Participation	Other Drivers
Malaysia	Policy support from the Ministry of Water. Federalization with central regulator and national concession has brought quick and uniform changes.	The Water Services Industry and Environmental Quality Acts empower regulators.	Sewerage is funded through federal allocations under 5-year plans. Much of the decentralized sewerage is carried out by private developers as part of development.	Tariffs are low and unable to sustain even operating costs. However, the government subsidizes this in various ways.	Sewerage and fecal sludge management (FSM) is managed by a concessionaire. However, water supply is not. Private sector (developers) construct large portion of sewerage. Concessionaire engages vendors and contractors as support.	The concessionaire, Indah Water Konsortium, is now fully owned by the government, and receives a subsidy.		
Japan	Post-war pollution pressures brought about strong stewardship. ministries (Ministry of Land, Infrastructure, Transport and Tourism; Ministry of Environment) support off-site and onsite sanitation.	Strong laws passed to control pollution.	Funding from ministries with effective cost sharing of CAPEX and OPEX to recover costs sustainably.		Municipalities manage both sewerage and FSM. Private operators play support role.	Strong capacity in public and private sector.		
Singapore	Water stressed condition of the country makes water and sanitation top priority. As a city state, coordination between the Ministry of Sustainability and the Environment and the Public Utilities Board (PUB) is easy.	Effective laws to protect water resources.	As a wealthy country, and given the priority of effective water management, funding is ample.	Water tariffs are high to discourage wastage of water and the revenue accrues to the PUB.	The PUB manages Singapore's water supply, water catchment, and used water in an integrated way. Private operators play support role as vendors and contractors.	Institutional effectiveness, strong political will, and competent, motivated workforce.		

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Table 5.6 *continued*

	Policy Support, Governance, and Stewardship	Legislation and Regulation	Funding and Cost Recovery	Role Definition and Private Sector Participation	Other Drivers
Philippines					
	In Metro Manila, the Metropolitan Water Supply and Sewerage Services (MWSS) and its mandate drives the concessionaires.	Local Government Act and Clean Water Act together with Presidential mandates are the legislative basis. MWSS regulates concessionaires in Metro Manila.	The Metro Manila concessions run on cost recovery basis.	Concession defines roles of MWSS as regulator and Manila Water and Maynilad as concessionaires, and their various roles.	
	In Dumaguete, the mayor was a champion and made things happen. The FSM system was jointly owned and managed by the Water District and the Local Authority.	In Dumaguete, a City Ordinance mandated FSM.	The basic desludging and operation of the fecal sludge treatment facility is funded through a tariff surcharge on water supply.	Dumaguete City government maintains and operates the septage treatment plant, and Dumaguete City Water District operated the desludging vehicles.	Dumaguete City has experienced noticeable improvement of environment and resultant economic benefits. An incremental approach also helped (low-cost treatment system, 5-year desludging cycle to begin with, etc.)
Bangladesh	While the framework is present, coordinated stewardship is lacking.	Water Supply and Sewerage Act, defines roles of the water and sewerage authorities, while the Local Government (City Corporation) Act assigns responsibility for sanitation on city corporations. There are gray areas and overlaps, causing uncertainty.	Funding for sewerage from international lending agencies and Bangladesh government for large cities. Tariff charged for water insufficient to cover operating costs.	Unclear, particularly for onsite system management and FSM.	

CAPEX = capital expenditure, OPEX = operating expenses.

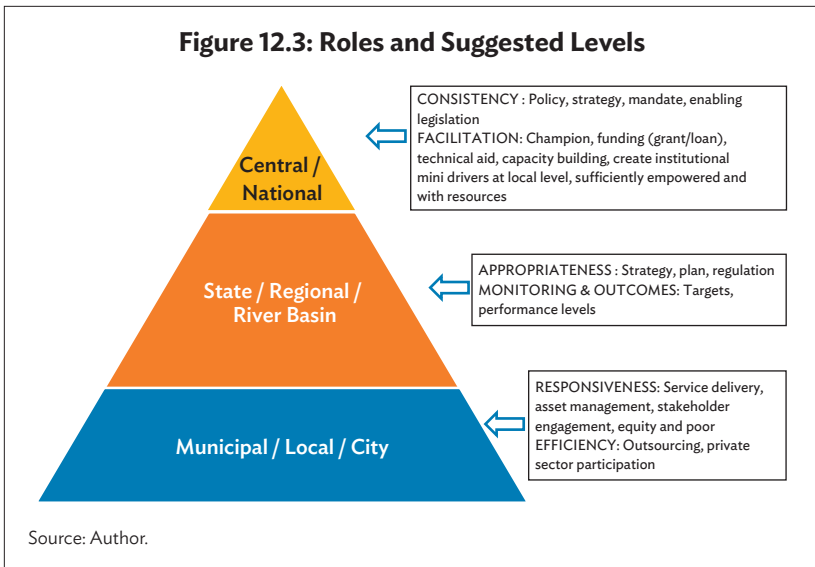
Source: Author.

12.5 Conclusions

The best model for each country depends on its own situation, including existing legislative and institutional arrangements. A drastic modification of existing structures is unlikely to work. Most important are the following:

- An empowered driver or champion (preferably an institution and not a person) makes things happen. Such an institution shall be mandated to achieve the set goals, which shall be achievable and incremental. It must be given the mandate, legislative clout, resources (funding), power to monitor and incentivize, and able to provide technical support.
- Regulations and enforcement—begin small and make incremental improvements. Good results can be obtained by regulations at the local body level as can be seen from the Japan and Dumaguete case studies. Aspects to be regulated include:
 - Incorporate sanitation requirements as part of building planning
 - Quality, design, and manufacture of sanitation products
 - Ensure proper installation through regulation of contractors
 - Regulate operation and maintenance including desludging
 - Regulate desludging, and transport
 - Provide treatment facilities
 - Regulate the operation and maintenance of the treatment facilities and their performance
 - Training and accreditation of all categories of staff from management to technical to administrative.
- Accepting that full cost recovery may be far into the future, considering the “public goods” nature of sanitation. Cost recovery should also consider recovery from indirect beneficiaries of improved sanitation. Subsidies and cross-subsidies should be accepted as necessary, at least in initial stages.
- Different roles work best at different levels (Figure 12.3). Institutional mini drivers should be created at the regional or local level, sufficiently empowered and with resource support and capacity. Often the local level of government is tasked with the service delivery. The support they need would be the road map, targets (which shall be appropriate, incremental, and achievable), funding, technical and other resources. A mechanism of monitoring, benchmarking, and additional appropriate support would enable each city to keep up.

Figure 12.3: Roles and Suggested Levels



- Some roles are better done by the private sector. Outsourcing models for service delivery (private operators complemented with government run services) and programs for capacity creation (personnel aspects as well as vendor development) should be considered.
- Co-management (sewerage, non-sewered, water, and wastewater) has synergies, and opens up opportunities for hybrid models, co-siting and/or co-treatment, billing, reuse, recycling, and resource recovery.

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13

Stakeholders' Engagement in Deciding Electricity Tariffs in Nepal

Ram Prasad Dhital

13.1 Introduction

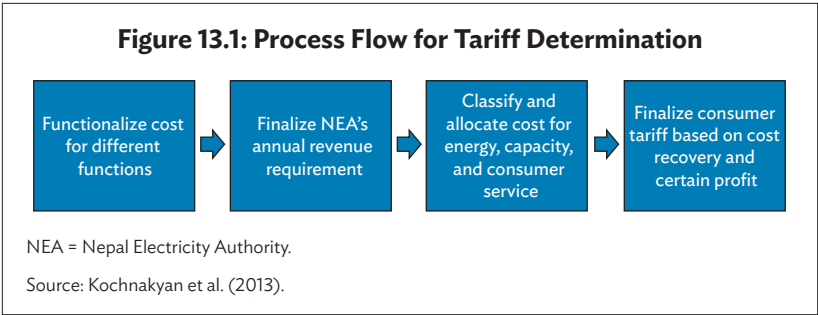
Nepal is experiencing a revolutionary change in the electricity sector. Until a few years ago, it used to face long hours of power cuts. As a result of the proper management of electrical load and accelerated implementation of pending projects, the country is now heading toward an energy surplus (NEA 2022). Even though there has been a significant improvement in electricity generation and load management, the sector has not yet matured. The electricity market in Nepal is a monopsony managed by the Nepal Electricity Authority (NEA) as a vertically integrated utility. While independent power producers have a major share in energy generation, the NEA also has its own energy generating facility and it solely owns transmission and distribution networks across the country to distribute electricity to end consumers. The Nepal Electricity Authority (NEA) Act was enacted in 1984 “for the establishment and management” of the NEA “to make arrangements for power supply by generating, transmitting, and distributing electricity to all in an efficient, reliable and convenient manner” (NEA 1984). In the past, some of the regulatory functions related to technical and commercial aspects were carried out by the utility itself. A limited role regarding consumer tariffs was assigned to the Electricity Tariff Fixation Commission. Policy-related issues including issuing and monitoring of licenses are executed by the Department of Electricity Development under the Ministry of Energy, Water Resources, and Irrigation (Electricity Act 1992). The NEA’s involvement in electricity generation, transmission, distribution,

and system operation and absence of an independent regulator created a vacuum for a level-playing field for all electricity operators. This issue was one of the biggest challenges for the electricity sector to be considered as a mature industry where generation, transmission, system operation, trade, and distribution functions are fully unbundled. To address the regulatory challenge, in 2019 the government established an independent Electricity Regulatory Commission (ERC) to regulate the generation, transmission, distribution, and trade of electricity. This chapter analyzes the mandates of the ERC, the regulatory aspects of consumer tariffs, the approach for tariff analysis, the process of stakeholder engagement, results while finalizing the tariffs, and provides an analogy from the electricity sector that can be drawn for water and sanitation services in Nepal.

13.2 Regulatory Framework for Determination of Consumer Tariffs

After the establishment of the ERC in 2019, it took over the responsibilities of the Tariff Fixation Commission. The ERC adopted an embedded cost of service approach, while reviewing the NEA's historical information on costs incurred for project development, project management, loan repayment, depreciation, tax and royalties, and non-tariff income for the last 3 consecutive years (ERC 2021a). The ERC then followed a rigorous process that includes four stages for tariff determination (Kochnakyan et al. 2013):

- (i) Finalization of prudently verified annual revenue required for the utility. The ERC collected NEA's cost information of the last 3 consecutive years.
- (ii) Functionalization of costs for generation, transmission, distribution, and program management. The ERC expected the NEA to submit the cost for each function of the electricity supply chain.
- (iii) Classification and allocation of cost based on services, i.e., capacity cost, energy cost, and consumer cost. The ERC expected the NEA to classify the cost based on capacity, energy, and consumer services.
- (iv) Finalization of the tariff rate based on cost recovery and certain profit margin to the service provider.



13.2.1 How Does the Electricity Regulatory Commission Decide on the Annual Revenue Required for the Nepal Electricity Authority?

The effects of the tariff level on earning is linked to the utility's rate of return. So, one has to be careful while deciding on the tariff, otherwise investors may not receive a fair rate of return on their investment. The ERC therefore followed six guiding principles to decide the new tariff rates based on the rate of return regulation. The principles are to (i) abide by government policies, (ii) protect the rights and interests of the consumers, (iii) ensure the financial sustainability of the NEA, (iv) ensure the quality and reliability of the electricity supply, (v) ensure the professionalism of the distribution utility, and (vi) ensure the security of investments (MOEWRI 2017).

The rate of return regulation includes the utility's cost and a fair rate of return to derive a revenue requirement, which becomes the required revenue for deciding tariffs for consumers. The basic formula for determining a revenue requirement is:

$$RR = AC + D + B * r$$

Where RR = revenue requirement

AC = operating expenses including operations and maintenance (O&M) costs. These include fuel costs, nonfuel O&M costs, administrative and general costs such as salaries and rent, taxes, and, for the distribution company, a provision for bad debt

B = rate base which is the amount of capital or assets the utility dedicates to providing its regulated services

r = allowed rate of return, which is the cost the utility incurs to finance its rate base, including both debt and equity,

D = annual depreciation of fixed assets

13.2.2 Functionalization of Cost

The functions used in electrical systems are generation or power purchase, transmission, distribution, and consumer services and costs allocated based on each function as below.

- The production functions include the cost associated with power generation, power purchase cost, and its delivery to transmission systems.
- The transmission functions include the assets and expenses associated with high voltage transmission systems.
- The distribution functions include the cost for the distribution network that connects the consumer to transmission systems.
- The cost for consumer services and facility management includes the cost for service wires, meters, meter reading, billing, collection, and consumer information and service.
- The administrative functions include the management cost and costs related to administration.

13.2.3 Classification and Allocation of Cost

The next step is to separate the functionalized cost into various classifications based on components of the service provided by the utility. The three cost classifications of a utility are (i) demand cost which varies with the capacity (kilowatt) demanded by the consumer, (ii) energy cost, which varies with the energy consumed by the consumer, and (iii) consumer service, which link with the number of people serviced. For the generation and transmission function, energy and demand cost are applied whereas for the distribution function, in addition to energy and demand cost, customer service cost is included. For customer services, customer related, and demand cost is included. After the costs have been classified, the next step is to allocate them among the customer class. Consumers are categorized based on the nature of service provided, voltage level, and load characteristics. Mostly three consumer categories—residential, industrial, and commercial—cover all customers but the ERC considered a few more categories such as irrigation, water supply, streetlights, entertainment, and religious purposes to design the tariffs in such a way that all consumer categories are motivated to pay the tariff for their specific use.

13.2.4 Finalization of Tariffs

After having completed classification and allocation functions, the ERC assesses whether (i) the cost of service is recovered from the proposed tariff, (ii) poor households can afford the proposed tariff, (iii) uniformity

of price in each cluster of consumers are possible, and (iv) whether cross subsidies are needed and to what extent. The whole process includes an iterative process to arrive at a conclusion of the tariff.

13.3 Methodology

The methodology adopted for finalizing consumer tariffs includes the seven stages mentioned below.

13.3.1 Finalization of Directives for Consumer Tariff

The first task of the ERC was to frame the rules for tariff application. The ERC finalized its Directives on Electricity Consumer Tariff Fixation in consultation with key stakeholders including representatives from consumer associations. The directives prescribe the manner for filing of tariff applications by the utility and the methodologies and procedures to be adopted by the ERC in the finalization of the consumer tariff.

13.3.2 Establishment of a Dedicated Web Portal for Tariffs

The ERC created a dedicated web portal¹ and uploaded the tariff application. The tariff application, available publicly, includes a detailed proposal, the NEA business plan, the historical 3-year cost information for generation, transmission, distribution, and consumer services including management cost, classification and allocation of cost, legal documents, and the proposed tariff (ERC 2020b). The portal also includes a feature where people can review documents and provide feedback instantly and also through email. The ERC received more than 50 instant comments and a similar number of emails. The comments were mostly related to the high cost of services, high tariff for domestic and industrial consumers, issues related to tariffs for bulk consumers through cooperatives, removal of dedicated tariffs for industrial consumers, and a separate tariff for lifeline and irrigation consumer users.

¹ <https://erc.gov.np/consumertariff/erc/>

13.3.3 Use of Print and Electronic Media for feedback on Tariff Proposal

In the past, the Tariff Fixation Committee would approve the tariff rates submitted by the NEA without consultation with stakeholders as there was no mandatory provision of public consultation and hearing in the Electricity Tariff Fixation Rules 2050 (Electricity Tariff Fixation Rules 1994). The lack of prudence meant that the rights and interests of beneficiaries were at a greater risk of being misused. To obtain feedback from beneficiaries, the information including the proposed tariff was made available to a wider population through print media, and electronic and social media. Few journalists and experts were requested to write feature articles and op-eds in the national newspaper to create awareness on reforming tariffs.

13.3.4 Assessment of Tariff Proposal

The commission adopted an embedded cost of service approach to determine the annual revenue required for NEA (ERC 2022). This approach includes a review of the historical cost of three consecutive years and verifies the prudence of the information provided by the NEA. The cost-related information such as consumer category-wise sales, energy balance, power purchase, repair and maintenance cost, employee and corporate expenses, depreciation, return on equity, interest on the loan, and non-tariff income were prudently verified.

13.3.5 Conduct of Public Hearing

Taking into consideration the effect of the novel coronavirus disease (COVID-19) pandemic, the ERC conducted a public hearing on 30 September 2021 through hybrid means where limited participants from consumers' associations participated physically and 290 people from different consumer categories participated virtually. Around 80 written comments and suggestions were recorded during the public hearing (ERC 2022).

The purpose of the public hearing was to ensure that the voice of the people including the marginalized was heard and their interest was protected. Not only these, but public hearings also provided platforms to the electricity service providers to defend their cost proposal including their promise to improve the quality of services. The accountability of the service provider was judged based on their commitment and past performance in (i) improving the service quality, (ii) handling grievance redressal mechanisms, and (iii) enforcing consumer service standards.

13.3.6 Analysis of Feedback from Public Hearing and other Public Platforms

The ERC received feedback from all categories of customers, government officials, and utility personnel as all information was made available to the public through a public hearing, a dedicated web portal, and print, electronic, and social media (ERC 2021b). Some of the feedback included:

Repercussion of increased tariff for industrial use

Electricity can be considered as one of the most important competitive advantages for Nepal if harnessed optimally to add value to various products, particularly in high power consuming industries like steel and cement manufacturing. If the generation, transmission, and distribution tariff is designed optimally, not only can Nepal export electricity, but it also has the potential to export other commodities such as cement and steel. However, the present average electricity cost for industries in Nepal is around NRs8.75 per unit without demand charge, which is already on the high side compared to India's electricity tariff (NRs7.68 per unit) (GERC 2022). There is a risk that industries might go for diesel over electricity if the industrial tariff is increased. The increase in the tariff rate would also increase the cost of production, ultimately hiking the cost of goods and services.

Continuation of dedicated charge discourages industrial consumer

Most countries including India charge lower power rates to larger consumers and distribute it through high voltage lines. In Nepal, however, in the name of “dedicated” and “trunk line,”² industries are being charged a premium on the electricity tariff (ERC 2020b). This affects economies of scale and is not the most optimal mechanism. Also, the differentiation through which the NEA is currently charging different tariff rates for different lines, with normal lines cheaper than dedicated lines, should not exist. Moreover, the dedicated charge must be removed, and the dedicated line system should be defined by the ERC and not by the NEA. In addition to removal of the premium charge, tariffs for power supplied through the trunk line and the ordinary feeder lines must be the same. The off-peak tariff must be charged as per the prevailing rates.

² A trunk line is a direct high voltage line that connects two substations, and a dedicated line is the transmission line for the purpose of providing dedicated electricity services.

At present, the power cost in Nepal is somewhere around NRs.4.5–NRs10.50 per unit; the average of which is around NRs8.75 per unit without demand charge, which is on the high side compared to India's electricity tariff (NRs6.8 per unit) (GERC 2022).

Introduction of differential tariffs at the household level

The government of Nepal plans to introduce electric induction cookers to increase consumption. Based on the author's own assumption, the average consumption for low-income families in Kathmandu Valley is around 100 units per month. If consumers use induction cookers, the average consumption might increase to 200 units but the distribution infrastructure might not be able to support the additional demand, even if only 50% of households in Kathmandu Valley use induction cookers at the same cooking times from 7am to 9am and 6pm to 8pm (ERC 2020b). In addition to this, there is not a time of day (TOD) meter or a differential tariff for consumers who use induction cookers. This applies to an individual who may want to buy an electric vehicle and use evening off-peak power for charging the vehicle. There is no rationale for different demand charges for the same capacity of meter. The demand charges for domestic consumers must be rationalized and reduced.

The urban middle class consumes more than 250 units per month on average in 15 ampere single phase, hence the proposed tariff is an expensive deal that deters consumers from increasing the use of electrical appliances (ERC 2021b).

Introduction of seasonal tariffs at the household level

At present, there is a surplus in the generation of electricity only in the wet season (NEA 2022). Hence, the revision of electricity tariffs must keep focus to sell more electricity at a cheaper price to both domestic and industrial consumers, while also encouraging more domestic consumers to use more electrical appliances.

The demand charge and energy charge of the commercial category of consumers that help to flatten the daily load curve must be prudently designated.

Reduction of tariffs for irrigation and water supply use

A demand charge should not be levied on power consumed for irrigation under upper voltage and medium voltage. Moreover, the proposed tariff for farmers under the irrigation category should be halved, and an agro-meter should be used instead of a TOD meter with respect to irrigation consumer categories. Similarly, the power consumed in the community drinking water category should be halved from what is proposed. The proposed TOD tariff should be reduced by 50% as well.

Rationalization of tariffs for cooperative and hotel industries

The consumer categorization by the NEA is haphazard. There are no parameter consumers for community drinking water and other drinking water. It is suggested that consumers in the drinking water category under 50 kilovolt ampere should not be charged. Hotel industries must be categorized under the non-domestic category and be charged a standard tariff for 2 hours per day and a concessional TOD tariff for the rest of the day. Community bulk tariffs should be determined for community distribution institutions for better operation and management.

13.3.7 Interaction with Sector Experts, Utility and Ministry Teams

The ERC engaged stakeholders from the beginning, created a dedicated web portal, uploaded, and made public all information regarding costs, the NEA's proposal and future plan, and the proposed tariff, and requested comments from the public (ERC 2021b). The team interacted with the Office of the Prime Minister, the Council of Ministers, the Ministry of Energy Water Resources and Irrigation, the Ministry of Finance, and the NEA.

13.3.8 Finalization of Tariffs

It was the first time in the history of the tariff determination process that beneficiaries were properly consulted while finalizing the tariff for all electricity users in Nepal (ERC 2021a). The final tariff was approved by the ERC on 25 October 2021 by (i) introducing seasonal rates thereby motivating industrial and commercial consumers to increase their energy consumption and support the local economy during the wet season due to reduced tariffs, (ii) encouraging electric cooking through reduced tariffs for the higher consumption category, (iii) motivating irrigation users as almost 50% tariff on irrigation could be reduced, (iv) increasing industrial consumption by removing additional charges for trunk and dedicated industrial users, (v) increasing electricity access to the poor and marginalized people by providing free energy up to 20 units, (vi) reducing the numbers of consumption blocks from nine to six to simplify the billing process and encourage higher consumption, and (vii) enforcing consumer service standards so that performance-based penalties and incentive-based mechanisms could be introduced.

13.4 Analysis of Results and Discussion

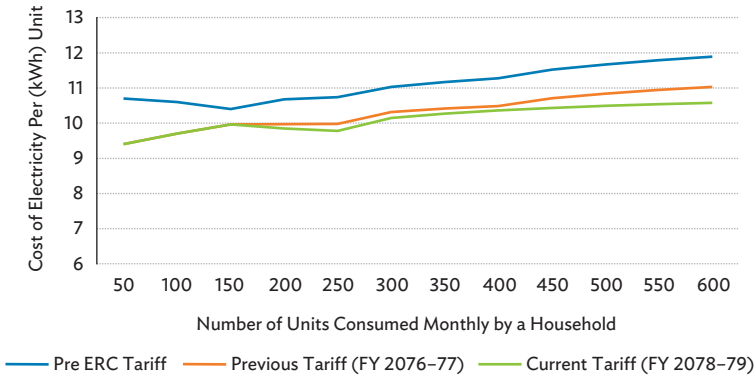
13.4.1 Impact on Domestic Consumers

The ERC has adopted inclining block tariffs with the consolidation of several consumption blocks with reduced tariff rates to encourage consumption. The recent tariff order has reduced the consumption block from nine to six (ERC 2020a). Even though the tariff model was an inclining block, the slope is less steep when more electricity is consumed. In this tariff structure, a different per unit rate is charged on different blocks of consumption and all consumers benefit from the discounted block tariff.

The block for lifeline tariff for consumers is increased from the existing 10 to 20 units per month, which covers the basic lighting load of domestic low voltage consumers and support other lighting-based household income-generating activities. This will also help increase access to electricity and uplift the livelihoods of the economically vulnerable population. The recent decision of the ERC to provide free energy for consumers consuming up to 20 units per month for both retail and wholesale consumer is to make the NEA responsible for the vulnerable sections of society. More than 2.5 million households are expected to benefit from this decision.

Figures 13.2 to 13.5 demonstrate the trend of decreasing the effective rate of electricity paid by a single-phase domestic consumer of the NEA over the recent years. Prior to the establishment of the ERC, consumers with 60 ampere (amp), 30 amp, 15 amp, and 5 amp supply consuming 600 units of electricity in 1 month would pay for electricity at the rate of NRs11.89, NRs11.78, NRs11.7, and NRs11.63 per unit, respectively. After two subsequent tariff revisions by the ERC, the amount has come to below NRs11 per unit. The highest rate of electricity that a single-phase domestic consumer consuming 600 units monthly pays is NRs10.58 per unit. The highest rate of electricity for consumers with 60 amp, 30 amp, 15 amp, and 5 amp connections is even lower at NRs10.58, NRs.10.46, NRs. 10.38, and NRs. 10.31 per unit, respectively (ERC 2022). A single-phase domestic consumer, no matter how much electricity they consume, the actual per unit rate of electricity will remain below NRs11. An average household in Nepal, whose actual consumption is much lower than 600 units, are charged at an even lower rate. Figures 13.2, 13.3, 13.4, and 13.5 compare the per unit cost of electricity (tariff) of a single consumer with 60 amp, 30 amp, 15 amp, and 5 amp connection, respectively.

Figure 13.2: Comparison of Per Unit Tariff of a Single Consumer with 60 Ampere Connection (pre-ERC Tariff, Previous Tariff, and Current Tariff)

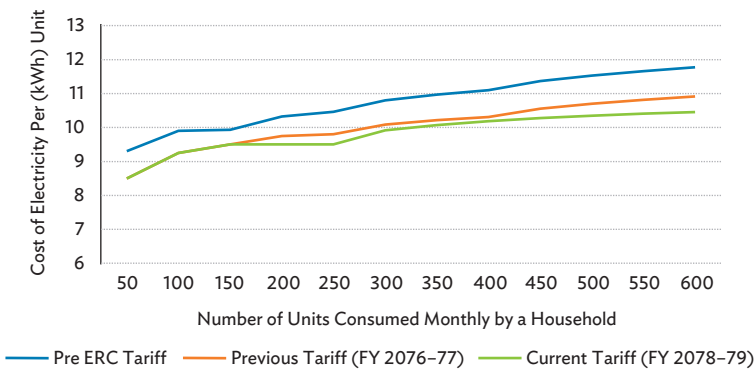


ERC = Electricity Regulatory Commission, FY = fiscal year, kWh= kilowatt hour.

Notes: FY2076-77 and 2078-79 correspond to 2019-20 and 2021-22, respectively.

Sources: Electricity Regulation Commission website (www.erc.gov.np) and author's analysis.

Figure 13.3: Comparison of Per Unit Tariff of a Single Consumer with 30 Ampere Connection (pre-ERC Tariff, Previous Tariff, and Current Tariff)

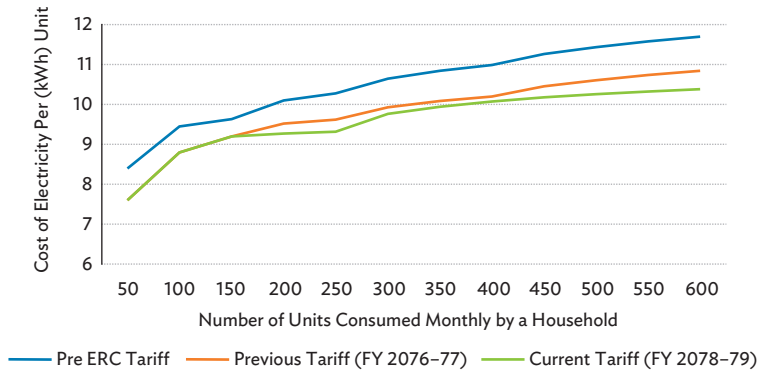


ERC = Electricity Regulatory Commission, FY = fiscal year, kWh= kilowatt hour.

Notes: FY2076-77 and 2078-79 correspond to 2019-20 and 2021-22, respectively.

Sources: Electricity Regulation Commission website (www.erc.gov.np) and author's analysis.

Figure 13.4: Comparison of Per Unit Tariff of a Single Consumer with 15 Ampere Connection (pre-ERC Tariff, Previous Tariff, and Current Tariff)

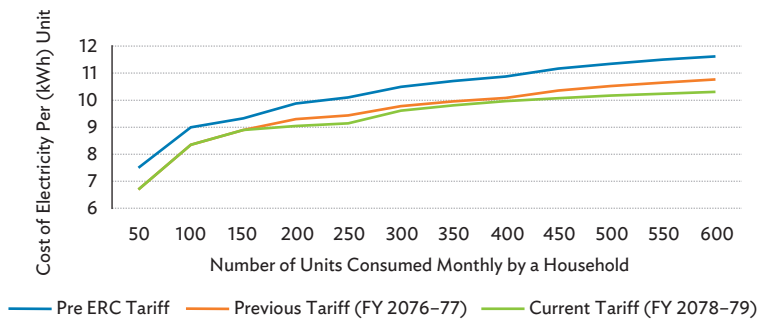


ERC = Electricity Regulatory Commission, FY = fiscal year, kWh= kilowatt hour.

Notes: FY2076-77 and 2078-79 correspond to 2019-20 and 2021-22, respectively.

Sources: Electricity Regulation Commission website (www.erc.gov.np) and author's analysis.

Figure 13.5: Comparison of Per Unit Tariff of a Single Consumer with 5 Ampere Connection (pre-ERC Tariff, Previous Tariff, and Current Tariff)



ERC = Electricity Regulatory Commission, FY = fiscal year, kWh= kilowatt hour.

Notes: FY2076-77 and 2078-79 correspond to 2019-20 and 2021-22, respectively.

Sources: Electricity Regulation Commission website (www.erc.gov.np) and author's analysis.

The flattening trend of the curves showing electricity consumption and tariffs represent the reducing price of electricity, provides a rationale for a general user to substitute LPG gas with electric cooktops, and increase consumption through the use of space heaters, air conditioners, and electric vehicles. Some consumers may need to install bigger meters. Unlike in the past, no additional amount will be charged if anyone wants to upgrade the capacity of the meter. This is to encourage people to switch from their existing meter to a higher capacity meter so that they can easily use it for powering induction cookers and charging electric vehicles. With the prospective increase in consumption as a result of a reduction in tariffs, loads like charging personal electric vehicles and using induction cooktops will increase peak demand, while doing nothing to increase electricity consumption for the rest of the day. Therefore, the ERC will have to look forward to the implementation of a TOD metering system for domestic consumers as well. A TOD metering of household consumers may allow a reduction of peak demand without negatively impacting the growth in consumption.

13.4.2 Impact on Industrial Consumers

The petition filed by the Nepal Electricity Authority for determination of the consumer tariffs for fiscal year (FY) 2020–21 proposed an increment in demand charge for industrial consumers using a TOD meter. Although the NEA argued that this step was taken to encourage industrial consumers to increase their consumption of electricity, a higher demand charge of electricity would not substantially increase the effective tariff rate payable by consumers who consumed electricity near peak demand around the clock. Therefore, such increased demand charge would force industries to either increase the plant factor or to pay higher demand charges. The step was deemed too drastic by the ERC as Nepali industries have not yet fully recovered from the impacts of COVID-19. Also, the ERC reasoned that the step might discourage industries from consuming more electricity, which was not consistent with the vision of Nepal of increasing the consumption of electricity around the nation. Therefore, the ERC rejected the proposal of increasing the demand charge of electricity.

The NEA buys power from power producers mostly on take or pay basis and pays them on a seasonal posted rate. The NEA pays a higher rate for 6 months in winter and a lower rate for the rest of the year. Consumers have no choice except to accept a constant rate for the whole

year. Since the country is already in a seasonal power surplus, the ERC saw this as an opportunity to introduce the concept of seasonal tariff rates. The ERC was able to implement the revised policy of seasonal tariffs for industry users having three-phase connections with a reduced tariff of almost NRs1 per unit during the rainy season. The introduction of seasonal tariffs is expected to motivate small, medium-sized, and large enterprises to consume more electricity and support to build the local economy.

13.4.3 Impact on Irrigation Consumers

Because agriculture is a large contributor to Nepal's economy, it is necessary to find ways to use electricity in agricultural activities. Nepali farmers, primarily in the southern belt of Nepal, rely on petroleum fuel for pumping water to their fields; substituting petroleum fuel with electricity in water pumping activities will have a twofold advantage. First, it will help Nepal utilize hydroelectricity, something that Nepal has in abundance during the monsoon season, and second, it will reduce Nepal's trade deficit that is high as more fossil fuels are imported. For this reason, the ERC approved the NEA's proposal of slashing the energy charge for irrigation consumers in the case of normal and off-peak hours for TOD meter users and the overall energy charge for irrigation consumers not using TOD meters.

13.4.4 Impacts on NEA's Financial Health

The financial health of any distribution utility depends not just on the revenue of the utility, which is a multiple of the tariff approved by the ERC and the actual units sold, but also on its expenses such as administrative expenses, O&M expenses, depreciation, interest, taxes, royalties, etc. Nepal's electricity sector is on the verge of a breakthrough in many regards and slowly the potential of Nepal's electricity sector is being unleashed. The generation and consumption and export of electricity have been on an upward trajectory for the last few years. Increasing consumption and exports has caused the NEA's revenue to rise at a rate which is greater than the rate of increase in expenses, thereby ensuring increased profitability. The ERC, realizing that the NEA will continue to attain new heights in terms of electricity sales, adjusted the tariff such that consumer rates are lowered without causing any adverse impact on the financial health of the NEA.

Table 13.1: Changes in Net Profit Due to Tariff Adjustment

Fiscal Year (FY)*	Tariff Adjustment	Electricity Sold (GWh)	Net Profit (NRs million)	Remarks
2075–76 (2018–19)	Base Tariff	6,338	9,811	
2076–77 (2019–20)	Decreased by 9%	6,525	11,754	Tariff only applicable for last month of FY2076–77 (2019–20)
2077–78 (2020–21)	No Change	7,313	6,099	Real effect of tariff revision seen
2078–79 (2021–22)	Decreased by 1%	9,316	16,089	

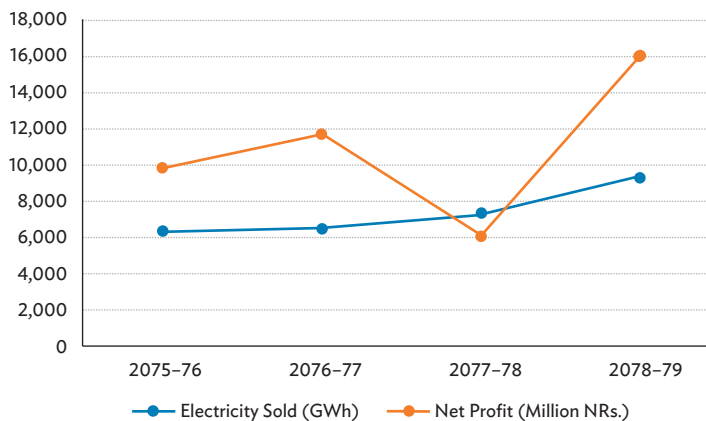
GWh = gigawatt hour.

Notes: *Years following Gregorian calendar in brackets.

Source: ERC (2022).

In Table 13.1, it can be observed that the units of electricity sold has been in an upward slope. However, the profit decreased significantly in FY2020–21. Although net profit is not just dependent on the tariff revised by the ERC but also in the expenses, it can be concluded that the tariffs reduced by the ERC (by an average of 9%) in the second last month of FY2019–20 had a role to play in reduced profitability of the NEA in FY2020–21. Despite a reduction in profitability, the NEA was still left with a sizable net profit of NRs6,099 million, which can be deemed an adequate return (=3% of equity of the NEA = NRs192,532 million in 2020–21 based on the NEA Annual Report) for a government-owned electric utility in a COVID-19 afflicted economy.

The ERC again revised the consumer tariff of the NEA in FY2021–22 leading to a further decrement in the average tariff by 1%. This reduction however did not show any significant dip in profitability of the NEA leading to a net profit of NRs16,089 million (=7% of equity of the NEA = NRs216,326 million in 2021–22 based on the NEA Annual Report), which again is a reasonable return for a government-owned electric utility. Therefore, we can see that the tariff determined by the ERC has rewarded the NEA with an adequate return, taking into consideration the economic condition and well-being of the consumers.

Figure 13.6: Changes in Net Profit Due to Tariff Adjustment

GWh = gigawatt per hour.

Notes: 2075-66 corresponds to 2018-19, 2076-77 to 2019-20, 2077-78 to 2020-21, 2078-79 to 2021-22.

Source: ERC (2022).

13.4.5 Analogy of Electricity Sector with Water and Sanitation Regulations

An electricity service can be compared with sanitation and water services as they are both network-based and managed by public entities. In most cases, the electricity service is managed by state-owned utilities, and sanitation is managed by municipalities that tend to reduce tariffs due to political pressure. If the service is provided at a subsidized cost or free to poor people, the revenue loss incurred by the service provider should be compensated through cross-subsidies charged to better-off consumers. This ensures the recovery of the cost of service as well as maintaining the sound financial health of the service provider. A similar staggered tariff rate as implemented in the electricity sector on the basis of consumption could be adopted in the water supply and sanitation sectors. Consumers with minimum requirements would pay minimal tariff and consumers with high consumption rates would pay higher tariff to discourage high consumption and in view to save water supply consumptions. A similar approach for sewage management could be adopted with the integration of tariffs to the water supply tariff. The

regulator needs to consider annual revenue requirement, infrastructure recovery cost, and O&M costs to determine rational tariff structures of the services.

Tariffs for services are linked to willingness to pay, which depends largely on income level, quality and reliability of the services, service tariff (charge), level of service, and availability of alternatives. The willingness to pay is also associated with the ability of the consumer to pay. Hence, there are subsidies provided to low income and less-consuming customers, which is then recovered with cross-subsidies through high income and more-consuming consumers in both the electricity and water sectors. Government investment could be mobilized in delivering initial investments in huge infrastructure costs and could be recovered in a longer time frame thereby reducing the annual revenue requirement. This helps in matching the annual revenue requirement of the utility to deliver services.

The willingness to charge for a service is defined by the utility company, and it is the general tendency of the utility to maximize its profit. Here, the role of the regulator could be instrumental in matching the willingness to charge and willingness to pay the service cost in the service delivery, be it water, sanitation, or the electricity sectors.

The electricity and water service sectors are essential service sectors in the country; therefore, there should be a proper balance between tariff rates and consumers' ability to pay. The regulator needs to periodically review the tariff structure so that the financial health of the public utilities remains sound and the margin in profits is kept minimal, keeping in view the organizational sustainability. There is intervention required from the federal, provincial, and local governments to create infrastructure, secure investment, and expand distribution networks. There should also be mechanisms to engage the private sector in the cost recovery model so that they get attracted with minimal risks in their investment with appropriate legal and institutional frameworks.

An independent regulator with full autonomy like in the electricity sector is required so that the quality of water and sanitation services, their reliability and cleanliness is assured in strict measures. Local governments are generally engaged in the distribution of water and the maintenance of sanitation services. The regulator needs to provide directives and regulations on technical and operational aspects, have a complaint hearing mechanism to address public issues, and devise mechanisms for engaging the public through public-private partnership (PPP) models with benefits and risks shared among all parties involved. The establishment of an independent regulator ensures that the rights and interests of consumers including poor and vulnerable people are protected.

13.5 Key Lessons of Accountability for the Sanitation Industry

13.5.1 Enhanced Accountability of the Public Service Through an Independent Regulator

In the existing practice of sanitation services in Nepal, the municipality grants concession permits to local nongovernment organizations or private companies to provide sanitation services and decides the terms and conditions, and the rate based on the volume and type of waste. As the tariff is set high for hazardous waste and set low for household waste, many waste producers are unaware of the terms and conditions, the responsibilities of the service providers, and standards of services provided by the service provider. Therefore, independent regulation is needed to ensure that a quality and equitable service is provided to all people including the poor and marginalized.

The accountability of the service provider can be enhanced by making them answerable to the public during public hearings as is practiced during the electricity tariff determination process. In addition to public hearings, consultations of the involved stakeholders in the tariff-setting processes for the electricity service are an effective instrument to promote accountability that safeguards the interests of all stakeholders and makes the outcome inclusive and more effective.

The regulator, responsible for developing and enforcing service delivery rules, regulations, and standards, shall make sure that the service provider does not go bankrupt by ensuring enough tariff for its service. All citizens including the poor and marginalized feel a sense of ownership in the system and process as their voices are heard and rights are protected. This way, accountability for public services such as electricity, water, and sanitation can be enhanced by establishing and institutionalizing an independent regulator.

13.5.2 Inclining Block Tariff to Recover the Cost of Public Services Including Sanitation

The purpose of an inclining block tariff is to divide the tariff into different blocks and make the service accessible to all citizens. In the electricity service in Nepal, those who consume less will pay less and vice versa. In fact, consumers consuming fewer than 20 unit gets free energy in Nepal, ensuring universal energy access to all. The same inclining block tariff approach can be applied to water and sanitation services. Those who are connected with a 5 amp electric meter can be treated as poor

households and they can get free access to water and sanitation services. Households consuming more energy are required to pay more for energy as well as water and sanitation services. However, the uniform tariff for each consumer category could be adopted in water and sanitation services. The regulator ensures the recovery of cost of service through different tariffs for different consumer blocks. The tariff for industrial and commercial sectors could be set higher and the additional revenue generated from industrial and commercial consumers could be used to subsidize the poor and marginalized households as adopted in the electricity sector.

The criteria included for tariff determination criteria are O&M costs, depreciation, repayment of loan and interest, power purchase cost, government policy, affordability, and willingness to pay. If the service is reliable, people are willing to pay more but the constraint is affordability. Therefore, before making any decision on tariffs, an affordability analysis and a willingness to pay study need to be conducted.

13.6 Conclusion and Recommendations

When the electricity service is compared with sanitation and water services, the tariff determination process is similar, as they are network-based and managed by public and private entities based on a concession contract for a limited duration. Their accountability can be enhanced by establishing and institutionalizing the regulator as it ensures the quality and equitable service to all citizens including poor and marginalized groups. The accountability of the service provider can also be enhanced by making them answerable to the public during public hearings and consultations with all the stakeholders in the tariff setting processes that safeguard the interests of all stakeholders and makes the outcome inclusive and more effective.

The role of the regulator in ensuring accountability in public services is clear through an analysis of the ERC in Nepal. The ERC decided to reduce the consumer tariff by almost 10% and remove dedicated premiums for commercial, noncommercial, and industrial customers. This has caused the general consumer to get a share of the profit earned by the utility under full ownership of the government such that there will not be any deficiency of income and budget for the NEA to undertake development-related works in the coming years. The profit to be earned by the NEA is impartial and justified. Therefore, the NEA, consumers, and other stakeholders have expressed this decision as a win-win approach for everybody. A good lesson from this study is that any decision that affects stakeholders' interests can make

them happy and accountable if they are consulted and engaged right from the beginning.

As Nepal already has a seasonal surplus of electricity, a study on promotional tariffs is required to see if the surplus not exported could be sold locally at a promotional low rate. The ERC needs to assess if the impact of the reduced price is affecting the NEA's financial health in the long run. Therefore, instead of reducing the price, a willingness to pay needs to be assessed to determine the maximum price that consumers are willing to pay for electricity services. These two studies can serve as vital input points for scientific tariff design including subsidies to utilities.

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PART III

Conclusion and the Way Forward

14

Conclusion

Sujatha Srinivasan

Globally, the scale of the gaps across the sanitation service chain¹ at the onset of the Millennium Development Goals (MDGs) period necessitated that government reforms and resources during the last 2 decades focused primarily on bridging these gaps. Recognizing the adverse implications of poor sanitation on public health and the environment, countries made concerted efforts toward expanding access to sanitation facilities at the household level. With most countries reporting strong progress toward the MDG sanitation targets on household access, the global goals in the Sustainable Development Goals (SDGs) context have now shifted toward improving sanitation infrastructure and services along the rest of the sanitation service chain.

In these country contexts, historically, poor sanitation outcomes could be attributed to the lack of prioritization of the sector as evidenced in the absence of policy and regulatory mechanisms to govern sanitation services, the lack of institutional frameworks including clarity in terms of roles and responsibilities or technical guidelines for service provision, the lack of adequate funding and cost recovery mechanisms to address service needs and gaps, capacity constraints both in the public and private sector for service provision, and the absence of performance standards, monitoring, and enforcement mechanisms. Above all, there has been a lack of political commitment and supply-side incentives for investing in sanitation fueled in part by low public awareness and demand for improved services. These contextual barriers not only enabled service deficiencies to proliferate, but also led to diffused accountability in the sector (WHO and UNICEF 2006).

As governments, development partners, and donor institutions began to channel considerable investments into the sanitation sector as prioritized in the new global development context, there was a demand for transparency and accountability in how these funds were utilized to

¹ Sanitation service chain components include capture (toilets), storage (onsite/off-site), transport, treatment, disposal, and reuse.

improve sanitation outcomes. Simultaneously, there was also growing recognition that the aforementioned contextual barriers to sanitation are addressed in order to ensure efficient, inclusive, and sustainable services. As a result, national efforts in sanitation were aimed to reduce service deficiencies and achieve better outcomes, and also to evolve the missing governance systems essential for effective service provision and integral to upholding public accountability in delivering basic services.

Public accountability lies at the core of good governance wherein elected officials entrusted with service functions are held to account for their exercise of power and actions in relation to these responsibilities. It is also a core human rights principle, obligating states as duty bearers of service provision to citizens who hold the right to access services such as the right to water and sanitation. The World Bank's *World Development Report 2004* proposed that accountability can assume three forms: *political accountability* between citizens and the political class, *organizational accountability* between the state and service providers, and *user accountability* between service users and providers; and service performance depends on how these three forms of accountability operate in practice (World Bank 2004). The literature also suggests accountability variants in the form of *vertical accountability* where nonstate civil actors like users, civil society organizations, and the media can impel state actors for improved services, *horizontal accountability* where state actors have authority to hold each other to account, and *transversal or hybrid accountability* where nonstate actors can formally engage in horizontal forms of accountability.

The citywide inclusive sanitation context has presented strong opportunities to evolve specific mechanisms or interventions within these different forms of accountability. It is imperative to gather evidence and lessons on how actors, incentives, and institutions interact through these different accountability mechanisms to advance sanitation service outcomes.

This compendium attempts this by reviewing the status on sanitation governance and accountability in different country contexts. It also documents some accountability mechanisms operating both in the sanitation sector or in any other sector but holding important lessons for sanitation service delivery. The mechanisms discussed here are not exhaustive, nor are they intended to be, considering that the discourse on accountability in sanitation service delivery is still in its early stages. That said, the chapters shed some light not only on the opportunities but also the complexities and challenges in designing and implementing accountability mechanisms that are appropriate for the sanitation sector.

In the opening chapter, the authors review evidence on accountability across a wide range of sectors to underscore its importance for good governance including in the responsible use of public funds for service provision. The horizontal accountability mechanisms or instruments discussed in this chapter such as performance audits, performance agreements, sanctions et.al enable the assessment of operational and financial performance of state actors in service provision. At the same time, the prescribed vertical accountability mechanisms such as participatory service planning, public disclosure, etc., enable transparency and responsiveness to citizen needs, all of which are hallmarks of good governance. The chapter identifies weak political will, limitations in institutional capacities and resources, and low demand as strong barriers to developing accountability mechanisms in the sanitation sector.

Chapter 12 reviews accountability models across multiple country contexts in Asia to draw a salient point that as in service delivery, accountability mechanisms in sanitation must be informed by local context. Considering the complex nature of sanitation services, simply replicating mechanisms from other countries, or making drastic shifts to existing accountability mechanisms may not be effective. The role of political will in advancing service outcomes as well as in strengthening institutional frameworks essential for service provision cannot be overstated. The author underscores this point in the chapter through various country examples, most notably in the case of Singapore, Philippines, and Malaysia.

Chapter 13 echoes key messages from the opening chapter on the importance of simultaneously implementing horizontal, vertical, and transversal accountability mechanisms to ensure that sanitation service delivery is effective and sustainable. The author also emphasizes the need to clarify institutional roles and responsibilities as well as institutionalizing evaluation tools, performance indicators and targets to ensure provide oversight and compliance. Among the human rights framework on accountability are these very components of *responsibility* in terms of well-defined roles and responsibilities for service provision and *enforceability* through performance monitoring and compliance mechanisms for review and course correction (OHCHR 2013).

In other chapters, several authors focus on the design and implementation of specific mechanisms across the different accountability forms discussed earlier. The transformative potential of information communications technology (ICT) in water and sanitation service provision is well documented. Chapter 4 presents a case study

from the Indian cities of Wai and Sinnar where the use of ICT tools are shown to deliver improved desludging services by enabling real-time monitoring of service operations. These are encouraging examples for improving service performance and their feasibility for adoption across different contexts is worthwhile to explore. At the same time, evidence from implementation of such tools in water and sanitation services also suggest that while such tools hold promise, oftentimes their cost-effectiveness and scalability beyond the pilot period remains under question (Ndaw 2015). Therefore, given the complexities in the water and sanitation sector, the wider recommendation is that such tools are not perceived as a panacea to service issues. Rather, due consideration must be given to their design and applicability towards advancing service goals and priorities.

Drawing again from a case example in the Indian subcontinent, Chapter 3 discusses the use of performance assessment system as a horizontal accountability mechanism and disclosure of budget briefs as a vertical accountability mechanism in enabling transparency and responsiveness in the service delivery process.

Chapter 10 draws on a case study from the Indian state of Odisha to discuss both the pros and cons of engaging community-based organizations such as self-help groups for service delivery and in upholding accountability. Engagement of community groups as service providers carries employment benefits and also present a potential alternative for service provision in contexts where both public and private sector capacities are weak. However, the authors rightly point out this approach may also undermine *organizational* or *transversal* forms of accountability as unlike with the private sector, the state may find it more difficult to hold community-based groups to account through penalties for poor performance. The weak capacities of such community member may also present a challenge for service provision. Key lessons here are that such models are scalable and replicable as has already been done in Odisha, but their success will hinge on the extent to which governments can invest in building their service capacities and are able to consider them on par with private actors in enforcing service obligations.

Chapter 6 focused on sanitation services in Indonesia finds the correlation between public investments in sanitation and corresponding service coverage to be weak. Here again, the author finds that the lack of appropriate accountability mechanisms undermine governance in this sector.

Some authors also illustrate accountability lessons from areas outside sanitation. Chapter 5 reviews experiences around the design and implementation of Jakarta's river normalization program undertaken

to prevent flood-related disasters. The program, which involved land acquisition and resettlement of residents on the riverbanks, courted considerable controversy as the resettlement process took place without appropriate regulations or public consultation, in violation of human rights principles on resettlement. This example underscores the importance of embedding vertical or social accountability mechanisms in the delivery of public services that impact citizen lives and well-being. Chapter 9 discusses the role of market borrowing mechanisms such as pooled financing to advance progress in the infrastructure sector, including in sanitation. While this financing instrument is not an accountability mechanism in itself, the market orientation of such instruments is likely to enable better due diligence, transparency, and overall governance. The key messages from these examples hold relevance and merit for the sanitation sector as well. That said, evidence also suggests that sector-specific service characteristics like demand, market failures, and the nature of service operations can carry implications for service governance and how accountability can operate in practice (McLoughlin and Batley 2012). Hence, the contextual relevance of accountability mechanisms and strategies must be well understood prior to scale or replication in other contexts.

This compendium provides an insight into the role and forms of accountability prevalent in the sanitation sector across countries in Asia. Although few in number, the selected chapters highlight some important lessons from the implementation of accountability mechanisms from within and outside the sector, as well as contextual challenges that prevent accountability mechanisms to evolve. Importantly, it underscores the message that despite efforts over the past couple of decades to prioritize sanitation services, several countries across Asia still lag in terms of sanitation governance, with implications for efficient, inclusive, and sustainable service provision. While innovative accountability mechanisms are evolving, there are knowledge gaps around their efficacy, sustainability, and scalability. In general, this underscores both the need and opportunity to strengthen accountability in sanitation service provision and expand research and evidence base in this area.

Lastly, we need to revisit the PRISM framework, which offers a comprehensive approach to achieving sustainable sanitation by ensuring accountability mechanisms. The framework focuses on five key areas: policy, regulation, institutional capacity, sustainable financing, and mobilization of social ownership. Policy provides the foundation for effective accountability mechanisms by establishing clear legislation, regulations, technical and environmental standards, and programmatic implementation. Regulation reinforces policy by

empowering institutions, delegating powers, and ensuring inter-agency accountability, citizen charters on services, staffing rules and practices, and procurement and/or contracting capacity. Without effective policy and regulation, accountability mechanisms may lack the necessary legal and institutional frameworks to function effectively.

We need to also understand that sustainable financing is a critical aspect of accountability mechanisms for sanitation, as it ensures that resources are available for investment in infrastructure and services. The PRISM framework emphasizes the need for resource needs assessment, ring-fenced budgets, affordability analysis, and cost recovery, as well as private financing and user charges. Finally, the mobilization of social ownership encourages decentralized governance, stakeholder engagement, targeted communication campaigns, and community mobilization campaigns to build social capital and promote collective responsibility for achieving sustainable sanitation. Together, these five key areas form the PRISM framework, which can serve as the key ingredient for sustainable sanitation by establishing clear and effective accountability mechanisms.

This book has three key messages for policy makers:

- Performance assessment and budget briefs enhance transparency and accountability in service delivery
- Engaging community-based organizations as service providers has benefits but can undermine organizational or transversal forms of accountability
- Vertical or social accountability mechanisms are crucial for delivering public services that impact citizens' lives and well-being

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