



TAPPING THE UNREACHED

Nepal Small Towns Water Supply and Sanitation Sector Projects:
A Sustainable Model of Service Delivery

Neeta Pokhrel and Sanjaya Adhikary

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Abbreviations

ADB	Asian Development Bank
DWSS	Department of Water Supply and Sewerage
FSM	fecal sludge management
MWSI	Maynilad Water Services Inc.
NRW	nonrevenue water
OBA	Output-Based Aid
O&M	operation and maintenance
PMO	Project Management Office
SADCO	Sewerage and Drainage Company
SCADA	Supervisory Control and Data Acquisition
SEIU	Sector Efficiency Improvement Unit
STWSSSP	Small Towns Water Supply and Sanitation Sector Project
TDF	Town Development Fund
WASH	Water, Sanitation and Hygiene
WUA	water users association
WUSC	Water User and Sanitation Committee

Currency Equivalents

(as of 1 July 2017)

\$1.00 = NRe103.42
NRe1.00 = \$0.00097

Nepal's Small Towns Water Supply and Sanitation: Development Impacts of ADB's Support

- Delivering water and sanitation to 1.24 million people in 69 urban centers all across Nepal
- Building the competence of local communities by involving them fully in planning, implementation, monitoring, and operating the water supply and sanitation systems
- Successfully using a demand-driven and bottom-up approach to delivering water supply and sanitation services
- Achieving cost recovery with communities by sharing capital as well as operation and maintenance (O&M) costs
- Strengthening and streamlining Nepal's policies and institutional framework for water and sanitation service delivery
- Empowering communities and building social capital through the inclusive practice of requiring Water User and Sanitation Committees (WUSCs) to be composed of at least 33% women representatives, and electing at least one woman to key posts
- Successfully demonstrating synergetic effects from multistakeholder collaboration and partnership in urban service delivery
- Piloting fecal sludge management and introducing fecal sludge management regulations, policies, and guidelines for the first time in Nepal
- Institutionalizing a 20-year management agreement with WUSCs for systems O&M with performance targets
- Enabling WUSCs to achieve the following key performance milestones:
 - » provide serviced communities with a daily average of 13 hours water supply, with some already able to provide continuous water supply 24/7
 - » recover O&M, debt service, and expansion costs
 - » average nonrevenue water at 21.6% (some lower than 5%)
 - » average tariff collection efficiency at over 80%
 - » affordable tariff at an average of NRs15.40 (about \$0.10) per cubic meter, with a lifeline block tariff at a subsidized rate
 - » metered connections at 98% on average
 - » efficient services using technology such as computerized billing and collection, supervisory control and data acquisition, mobile-based meter reading, and online tariff payment



Introduction

According to the United Nations Human Settlements Programme (UN-Habitat), small towns, which are estimated to account for a quarter of the world's population, tend to be located on the border between urban and rural or peri-urban and urban, and can serve a variety of purposes. In Nepal, the small urban centers play a critical role by serving as extensions to already overpopulated large municipalities and capital cities. Therefore, meeting the demand for water supply and sanitation services in small towns is important to sustain a balanced urbanization.

Since 2000, the Asian Development Bank (ADB) has been working with the Government of Nepal to improve Water, Sanitation and Hygiene (WASH) in the country's burgeoning small urban centers through a series of small towns water supply and sanitation sector projects (STWSSSPs):

- Loan 1755: Small Towns Water Supply and Sanitation Sector Project (approved in 2000) covering 29 towns (referred to in this booklet as the first project);
- Grant 0157: Second Small Towns Water Supply and Sanitation Sector Project (approved in 2009) covering 21 towns (referred to in this booklet as the second project); and
- Loan 3157: Third Small Towns Water Supply and Sanitation Sector Project (approved in 2014) covering 19 towns (referred to in this booklet as the third project).

By the end of the third project in 2021, more than 1.24 million people in 69 urban centers all across the country shall have benefited, and support shall have been provided to strengthen Nepal's urban sector policy, regulation, and institutional framework for water and sanitation service delivery. Encouraged by the success of this model, also known locally as the "small towns model," the Government of Nepal articulated its vision for small towns development in its 15-Year Development Plan for Water Supply and Sanitation in Small Towns, originally approved in 2009 and updated in 2015.¹ The approaches and lessons learned from the small towns model are also being institutionalized through the government's Cofinancing (Sahalagani) Program currently being implemented by the Department of Water Supply and Sewerage through the government's internal financial resources.²

This booklet highlights the success of these projects, which was achieved with effective government leadership and response. It captures the key features of successful delivery of water and sanitation services in small towns, sector reforms in the country as a result of this success, and lessons learned that water supply and sanitation experts, practitioners, program managers, and policy makers can use in designing water supply and sanitation interventions.

This booklet is accompanied by a short film produced by ADB highlighting key outcomes achieved in Lekhnath, one of the STWSSSP towns (available at <https://www.adb.org/news/videos/clean-water-brings-hygiene-and-happiness-nepals-small-towns>).

Increasing Urbanization Drives Demand for Water and Sanitation Services

Along with growth in urban population comes the need to improve or deliver water services and proper sanitation to the wider population, and maximize the economic opportunities that come with growth while securing environmental sustainability and social equity.

Rapid urbanization is increasing the need for improved governance, planning, and management of water and sanitation services in Nepal. According to data provided by the Ministry of Federal Affairs and Local Development of the Government of Nepal, the country's urban population is estimated to have increased to 42% of the total in 2015, from 17% in 2011. Along with growth in urban population comes the need to improve or deliver water services and proper sanitation to the wider population, and maximize the economic opportunities that come with growth while securing environmental sustainability and social equity. As small urban centers multiply, the country's population is projected to reach an equal rural-urban split by 2030.

The 2011 census estimated that 85% of the national population have access to basic drinking water, through facilities including hand pumps, wells, and piped water services, with 87% coverage in urban areas.³ The census suggested 62% have access to basic sanitation services, with 91% coverage in urban areas. In 2015, the National Management Information Project reported improved coverage of basic sanitation at 70% while water coverage has remained the same since 2011.⁴

Reports on access to piped water services also show a variance between urban and rural areas, with 58% for urban and 41% for the rural population.⁵ The availability of services is generally intermittent in most areas. A significant proportion of existing water systems, estimated to be as high as 39%, need rehabilitation and reconstruction. Improving functionality and sustainability remains a daunting task.

According to the 2011 census, 30% of the toilets in urban areas are connected to sewer systems while 48% rely on septic tanks. As more villages, districts, and municipalities are declared Open Defecation Free, the challenge remains to strengthen policies, regulations, and practices to enhance environmental sanitation. That means not only improving the practices of residents when it comes to Open Defecation Free, but also addressing the pollution of water bodies caused largely by the unregulated disposal of fecal sludge and untreated wastewater.





Box 1: Right to Water and Sanitation

According to Article 35 (4) of the Constitution (2015) of Nepal, “Every citizen shall have the right of access to safe water and sanitation.” This does not mean the right exists to free water. The Government of Nepal, through various policy documents, has explained that the delivery of water supply and sanitation services needs to be paid for, whether through taxes and transfers or directly through tariffs, while also ensuring that these services remain affordable to all. The government expects Nepali citizens to contribute financially to the extent they can, with support from the state’s resources. The goal is to ensure sustainable delivery of water supply and sanitation services.

Source: Constituent Assembly Secretariat. 2015. *Constitution of Nepal*. Unofficial Translation.

Managing Delivery of Water Supply and Sanitation Services: The Nepali Way

The government has delineated the responsibility for water supply and sanitation services in towns and municipalities as follows and as shown in Table 1.

- Kathmandu Valley and selected large municipalities managed by municipality-owned water boards
- Large municipalities managed by Nepal Water Supply Corporation
- Small towns and municipalities managed by Water User and Sanitation Committees (WUSCs)

Table 1: Urban Water and Sanitation Service Providers Institutional Models in Nepal

Urban Areas	Current Service Area	Legislative/ Institutional Framework	Functions Planning	Construction	Tariff Setting	Operations
Municipalities	Kathmandu Valley, Bharatpur, Hetauda, Kavre, Dharan, Butwal	WSMB Act (2006)	WSMB and municipality	Contractor/ WSMB	WSTFC Act (2006)	Service Providers
Large to Medium-sized Towns	21 towns	NWSC Act (1989, 2007 amendment)	NWSC	NWSC	WSTFC Act (2006)	NWSC
Small Towns	69 STWSSSP towns plus others supported by cofinancing program of the Government of Nepal and other funding partners	Updated 15-year plan for small towns water and sanitation	Local bodies	Contractor/ WUSCs	WUSCs	WUSCs

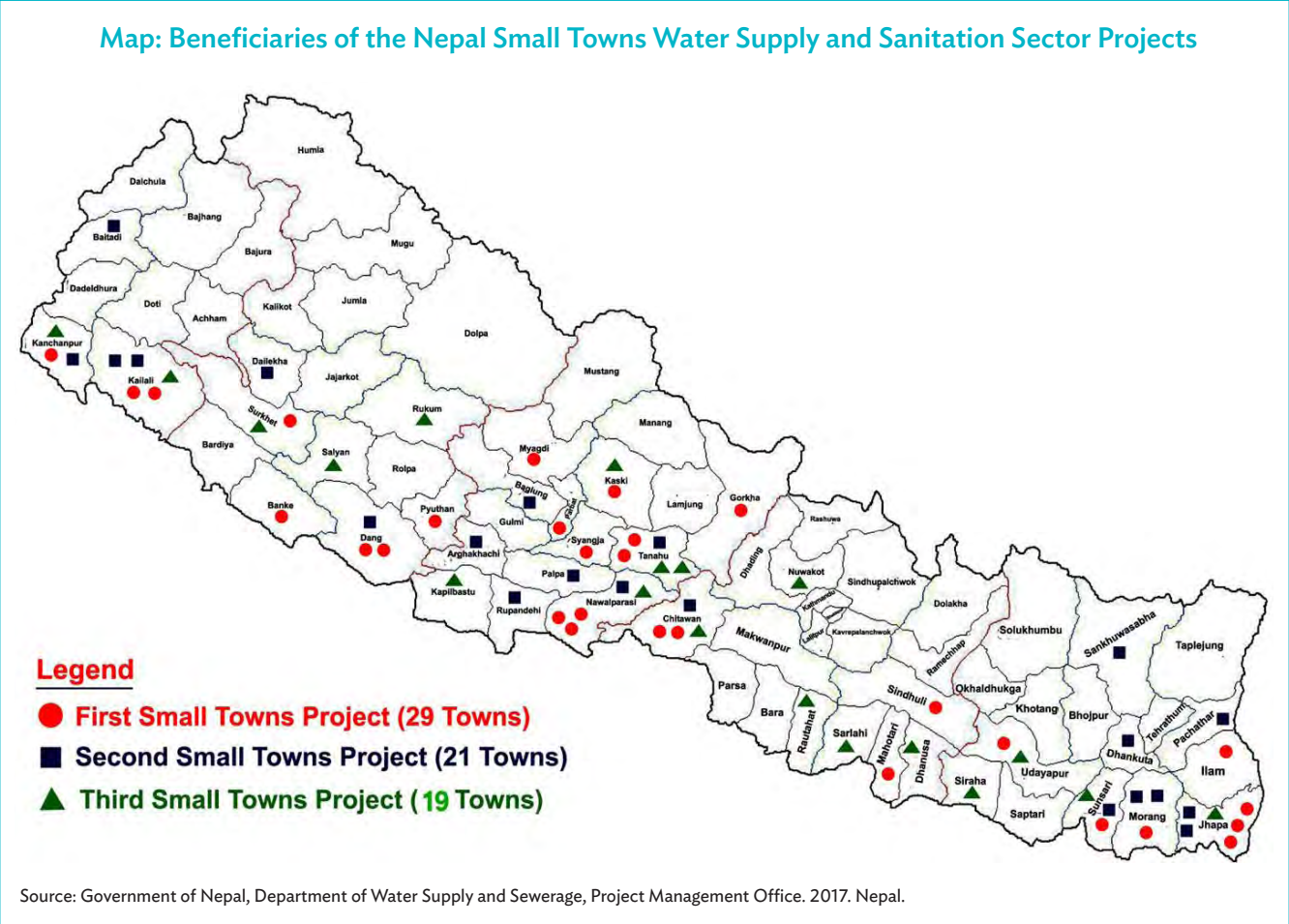
NWSC = Nepal Water Supply Corporation, STWSSSP = Small Towns Water Supply and Sanitation Sector Project, WSMB = Water Supply Management Board, WSTFC = Water Supply Tariff Fixation Commission, WUSC = Water User and Sanitation Committee.

Source: Government of Nepal, Ministry of Water Supply and Sanitation. 2016. Draft National WASH Sector Development Plan.

Bringing Water and Sanitation to Small Towns

With the support of ADB, the Department of Water Supply and Sewerage (DWSS) under the Ministry of Water Supply and Sanitation has been implementing the STWSSSPs since 2000. These efforts aim to improve the health and quality of life of people in small towns by providing high-quality and sustainable water and sanitation services.

The first and second projects supported 50 small towns in Nepal. Based on their success and with intense demand from a growing number of local bodies, the third project (2014–2021) is supporting water supply and sanitation schemes in 19 small towns to date. The third project is also helping to rehabilitate schemes under the first project. The 69 STWSSSPs towns are located all across the country as shown on the map. The average population of STWSSSP towns is around 17,800. The population of many of the towns covered by the first project now exceed 50,000.





Box 2: What Are Small Towns and Municipalities?

Small towns are defined within the framework of Nepal's National Urban Policy of 2007 and reaffirmed by its updated 15-Year Development Plan for Small Towns Water Supply and Sanitation, endorsed by the Ministry of Urban Development in 2015.⁶ These are defined as towns with (i) a population of 5,000–40,000; (ii) minimum population density of 10 people per hectare; and (iii) permanent access to roads, grid power, and telecommunications—i.e., with a potential for growth. In 2015, a total of 176 towns satisfied the criteria for small towns.

The Local Self-Governance Act of Nepal (1999) defines municipalities as settlements with a minimum population of 20,000, among other aspects; and village development committees, the lowest administrative level, as settlements with a population of less than 20,000. Until May 2014, when 72 new municipalities were created, Nepal counted only 58 municipalities—unchanged since 1996. Many urban centers, like small towns, exhibited urban characteristics but were not defined as municipalities; hence, this special term was used for better planning and infrastructure support purposes by the government. With a reclassification and increase in the number of municipalities in 2015, most of the small towns have now been recognized as urban centers and fall under the municipality category.



A benchmarking report was prepared in 2015 by the Sector Efficiency Improvement Unit, established through the support of the STWSSSPs under the Ministry of Water and Sanitation. The report covered 32 urban water supply service providers, of which 80% were WUSCs supported by the STWSSSPs. It reported the utilities' performance on customer satisfaction, financial status, and human resource management. The key performance indicators are summarized in Table 2.

Table 2: How Are the STWSSSP WUSCs Performing?

Average Water Supply/ Availability (hours/day)	13.8
Consumption/Capita (lpcd)	69.9
Nonrevenue Water (%)	22.2
Connections Metered (%)	98.9
Operating Ratio	0.8
Accounts Receivable (months)	0.9
Collection Efficiency (%)	98.4

lpcd = liter per capita per day, STWSSSP = Small Towns Water Supply and Sanitation Sector Project, WUSC = Water User and Sanitation Committee.

Notes: Most WUSCs had no piped water supply prior to STWSSSP support. Average time to fetch water varied from 2 hours to 8 hours each day.

Source: Ministry of Urban Development. 2015. *Water Service Providers Data Book*. Sector Efficiency Improvement Unit.



Communities Define the Need, Drive Planning and Construction, and Operate the Services

While improving or sustaining water and sanitation services is vital for Nepal, the STWSSSPs are also building competence of the local communities by involving them in the decision making through the entire process of planning, implementing, and operating the systems, which instills in them a sense of ownership of the results.

The following steps are taken during the planning and design stages of STWSSSPs:

- Once project funding is secured in principle, through external aid and/or internal resources, DWSS calls for expressions of interest from interested water user associations (WUAs) or municipalities, through the local newspapers. Project selection criteria mainly include community willingness to share the cost of facilities, agreement to sign a long-term management contract for operations, and the willingness of local bodies to participate.
- Eligible small towns' WUAs and/or municipalities, which are in need of water and sanitation services, apply to DWSS. WUAs are registered with the District Water Resources Committee under the Water Resources Act (1992), and are formed with all members of the community. In accordance to this Act, the WUAs must elect their Water User and Sanitation Committees (WUSCs) as their executive bodies.



- After reviewing and accepting the proposals from the WUSCs, DWSS assists them by engaging design consultants to help in project planning.
- DWSS and WUSCs work together and finalize feasibility studies, detailed design reports, recommended tariffs for cost recovery, and other associated documents, before procurement can commence for construction. Procurement of services can only commence after DWSS and municipalities sign a management agreement with the WUSC for the operation and maintenance of services, for 20 years.

DWSS has defined minimum service standards and its own regulatory roles under its Directives on Operation of Water Supply Services, 2012.⁷ The government owns the systems, while WUSCs are the operators. The WUSCs are generally responsible for drinking water demand management, water source confirmation, service area delineation, and operation and maintenance (O&M) of the constructed systems. WUSCs also participate, together with DWSS engineers and consultants, in the monitoring and implementation review of STWSSSPs. WUSCs review each contractor invoice before it is processed.

More importantly, each WUSC is required to have a minimum of 3 women members, making up at least 33% of the committee, and for a woman to occupy at least one of the key posts—Chair, Vice-Chair, Secretary, or Treasurer. In addition, the nine elected members of the WUSCs reflect the true nature of the community, with each gender, caste, and disadvantaged ethnic group represented. This representation, and the engagement and participation of the representatives in decision making, particularly in matters related to planning, implementation, and O&M, is a key factor that has made STWSSSPs a unique and exemplary model for service delivery in South Asia.

The nine elected members of WUSCs represent the true nature of their communities, with each gender, caste, and disadvantaged ethnic group represented on the committee. In addition, at least 3 representatives, or 33% of the committee, are women, and a woman holds at least one of the key posts—Chair, Vice-Chair, Secretary, or Treasurer in the WUSCs.



“Our country is blessed with such abundant water resources... and yet we were thirsty for clean drinking water. Not so long ago, we had to fetch water with great difficulty.”

Bindu Subedi
*Founding member, Lekhnath Small Towns
and Water Supply and Sanitation User Committee, Nepal*



Shared Ownership, Shared Costs: The Key to Success of the Small Towns Model

Enlisting local users in the process of planning and in the operation and management of services has not always been fully effective in sharing the sense of ownership. In the small towns model, the beneficiary communities and the government share the cost of the water and sanitation services. Requiring communities to contribute towards the capital and O&M expenses reinforces their ownership over the services. Communities are also empowered to make technological choices and decide on the level of their investment, including the appropriate tariff.

The government has repeatedly emphasized the importance of cost recovery for sustainable water supply and sanitation services, while recognizing that there are some people who cannot afford even a nominal fee. Therefore, based on poverty mapping, people below the poverty line and vulnerable households are exempted from capital contribution and connection charges to ensure inclusiveness and affordability of services for all.

Cost sharing between the government and local communities has been part of the STWSSSPs since they started in 2000. For the water supply systems of the first and second projects, 50% of the cost was covered by a grant from the government, while 45% was financed through a Town Development Fund (TDF) loan provided by ADB to the beneficiary communities at subsidized interest and repayment terms. The communities then covered the remaining 5% of the project costs through cash contributions. Based on lessons learned, the cost-sharing arrangements for the third project is as follows: 70% government grants;

Cost sharing between the government and local communities has been part of the STWSSSPs since they started in 2000.

On average, all towns supply over 13 hours of potable water, and with 24 hours' continuous supply achieved in some towns such as Parsa.

25% TDF loan; and 5% upfront cash contributions from the beneficiary communities. The loan portion of the projects is repaid by the users through a monthly tariff over a period of 25 years at an interest rate of 5%. ADB has partnered with the OPEC Fund for International Development to increase financing support for the third project.

For common sanitation systems such as community toilets, fecal sludge management (FSM), decentralized wastewater treatment, and storm water drains, local bodies or WUSCs jointly contribute 15% of the capital cost and the government contributes 85%. Local bodies and WUSCs jointly share the responsibility for O&M of the sanitation systems.

In some cases, a town may not be able to meet the agreed cost sharing due to circumstances such as extreme poverty or natural disasters like the 2015 earthquake that devastated many communities in Nepal. In these instances, the grant portion has been increased by the government. For example, the up-front cash contribution by users was waived under the third project for Nuwakot—one of the 12 districts severely affected by the 2015 earthquake.

All small towns under the STWSSSPs provide piped potable water to households. Though all STWSSSPs are designed for 24/7 water supply, some WUSCs only operate the system for 12–13 hours to save on electricity costs for pumping, among other factors. On average, all towns supply over 13 hours of potable water, and with 24 hours' continuous supply achieved in some towns such as Parsa.

The monthly tariff—an average of NRs15.40 (about \$0.10) per cubic meter—covers the minimum O&M as well as debt servicing costs in all STWSSSP towns. Some towns, such as Parsa, have already paid off all their debts and are making additional savings to fund the expansion of the services.

Consumption is fully metered in all the towns, and the tariff is based on the volume of water used. Most WUSCs use increasing block tariff, keep the initial 8–10 cubic meters per month per connection (household) at an affordable rate, and gradually increase the tariff for higher water consumption.

Box 3: Saving Time for Women and Children

The Small Towns Water Supply and Sanitation Sector Projects (STWSSSPs) benefit women and children by freeing them from the drudgery of fetching water, reducing their “time poverty” and allowing them to spend more time on other pursuits. For instance, it used to take an average of 4 hours each day for people in Lekhnath—mostly the women aided by their children—to fetch water. Now that the water is delivered to them through taps because of the STWSSSP, women can send their children to school and can spend their time in more meaningful ways.

Source: Government of Nepal, Department of Water Supply and Sewerage, Project Management Office. 2017. Nepal.



Small Systems but Still High Technology

STWSSSPs have demonstrated that small systems need not equate to low technology. Appropriate high technology has gone hand in hand in spite of small systems for more efficient operations.

While all STWSSSP towns have full metering, are designed for 24/7 supply, have relatively low nonrevenue water (compared with many larger South Asian utilities) and computerized billing, accounting, financial management systems, and basic water quality measurement tools and equipment, the towns vary in the usage of other high technology. These include the following:

- Supervisory Control and Data Acquisition (SCADA) systems, operational in two towns and being extended to additional four towns;
- Septage management in four pilot towns, which will be expanded to more towns based on the learning experiences from the pilots;
- Mobile-based meter reading; and
- Online tariff payment system.



Focus on Integrated Services and Sanitation Along with Piped Water

Using lessons learned in the first and second projects, where the primary focus was on water supply, sanitation components have been strengthened and fully embedded in the third project. These components include on-site sanitation, decentralized waste water treatment for densely populated areas within the towns, storm water drainage in towns with flooding risks, and FSM in pilot towns.

On-site sanitation systems are provided to households and community institutions such as schools and clinics. Private individual toilets are the sole responsibility of households, except for the poor and vulnerable who are supported through a unique Output-Based Aid.



Water and Sanitation for the Poor through Output-Based Aid

STWSSSPs have successfully used a strategy for explicit performance-based grants to deliver last-mile connectivity and toilets primarily to poor and vulnerable groups. Under the Output-Based Aid (OBA), grants are given to service providers, i.e., WUSCs, after delivery of the household connections or the construction of toilets has been verified by an independent verification agent.

Based on the success of the OBA scheme used by the STWSSSPs, the government through its Urban Water Supply and Sanitation Sector Policy, 2009,⁹ has included OBA as one of the recommended models to facilitate the access of poor people to water supply and sanitation services.

Around 10,000 latrines built under the first project, and 4,800 latrines built under the second project, had been provided to households living below the poverty threshold. Based on lessons from first, second, and third projects, water connections are mandatory for all households, with no connection charges for those below the poverty line. Households headed by women account for about 18% of the connections on average.

Based on lessons from first, second, and third projects, water connections are mandatory for all households, with no connection charges for those below the poverty line.



Fecal Sludge Management

For the first time in Nepal, FSM is being implemented by the government in selected small towns on a pilot basis. The pilot initiative will demonstrate the feasibility of total sanitation for the towns. Lessons learned from the pilot will serve as a reference for effective planning and management of FSM in other small towns, and help improve policy measures to strengthen on-site urban sanitation systems in Nepal.

Through support from the third project, Nepal became the first South Asian country in May 2017 to introduce a country-wide regulatory framework for FSM.

The third project has collaborated with the Bill & Melinda Gates Foundation, through the Sanitation Financing Partnership Trust Fund under ADB's Water Financing Partnership Facility. It is implementing pilot schemes on FSM and supporting the government to provide a regulatory framework on FSM for municipalities in Nepal through developing business models and building capacity at the central and local levels for FSM. Through support from the third project in May 2017, Nepal became the first South Asian country to introduce a country-wide regulatory framework for FSM. The foundation for this was laid at a national-level workshop on FSM organized by the third project attended by representatives from all municipalities, WUSCs, and more than 200 sector professionals. A report entitled, *Faecal Sludge Management in Nepal: Key Challenges and the Way Forward*, was published by DWSS in 2015 and disseminated widely.⁹

Other expected outputs are mandatory construction of septic tanks in households as required by the government policies, development of the operational manual and service-level agreement for FSM and a standardized design and guidelines for septic tank systems to ensure the optimal operation of septic tanks and treatment of septic sludge, and integration of FSM in the government's policy framework.



Partnerships for Improved Utility Management and Services

Through ADB's Water Operators Partnership Program, some of the small towns receive valuable mentoring and hand-holding operational support in both water supply and sanitation management.

Partnering for reduced water losses

Lekhnath opted to partner with Maynilad Water Services Inc. (MWSI) to seek help in water loss or nonrevenue water (NRW) management. The partnership began in 2013.

The partnership goals were geared toward improving delivery of water services. MWSI conducted several technical training sessions with select representatives from key WUSCs who, in turn, shared this knowledge with other WUSC engineers and staff. MWSI trained engineers on how to measure and calibrate water meters, and develop a joint work plan that focused on the reduction of NRW. For the first time, the WUSC engineers used various leak detection devices such as a listening stick, and learned about the factors influencing the reduction of water losses in the system. Through a work plan that included a series of site visits, training sessions, and online exchange, MWSI assisted the WUSC in improving their system.

About the Mentor

Maynilad Water Services Inc. (MWSI) is a private water and wastewater service provider based in Manila, Philippines. Its coverage area includes 17 cities and municipalities comprising the West Zone of the Greater Metro Manila Area. MWSI reduced its nonrevenue water levels from 67% in 1997 to 31% in 2015.



By the end of the partnership in 2014, Lekhnath WUSC reported completing 10 district metering areas, profiling 7,000 customer water meters, installing 18 water quality monitoring points, and improving their warehousing techniques. Their NRW, measured at 46% at the start of the partnership, was reported at 36% toward the end. Lekhnath WUSC continues to improve its NRW and plans to train adjacent WUSCs on what they have learned from the partnership.

About the Mentor

Hai Phong Sewerage and Drainage Company (SADCO) is a publicly owned sewerage and drainage operator serving around 800,000 people in Hai Phong, Viet Nam. It operates and maintains about 540 kilometers of sewer mains and provides desludging services to more than 160,000 septic tanks.

While the two partners are seemingly in contrast in terms of scale and customer base, MWSI has been able to translate its success into assistance for the smaller mentee, Lekhnath WUSC, and develop solutions suitable for Lekhnath.

Partnering for Fecal Sludge Management

Complementing the third project, the four small towns currently piloting FSM services have opted to partner with the Hai Phong Sewerage and Drainage Company (SADCO) in Viet Nam.

Hai Phong SADCO and the recipient WUSCs developed a joint work plan, which included remote consultations, study visits, and on-the-job-training. To maximize the sharing of knowledge among the partners, implementation of the joint work plan also involved participation of the DWSS and ADB. The twinning arrangement targets areas to build knowledge on FSM, establishing design standard for septic tanks, and setting and training WUSCs on septage treatment and management practices for environmentally and financially sustainable operations.



Lekhnath Water User and Sanitation Committee: An Overview

The Lekhnath WUSC provides 68 liters per capita of water per day on average to its consumers, comprising 76.5% of the total population within its service area, at a daily average of 14 hours throughout the year. Both production and consumption are fully metered. Though its current NRW is 31%, it is working on a plan to improve it so it can provide services to more consumers as well as optimize the community's scarce water resources. Financial management is good with an operating ratio of 0.46, accounts receivable equivalent of 0.70 month, and collection efficiency of 97.4%. The average tariff of NRs17.74, or \$0.16 per cubic meter, is more than enough to cover O&M expenses. The staff per 1,000 connections ratio is also good at 3.6—the seventh lowest of the 37 water utilities benchmarked by the Sector Efficiency and Improvement Unit (SEIU) in 2015. It also operates a computerized billing system that enables customers to pay their water tariffs online.

Though better performing on all respects than an average South Asian water utility, Lekhnath WUSC is constantly working to improve results. The WUSC is currently considering to extend supply hours and coverage, develop new water sources, and invest in a backup power generator. It is designing an additional overhead storage tank required to cater to the growing demand and population. The WUSC continues to train staff on utility management and improve water quality monitoring. With a new utility support unit now established under DWSS and soon to be fully operational, Lekhnath WUSC may get a lot more help in carrying out what needs to be done next.

The Lekhnath water supply scheme is also the first insured project in the water supply sector in Nepal, and includes its major infrastructure components and transmission pipelines. Insurance coverage includes earthquakes, floods, and landslides.



Getting the Financing and Governance Right

Most of the WUSCs' finances are in operational surplus. The WUSCs have established computerized systems for tariff collection and billing.

The ongoing financial status of projects in the supported small towns shows how the approach taken leads to success. Most of the WUSCs' finances are in operational surplus. The WUSCs have established computerized systems for tariff collection and billing. The tariff collection efficiency of most of the WUSCs is over 95%, which is higher than the average of water utilities in many large South Asian cities. Currently, most WUSCs are working toward a fully computerized revenue and expenditure system, and some have mobile-based technology for meter reading. All WUSCs are audited independently, and the independent auditors have generally found the annual financial audits of WUSCs in order and their financial transactions transparent.

In the initial part of the process, the communities recommend water connection charges and tariffs, in agreement with TDF and DWSS as part of their proposed schemes' financial feasibility. The charges and tariffs are, in turn, approved by the WUSCs at their annual general assemblies.

As an autonomous government financial intermediary, TDF is responsible for supporting the WUSCs by (i) signing subproject financing agreements with the WUSCs for the loan portion of the projects; (ii) recommending and monitoring tariffs to cover O&M expenditures, debt service payments, and future expansion; (iii) providing training in billing, tariff collection, and financial management and accounting for committee members and/or paid employees of WUSCs; and (iv) disbursing loan proceeds and receiving loan repayments. The STWSSSPs are also building TDF's capacity as a financial intermediary so it is able to finance the sector needs without external support.



Creating and Training Leaders for Accountable and Responsive Governance

Armed conflict took place across Nepal from 2006 to 2016, and post-conflict legacy still pervades in terms of political instability. WUSCs have been formed and are operating in a governance context where local elections have not taken place since 2001, and staff in local bodies are appointed by the central government. WUSCs have, therefore, filled the void of leadership in essential water supply and sanitation service delivery.

The WUSCs have successfully demonstrated strong community cohesion and leadership to achieve common objectives with support of the government. The local residents who lead and manage the WUSCs are accountable to their communities. As they demonstrate their efforts to improve daily life in working for the welfare and development of their communities, they have increasingly gained recognition for their efforts. Generally, they engage professional staff to manage the technical aspects of service delivery.

With significant numbers of robust and well-functioning WUSCs, it is plausible that WUSC leaders may also become future political leaders. Mandating 33% women representation in the WUSCs has not only strengthened the projects through the women's active participation in planning and implementation but also helped create many strong and dedicated women leaders. The STWSSSPs have successfully mainstreamed the adoption of gender equality and social inclusion action plan in all government-funded infrastructure projects. Beyond the improvements in the sector, the success of the small towns model has led to strengthening accountable and responsive local governance in Nepal as a whole.

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Empowering Women

Meet Letang WUSC Treasurer Sita Shrestha



Before becoming involved in her local Water User and Sanitation Committee (WUSC), Sita Shrestha, like many women in Letang, spent much of her time looking after her children and fetching water. Now as treasurer of the Letang WUSC, she is not only taking part in the decision-making process and actively participating in meetings, she has helped in project planning and monitoring progress on a number of construction projects, including overhead tank, office building, and institutional latrines for Letang WUSC. Sita also helped map poor households who received Output-Based Aid for tap connections and household latrines, and has received bookkeeping and accounting training to prepare her for her work as WUSC treasurer.

The approach and modality of Small Towns Water Supply and Sanitation Sector Projects provide opportunities to its women members, raising their self-esteem, empowerment, and confidence in the society. In addition to involving them in all the decision making and activities of the WUSCs, women members are empowered through various training and capacity building.

Providing Outstanding Service

Meet Parsa WUSC and Chair Sher Man Tamang



Under Chair Sher Man Tamang's leadership, the Parsa Water User and Sanitation Committee (WUSC) has achieved exemplary 24/7 water supply with only 14.4% nonrevenue water. Constant supply negates the need for expensive storage and pumps at the household level, which runs the risk of contamination. Users reported that when the 2015 earthquake damaged part of the distribution network, Tamang and his team carried out repairs within 9 hours. This level of service, reliability, and responsiveness has resulted in a high willingness to pay among users, leading to cost recovery for the WUSC.

Though the Small Towns Water Supply and Sanitation Sector Project-funded water supply and sanitation scheme in Parsa became operational only in 2005, the WUSC has already paid off its loan completely. It currently provides services to 15 wards covering 29,000 people. It draws water from two tube wells, and has a water safety plan in place. Billing and collection system is fully computerized, and all water consumption is metered.

Parsa WUSC not only meets its operational expenses but also makes sufficient additional revenue to continue expanding its services.



Recognizing the success of the STWSSSP model, the government, through urban policy and associated guidelines, has redefined institutional responsibilities and service delivery mechanisms in the sector, including the establishment of a decentralized governance structure with communities at the core of planning and operations management.

Strengthening Policies and Institutions to Deliver Sustainable Services

The small towns model had an extremely positive impact on the well-being of residents and on the economic growth of towns where water and sanitation infrastructure and services were implemented. It has helped strengthen and streamline government policies and institutional frameworks for water and sanitation service delivery in Nepal. Recognizing the success of the STWSSSP model, the government, through urban policy and associated guidelines, has redefined institutional responsibilities and service delivery mechanisms in the sector, including the establishment of a decentralized governance structure with communities at the core of planning and operations management.

The use of a sector approach for subproject financing under the small towns model enabled the government to align fragmented sector development activities into a common approach for urban water supply and sanitation improvement. The success of the STWSSSPs encouraged and influenced the government's Urban Water Supply and Sanitation Policy (2009), which outlines measures to achieve coherent, consistent, and uniform approaches of sector development in urban areas for the different agencies and institutions involved. The policy articulates the government's vision and approaches for public-private partnership, cost recovery principles, and sector effectiveness for improved service delivery with community level and municipal engagement in managing urban water and sanitation services.

The sector approach of the STWSSSPs also allowed lessons to be incorporated into downstream work and a pipeline of subprojects to be developed, and implemented in line with the 15-Year Plan for gradual expansion across the country. This has also enabled DWSS and the TDF, along with the WUSCs at the local level, to define their roles and functions, and reassess them for improvement as design, implementation, and O&M experiences are taken on board.

With STWSSSP support, a Sector Efficiency Improvement Unit (SEIU) was established in 2009 under the Ministry of Water Supply and Sanitation, which now plays a key role in coordinating stakeholders, preparing sector policies and plans, generating and consolidating sector data, and benchmarking utilities, among its duties. SEIU has completed a benchmarking of water supply service providers and published data books on water supply service providers in 2014 and 2015. It coordinates, chairs, and consolidates periodic sector reviews that feed into the government's sector policies and plans.

At the local level, the STWSSSPs are developing confidence and increasing cohesion among the WUSCs through the formation and strengthening of the Federation of Small Towns Water Users and Sanitation Committee. This committee represents the water users' interests in national and regional forums, and effectively uses their collective voice to leverage technical and institutional strengthening for the WUSCs.

At the same time as it has built capacities at the local level, the small towns model has been instrumental in strengthening and redefining DWSS's role as a project manager, facilitator, regulator, and technical support provider in urban water supply and sanitation in Nepal. It has also had a similar effect on the TDF, whose staff capacity and portfolio has grown immensely with the implementation experience of STWSSSPs.

DWSS's Project Management Office (PMO) is responsible for overall project planning, management, implementation, monitoring, and reporting on the STWSSSPs. The PMO, led by a dedicated project director, includes 12 full-time staff responsible for technical operations, financial management, monitoring, and administration at DWSS' headquarters. The first, second, and third STWSSSPs have been strengthening the department's district offices. Implementation of the third STWSSSP has been further decentralized to the two regional PMOs, one in the eastern region and the other in the western region of Nepal, while the towns that are more accessible from Kathmandu are managed by the PMO directly. Each regional PMO has around 50 full-time staff including a dedicated engineer for each of the small towns.

The third STWSSSP has been successful in establishing an Institutional Support and Service Advisory Unit within DWSS. The new unit will assess and provide support to the WUSCs on both technical and institutional capacity building. It will help them transform as effective, accountable, and responsive WUSCs utilities, including corporatization of WUSCs in comparatively large towns. The unit will also enable and assist DWSS to reposition itself in addressing new and emerging challenges in the sector through business plan development and implementation.

The small towns model has been instrumental in strengthening and redefining DWSS's role as a project manager, facilitator, regulator, and technical support provider in urban water supply and sanitation in Nepal.



Future Challenges

Balancing cost efficiency with appropriate operation and maintenance and innovative technologies. Further consolidating and retaining the strong community ownership stimulated by users' contribution needs to be balanced with adequate O&M, required expansion, and innovations in technology. As demands grow, most WUSCs need significant additional capital investment to expand services to new residents.

Need for corporatization of Water User and Sanitation Committees as the towns grow. The WUSCs, which are set up through local initiatives and registered with the District Water Resource Committee, are motivated and exhibit sound management skills for their current service areas. However, as towns grow and the complexity of their operations expands, the WUSCs need to corporatize by strengthening their institutional, legal, technical, and financial management structure and capacity.

Synergy with the changing governance structures. Nepal should have elected representatives in the near future to manage its local governance. This may have an impact on the functioning of the WUSCs, particularly as locally elected representatives may steer, manage, and coordinate local governance and service delivery functions, including water and sanitation, in accordance with the provisions made in the new constitution of Nepal. The roles and responsibilities of the WUSCs and local bodies therefore would then need to be reviewed to ensure greater clarity on programming, management, operational, and regulatory functions.

References

- 1 Government of Nepal, Department of Water Supply and Sewerage. *Updated Fifteen-Year Plan (2015–2030) for Water Supply and Sanitation in Small Towns*. Unpublished.
- 2 Government of Nepal, National Planning Commission. 2011. *Sahalagani (Co-financing for Semi-Urban Water and Sanitation Services)*.
- 3 Government of Nepal, Central Bureau of Statistics. 2011. *Census of Nepal*.
- 4 Government of Nepal, Department of Water Supply and Sewerage. 2015. National Management Information Project.
- 5 Government of Nepal, National Planning Commission and United Nations Development Programme. 2013. *Nepal MDG Progress Report*.
- 6 Government of Nepal, Ministry of Physical Planning and Works. 2007. *National Urban Policy*.
- 7 Government of Nepal, Department of Water Supply and Sewerage. 2012. *Directives on Operation of Water Supply Services*.
- 8 Government of Nepal, Ministry of Physical Planning and Works. 2009. *Urban Water Supply and Sanitation Policy*.
- 9 Government of Nepal, Department of Water Supply and Sewerage. 2015. *Faecal Sludge Management in Nepal: Key Challenges and the Way Forward, Third Small Towns Water Supply and Sanitation Sector Project*.

Tapping the Unreached

Nepal Small Towns Water Supply and Sanitation Sector Projects: A Sustainable Model of Service Delivery

In Nepal, small towns serve as important extensions to overpopulated large municipalities and capital cities. Meeting the demand for water supply and sanitation services in small towns is crucial to sustaining a balanced urbanization. This booklet presents how the Asian Development Bank (ADB), government, and local communities effectively work together to reach their goal of providing clean water for 24/7 and sanitation to more than 1.24 million people in 69 urban centers by 2021. This booklet is accompanied by a short film produced by ADB, highlighting key outcomes achieved in Lekhnath, one of the towns under the Small Towns Water Supply and Sanitation Sector Projects (available at <https://www.adb.org/news/videos/clean-water-brings-hygiene-and-happiness-nepals-small-towns>).

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Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.



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