



USAID
FROM THE AMERICAN PEOPLE



PHOTO CREDIT: WATERAID/MIGUEL SAMPER

Expanding WASH Service Delivery Options in Nepal

USAID Water, Sanitation, and Hygiene Finance (WASH-FIN) Project Country Brief Series

INTRODUCTION. The Government of Nepal (GoN) has made considerable progress in increasing access to improved drinking water supply and sanitation (WSS) since achieving the Millennium Development Goals (MDG) for water and sanitation in 2015; by 2020 coverage estimates Nepal reached 90 percent for water supply and 77 percent for sanitation.¹ However, in terms of meeting Nepal’s Sustainable Development Goals of access to safely managed WSS services, considerable work remains

Key Takeaways

- Sectoral enabling environment challenges can impact incentives and limit potential options for sustainable models of service delivery and funding.
- All assets—including grant funded ones—must be created with a clear plan for sustainable service delivery, full cost recovery, and monitoring of provider performance.
- Increased attention to and investment in fecal sludge management (FSM) by government and development partners is encouraging, but requires intensive and sustained reforms, and increased data collection.
- Even when options for repayable finance exist, WASH service providers are often constrained by low capacity, weak creditworthiness, and few financially viable projects.
- To maximize impact, technical assistance activities must be demand-driven with objective technical criteria for partner selection.

¹ Sanitation and Water for All (2022). 2022 Country Overview: Nepal; estimates based on Joint Monitoring Program data.

and a growing funding gap is expected to reach approximately US\$1.6 billion per year by 2030.² WaterAid estimates that government allocations will provide less than one half of the financing required,³ and while the GoN has been exploring mobilizing additional financial resources to close the gap, it is estimated that to do so, the annual resource allocation will need to increase from 1.3 percent to 2.5 percent of GDP.⁴ In 2017 USAID's Water, Sanitation, and Hygiene Finance (WASH-FIN) Nepal program began with a goal to support closing the gap with technical assistance to expand and institutionalize customer-centered WASH service delivery models based on commercial approaches. By partnering with national and local governments, the program supported service providers in performance improvement, assessing institutional models and options, and developing business and financial plans. The program also explored limited resource mobilization for investment in sustainable WSS infrastructure.

CONTEXT. In 2015, Nepal adopted a new constitution as a federal democratic republic which restructured the former two-tiered, largely centralized system into a three-tiered, decentralized system of federal, provincial, and local government made up of seven provinces, 77 districts, and 753 local governments (460 village municipalities and 293 urban).⁵ The constitution emphasizes decentralization of roles and responsibilities to the local level to provide effective and sustainable services, including WASH.

The population is concentrated between the southernmost plains of the Terai region and the hilly central region, which includes the Kathmandu Valley; one-fifth of the population is in urban areas, while the remainder is in sparsely populated rural areas. This population spread, combined with extreme topography, makes it difficult and expensive to implement WSS services outside of towns and urban areas. Due to rapid urbanization, Nepal has experienced a significant increase in demand for improved urban WSS infrastructure and services; at the same time, overcoming service deficits in rural areas remains a challenge.⁶

Although WASH coverage trends since 2000 have shown a stable rise in overall access to water, access to safely managed water declined by 8 percent from 2015 to 2020.⁷ Meanwhile, access to safely managed sanitation reportedly increased by 12 percent.⁸ With only eight years remaining until 2030, the country faces persistent challenges to upgrade services to achieve the SDG goal of safely managed WSS services. Nepal also has a goal of increasing sanitation coverage through sewer systems and fecal sludge management (FSM) from 30 percent in 2015 to 90 percent by 2030.⁹ With roughly 90 percent of households currently relying on on-site sanitation, it is expected that non-sewered sanitation solutions will increase at a faster rate to meet this goal cost-effectively.¹⁰

Following the adoption of the new constitution, the Ministry of Water Supply (MoWS) was created in 2015 as the lead ministry in the water sector. MoWS is responsible for formulation of WASH policies and plans at the national level, as well as programmatic planning, implementation, regulation, monitoring, and evaluation. Within MoWS the Department of Water Supply and Sewerage Management (DWSSM) oversees implementation of both rural and urban WASH projects to achieve sector targets.

² Based on Government of Nepal analysis of WASH budget gap as outlined in 2016–2030 Sector Development Plan, Government of Nepal, Ministry of Water Supply and Sanitation. (n.d.). Nepal Water Supply, Sanitation, and Hygiene Sector Development Plan (2016-2030).

³ WaterAid. (2018). WASH Financing in Nepal 2018/2019.

⁴ Sanitation and Water for All. (2020). Asia and the Pacific Finance Ministers' Meeting, Nepal Country Overview.

⁵ World Bank (2019). Nepal Development Update: Recent Economic Developments.

⁶ Bakrania, Shivit, GSRDC/University of Birmingham (2015). Urbanization and Urban Growth in Nepal.

⁷ WHO/UNICEF, JMP Data, <https://washdata.org/>, Accessed May 2022.

⁸ Ibid.

⁹ Government of Nepal, National Planning Commission (2017). Nepal's Sustainable Development Goals; Status and Road Map (2016-2030).

¹⁰ Ibid.

There are three primary institutions/institutional models for urban water supply operation and management in Nepal: 1) the (national) Nepal Water Supply Corporation (NWSC); 2) (decentralized) Water Supply and Management Boards (WSMBs); and 3) (local) Water Users and Sanitation Committees (WUSCs) (see Box 1). WSMBs are autonomous corporate bodies, and formalized WUSCs are not-for-profit corporations. Municipalities also provide some FSM services, but institutional models are nascent. Apart from WSMBs with private sector participation, the private sector provides limited smaller scale services including water tanker supply and some FSM.

User fees (tariffs) are the main direct revenue source for WASH service providers, with additional income from connection fees. However, tariffs cover only a fraction of the operating costs, so government provides additional funds for operational and capital expenses through fiscal transfers funded from taxes or external grants and sovereign debt. The public sector Town Development Fund (TDF) also utilizes these sources to provide repayable blended finance to the WSS sector and other urban sectors.¹¹

Box 1: Primary Urban Water Supply Management Institutional Models

- 1. Nepal Water Supply Corporation:** NWSC is an autonomous government body formed under the Nepal Water Supply Corporation Act 2046 BS (1989 AD) and established as a national public utility. NWSC is the main urban provider serving 22 urban cities outside Kathmandu Valley through branches that function under the technical delegation of NWSC Headquarters.
- 2. Water Supply Management Boards:** WSMBs are autonomous corporate bodies formed under the Water Supply Management Board Act 2063 (2006). They are authorized to manage water supply and sanitation assets and provide services in specific urban areas with or without an arrangement with a private operator. The GoN has formed five WSMBs and handed over municipal water supply systems to them.
- 3. Water Users and Sanitation Committees:** WUSCs are the main water service providers in small towns and rural areas in Nepal. The Water Resource Act 2049 (1992) provides for the formation of these types of not-for-profit Water User Associations. Over 42,000 WUSCs are estimated to operate across Nepal.

Source: USAID's WASH-FIN (2021). Nepal WASH Financing Landscape Report.

DEVELOPMENT CHALLENGES. Proposals to restructure and align Nepal's WSS sector in accordance with the 2015 constitution and meet the needs of growing urban areas had been ongoing prior to WASH-FIN's start. As part of the process to define the roles of the three tiers of government, GoN had prepared three key policy documents prior to the Program start: the National Water Supply and Sanitation Policy, the Water and Sanitation Bill, and the WASH Sector Development Plan. This process is an important one to separate levels of responsibility, minimize duplication and overlap, and overcome the fragmentation that has long defined the sector and delayed decision-making and implementation of reforms at provincial and local levels.

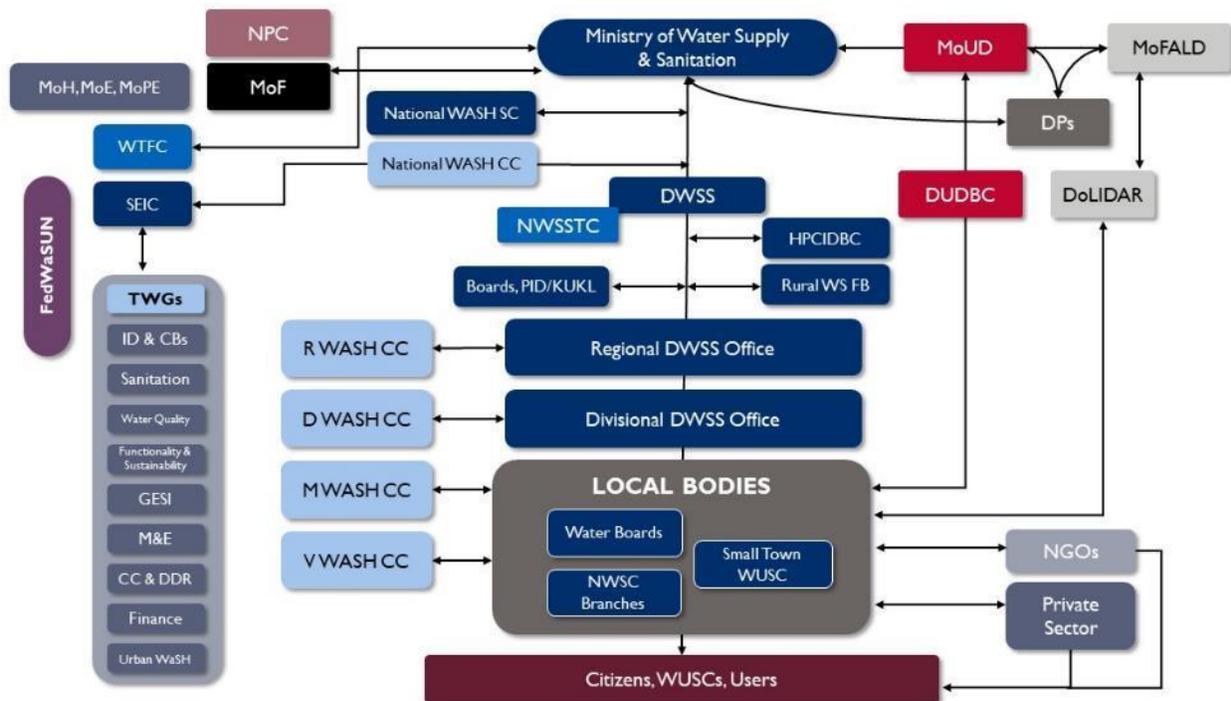
The documents remained in draft form and under review during implementation; practitioners viewed this as a significant transitional challenge for the sector and its development. The ambiguity led to

¹¹ The Town Development Fund (TDF) is an autonomous public development finance institution that provides debt financing to municipalities, water users' and sanitation committees, and other public service providers with concessionary loans and grants for technical assistance.

agencies interpreting their sectoral roles within the new constitution independent of clearly assigned mandates or implementation models. Meanwhile, WSS providers continued to struggle with cost recovery due to operational inefficiencies, low tariffs, and poor fiscal management. The legacy institutional fragmentation and lack of effective performance indicators and incentives led to weak governance and accountability. Service provision suffered and local authorities and service providers had few options to autonomously maintain reliable services and fund needed capital investments.

The signing of the Water and Sanitation Bill after the Program ended in 2022 was a welcome development and will serve as a lynchpin for sector development. One of the major changes codified in the Bill is the constitutional reassignment—or devolution—of responsibility for service provision to local levels (see institutional framework in Figure I below). Implementing this change will require significant resources to be allocated to sub-national governments and service providers to meet the increasing demand, especially in urban areas.

Figure I: WASH Sector Institutional Framework



Within the prevailing context, service providers have been dependent on government grants, development partner support, and concessional loans from multilateral and bilateral Development Finance Institutions (DFIs)—including those channeled through the TDF. A WASH-FIN assessment found that few WSS providers have borrowed from TDF, and they are hesitant to approach commercial banks considering the comparatively high interest rates and commercial terms. Banks are also unfamiliar with the sector and will require sensitization and likely credit enhancements if they are to lend. Microfinance institutions have been engaged with limited finance for household investment in toilets and

on-site sanitation.¹² To expand the range of potential financing options and increase repayable finance—including increased utilization of TDF—service providers must improve financial viability and governance.

To address these challenges, the WASH-FIN Nepal program deployed targeted technical and capacity building assistance to service providers and local and national governments. With emphasis on the establishment of viable service delivery models within the new constitution, WASH-FIN supported: 1) analysis and development of commercially viable local service delivery frameworks; 2) enhanced creditworthiness for the Surkhet Valley Water Supply Users' Organization (SVWSUO) through increased collections, non-revenue water reduction, and development of cost-reflective tariffs; 3) development of viable institutional and financial models for private sector participation options in the management of a fecal sludge treatment plant (FSTP) in the Municipality of Gulariya; and 4) water supply options in Nepalgunj Sub-Metropolitan City (NSMC). Knowledge management was a cross-cutting activity to ensure learnings were shared with local and national stakeholders.

The team first reviewed the landscape of service providers within USAID Nepal's geographic focus areas in western Nepal, resulting in the initial selection of the Surkhet Valley Water Supply Users' Organization (SVWSUO) and the Gulariya Municipality as service provider partners. To better understand the institutional and legal frameworks in the context of decentralization and how changes would impact development of viable service delivery models and pathways to institutionalize them, the program conducted a series of reviews and assessments of key policy documents: the Local Self-Operation Act 2017; the Draft Water and Sanitation Bill (since enacted); the WASH Sector Development Plan (2016–2030); and the National Water Supply and Sanitation Sector Policy (Rural 2004, and Urban 2009).

Based on its findings, WASH-FIN Nepal's support focused on development of enhanced service delivery models through 1) prioritization of performance, efficiency and governance improvements; 2) cost recovery and cost-reflective tariffs; 3) leveraging of tariffs and government transfers with appropriate levels of repayable finance to expand and improve service delivery; and 4) options for private participation. The following sections provide further detail on program implementation on these priority issues, the challenges the team and stakeholders faced, and the lessons learned in the process.

I. Surkhet Valley Water Supply Users' Organization Financial and Operational Efficiency Improvement

After considering ways to formalize its service delivery arrangement with the municipality such as a management contract, SVWSUO decided to maintain the current service delivery model as a registered WUSC. The support to SVWSUO then focused on evaluating service delivery options in the context of devolution and improving organizational and operational performance and creditworthiness—the measure of an entity's bankability—and ability to access finance. The effort culminated in the development of a business plan, which included outputs of related support to improve operational efficiency and financial governance; develop cost-reflective tariffs; and implement components of the approved business plan. The following sections describe the technical activity areas, which the team implemented in parallel and not in sequence.

Financial Analysis and Cost-Reflective Tariffs: To ensure sustainable services and build resilience to weather economic risks in the long run, utilities must continually review financial policies and adjust

¹² USAID's WASH-FIN (2021). Nepal WASH Financing Landscape Report.

tariffs to cover the true cost of providing service. The program conducted an analysis of SVWSUO's technical, commercial, and financial indicators and supported the development of an initial cost and tariff review based on available national cost data. The team then used the analysis as the basis for calculating a tariff adjustment to conform with industry best practices of cost recovery, financial viability, efficiency, and social equity. WASH-FIN subsequently updated the tariff analysis following the development of SVWSUO's Business Plan to ensure future tariff adjustments would cover SVWSUO's operational and capital needs and maintain necessary cash reserves consistent with the business plan goals.¹³ The updated tariff analysis reflected the specific capital project costs, financing plan, and operating expense data developed for the business plan as opposed to the national-level data utilized for the initial tariff study. Due to the socioeconomic costs of the COVID-19 pandemic, the SVWSUO executive committee decided to continue with the prevailing tariff structure, knowing that the tariff-setting guidelines and associated procedures would help them attain cost-reflective tariffs in their future review.

Operational Efficiency: During the initial assessment and through the analysis of costs and tariffs, WASH-FIN became familiar with core operational efficiency issues at SVWSUO, such as its manual billing and collection system, backlog of receivables from customer nonpayment, and commercial losses from unaccounted-for water consumption. In response, WASH-FIN provided recommendations and consultative support on a series of improvement programs, including digitization of the billing and collection system, introduction of mobile payments, and receivables management. The improvements helped SVWSUO improve its financial efficiency and cash flow.

Business Plan Development: The primary benefit of developing a business plan is its value for strategic planning and as a management and governance tool. Business plans are also useful to provide information to prospective partners and financiers to help them understand the business fundamentals, and the organization's plans and capabilities to effectively utilize new funding and resources to accomplish strategic goals and objectives.¹⁴

In Surkhet, the business plan process supported by the program included consultations with SVWSUO's executive board, senior management, technical staff, and users. Findings were incorporated into a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis. The team refined the analysis further using the US EPA's Effective Utility Management planning and prioritization tool, which provided an objective basis for the board and management to evaluate their existing operations and identify areas for improvement and establish and prioritize business plan goals.¹⁵ SVWSUO management prioritized six business plan projects (Box 2) and came up with the estimated cost, proposed financing plan, and timeline to complete, along with a list of potential risks and mitigation measures against the same. After formal approval of the business plan, WASH-FIN provided additional consultative support to SVWSUO in

Box 2: SVWSUO Business Plan Priority Projects

- Construct urgently needed infrastructure.
- Enhance organization-wide skills.
- Accelerate house connections.
- Develop an asset management capability.
- Reduce non-revenue water.
- Prepare a compliance tracking system and conduct a customer survey.

Source: SVWSUO 5-Year Business Plan 2019-2024.

¹³ USAID's WASH-FIN (2020). Surkhet Valley Water Supply Users' Organization (SVWSUO) Water Tariff and Cost Review Update: <https://www.globalwaters.org/resources/assets/wash-fin/svwsuo-water-tariff-and-cost-review>

¹⁴ For more information on business plan development for water service providers see here:

<https://www.globalwaters.org/resources/blogs/wash-fin/how-business-plans-can-help-water-utilities-reach-universal-water-sanitation-and>

¹⁵ US Environmental Protection Agency (2017). Effective Utility Management: A Primer for Water and Wastewater Utilities

implementing various components of the plan, including organizing a governance workshop for board and management, drafting an asset management policy, and conducting a staff capacity gap assessment. In parallel, the program supported improved measurement of non-revenue water (NRW) utilizing new bulk water meters provided through USAID's WASH-FIN assistance. In addition, the team integrated climate considerations into the business plan and identification of adaptation priorities for resilient service delivery.¹⁶

Development of Financing Proposals to Financial Institutions: WASH-FIN initially envisioned supporting service providers such as SVWSUO in development of a pipeline of investment-ready projects as a basis for making financing requests to TDF and other financial institutions. To this end, the capital plan in SVWSUO's business plan contemplated debt finance from TDF. However, when it came time to develop a TDF loan proposal, management informed WASH-FIN of potential government grants becoming available. The team held consultations with SVWSUO to discuss the tradeoffs of grants versus repayable finance, mainly in terms of the latter's potential to accelerate service delivery improvements and as a pathway to autonomy and more reliable financing options in the future. Ultimately, management decided to wait for grant funding, a pathway it was more comfortable with.

2. Gulariya Municipality: Fecal Sludge Management Institutional and Financing Model

The goal of this activity was to develop and institutionalize an FSM service delivery model based on commercial approaches under the oversight of local government. To achieve this goal, WASH-FIN worked with the Municipality of Gulariya, a secondary city in southwestern Nepal, to develop and launch a model for commercially viable FSM. To inform this effort, the team conducted a benchmarking of FSM in other municipalities, and later the program commissioned an expanded landscape assessment of FSM service delivery in Nepal (see below) which also informed the Gulariya work.

Fecal Sludge Management Business Model: Gulariya was declared ODF in 2015 and the city embarked on a new phase of sanitation management to confront the dual challenges of treatment of fecal waste collected from toilets and latrines and ensuring ODF was maintained and avoiding slippage. In 2016, (prior to WASH-FIN Nepal's engagement) development partners supported construction and handed over a new FSTP to the Municipality. The Municipality purchased an exhauster truck and began a municipal FSM service and made other investments to process municipal solid waste at the site. However, a lack of technical staff capacity hampered the operation and just before the program started, a flood damaged sludge drying beds and other components of the plant. Therefore, the first order of business for WASH-FIN was to assess the damage and advise the Municipality on implementation of improvements needed to return the FSTP to operation. The team then provided technical assistance to build capacity on waste management service delivery, including improvements to the FSTP process and enhancements to solid waste collection, which also took place at the site. Technical support included demand side assessments, preparation of a Standard Operating Procedure (SOPs) Guide and Operation & Maintenance (O&M) manual for the FSTP and developing a business and financial model for FSM and SWM as an Integrated Waste Management (IWM) service.

WASH-FIN further worked with the Municipality to explore opportunities and potential for private sector participation in the IWM operation and markets for reuse of byproducts. The initial work focused on gathering and analyzing technical data on the FSTP and the market it would serve. This

¹⁶ For guidance on incorporating climate-resilience into medium- and large-scale utilities' business plans, see USAID (2017), *Toolkit for Climate-Resilient Water Utility Operations*, <https://www.climatelinks.org/resources/toolkit-climate-resilient-water-utility-operations>

included benchmarking of other FSM and solid waste management (SWM) operations in Nepal to guide the Municipality. WASH-FIN activities helped provide initial insight into the FSM market and inform efforts to support Gulariya in developing a business model for the FSTP. WASH-FIN prepared detailed financial forecasts, including capital investment requirements and cash flows, which determined that an IWM approach combining solid and human waste management could be viable for both the Municipality and a commercial operator.

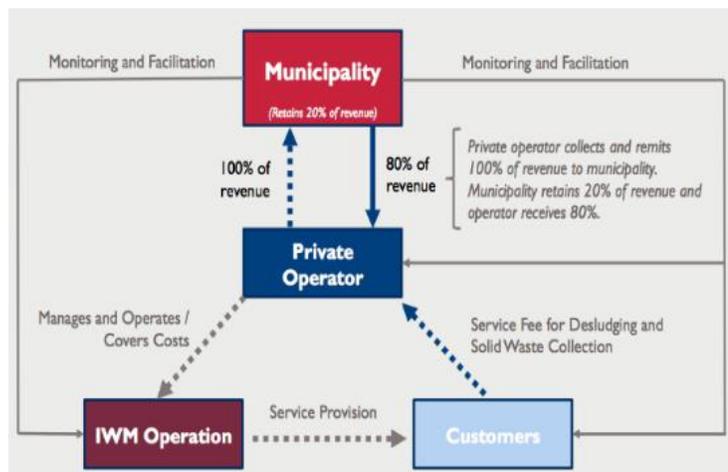
Guided by the business and financial model, and supported by examples in other Southeast Asia countries, WASH-FIN developed a model Service-Level Agreement (SLA) to govern the arrangement between the Municipality and a private operator. The SLA defined each of the following:

1. Guidance for the agreement between the Municipality and the operator
2. Potential legal and contractual issues, and
3. Service-level and performance indicators

Under the envisioned SLA arrangement, the Municipality would maintain ownership of key assets and act as the contracting Service Authority, focusing on regulation, licensing, enforcement, and SLA administration, monitoring, and financial oversight. The private operator would fill the role of Service Provider, focusing on revenue collection, conveyance, treatment, and disposal and/or beneficial reuse of waste. The operator would collect service fees; operate, maintain, and staff the FSTP and all collection and conveyance equipment; and sell FSM byproducts and recyclables (see Figure 2).

WASH-FIN supported the Municipality in preparing and finalizing bid documents, issuing a tender, and selecting a domestic private operator to run the service. Negotiations during procurement resulted in agreement that collected revenues would be deposited with the Municipality, which would return 80 percent to the operator. The scheme was set in motion and the operator was mobilized in mid-February 2021. WASH-FIN supported development of the SOP Guide and O&M manual in parallel and these were adopted by the Municipality as part of the SLA model.

Figure 2. Gulariya IWM Service Delivery and Business Model



Unfortunately, the progress made was not sustained, and WASH-FIN was informed during the COVID-19 pandemic that after less than one year in effect, the parties made the decision to end the SLA and the IWM operation reverted back to the municipality as service provider.

3. Nepalgunj Sub-Metropolitan City (NSMC): Water Supply Institutional Model Options Analysis

WASH-FIN worked with the Nepalgunj Sub-Metropolitan City (NSMC) in cooperation with the NWSC to assess the existing NWSC water supply scheme in the city and options for citywide coverage. Under devolution, NSMC has the mandate for water supply, but the NWSC scheme only covered

approximately 16 percent of households in the city, with the remaining population reliant on seven WUSCs, private water providers, unsafe handpumps, and wells.

WASH-FIN hired a consultant to 1) analyze the existing NWSC scheme and other water supply services in the city, 2) conduct an options analysis for citywide universal coverage, and 3) prepare a report to NSMC leadership.¹⁷ To kick off the activity, WASH-FIN facilitated a consultative meeting with all stakeholders through which several gaps in coordination across agencies were identified. A key finding was that various agencies were developing plans for service improvements that other agencies were unaware of. Moreover, the siloed planning processes did not conform to decentralization under the new constitution, through which the municipality has the mandate to provide services. These findings were presented and discussed in follow-on meetings, where viable institutional model options were also presented. The NSMC's leadership sought external support to engage with others in order to first understand the root of the problem. They then explored options resulting in a Memorandum of Understanding (MOU) between NSMC and NWSC, through which NWSC is responsible for sustainable O&M to operate the water supply system within the city under a lease contract agreement. Further, NSMC may consider handing over all water supply schemes implemented by national Water Supply and Sanitation Division Office (WSSDO) to NWSC after completion, while also considering the interest of the existing WUSCs. An Action Plan was prepared to ensure report recommendations are undertaken to improve capacity of NWSC and WSSDO for reliable operation of water supply systems.

The effort helped bring together the three levels of government in a constructive way to work toward a viable path for achieving universal coverage in NSMC. Moving forward, the MOU and Action Plan provides a foundation for the parties to build on over the long term to ensure service delivery improves for the benefit of all residents of the city.

4. Support to National Government in Fecal Sludge Management

Nepal declared Open Defecation Free (ODF) status in 2019 and with the subsequent increase in the number and concentration of household sanitation solutions, two new national sanitation objectives came to the forefront: 1) sustaining the use of newly built latrines, and 2) strengthening the sanitation service chain to address final disposal and potential for reuse of collected fecal material once the pits/tanks fill up.

Fecal Sludge Management Service Delivery Landscape Analysis: To help prepare Nepal's sanitation sector for the next phase of investment toward these objectives and complement the practical experience with the Municipality of Gulariya, WASH-FIN commissioned a landscape assessment of fecal sludge management service delivery. Secondary sources indicated that 90 percent of the population relied on on-site sanitation systems and that most of Nepal's 753 local governments had not yet invested in viable sanitation systems. The few existing systems operate sub-optimally or are non-functioning due to operating below capacity, technology with excessive capital and/or O&M costs, or inability to operate and maintain systems. As of 2021, approximately 30 FSTPs were in various stages of planning, with about one-third of these requiring funding.¹⁸ This means the country is behind in terms of addressing the challenges of safely managed sanitation. The GoN had acknowledged that a significant portion of the sewerage management budget allocation—which included FSM—had gone unutilized, in part due to insufficient capacity to design non-sewered sanitation systems. The assessment indicates that

¹⁷ USAID's WASH-FIN (2021). Viable Citywide Water Supply Options for Nepalgunj Sub-Metropolitan City. Submitted to USAID/Nepal.

¹⁸ USAID's WASH-FIN (2021). Nepal Fecal Sludge Management Service Delivery Landscape Assessment

the pathway for improving sanitation will be challenging, but headway is being made. Select findings include:

1. The volume of human waste exceeds the available supply of services for its collection, treatment, and reuse.
2. Municipalities lack capacity to plan, fund, and manage FSM services and the absence of regulations, standards, and guidelines discourages investment to improve and expand services.
3. Government has yet to sufficiently prioritize and adequately fund safely managed sanitation, resulting in significant capacity shortfalls at all levels of government.
4. Public investment to date emphasized water-borne sewerage, which reaches only small portions of urban areas; while FSM investment has been directed toward treatment, without due attention to the other links in the service chain.
5. With technical assistance, there is potential for cost recovery in FSM, which could support repayable finance, however financial institutions are not aware of these opportunities.

FSTP/FSM Training Curriculum Development: In part due to the findings in the FSM landscape noted above, USAID received a request from DWSSM for support to develop an FSTP training curriculum for government engineers as a means to increase investment in FSM. WASH-FIN engaged national and international specialists to develop and implement an FSM/FSTP design training curriculum to be used by DWSSM's National Water Supply and Sanitation Training Centre (NWSSTC) with the objective to enhance knowledge and build capacity in the design of FSTP infrastructure and FSM service delivery. The curriculum consists of a suite of materials related to planning, design, implementation, and O&M of FSTP infrastructure and services. The curriculum and materials were handed over to NWSSTC through a series of workshops and training began for select groups of engineers. Additional audiences of the curriculum include decision-makers in government, as well as the private sector and DWSSM planned to work with other development partners and training institutions serving this space in Nepal.

LESSONS LEARNED

I. Sectoral enabling environment challenges can impact incentives and limit potential options for sustainable models of service delivery and funding.

At the close of WASH-FIN activities, processes to revise sectoral law and policy remained incomplete and the absence of a clear and stable sectoral enabling environment created uncertainty and disincentives for collaboration between local authorities and the water sector as well as mobilization of financial resources. This in turn constrained effective delivery of technical assistance and capacity-building. In Surkhet, while mechanisms for SVWSUO to formalize its relationship with the municipality were identified, there were few incentives to do so, and the status quo of institutional silos prevailed. Despite improved creditworthiness, inclusion of TDF loans in their business plan, and related capacity-building to instill good governance, the utility decided on traditional funding through intergovernmental transfers rather than concessional loans from TDF. In Nepalgunj, service was provided by NWSC, which also lacked incentives to coordinate closely with the Sub-Metropolitan City (NSMC). However, in this case, with an expanding urban population and poor services, the mayor took the initiative to request program support to better understand options to achieve universal water coverage. The assessment found that both NWSC and the provincial government were advancing plans for service improvements in parallel, with limited coordination with NSMC. Under the mayors' leadership, the discussions facilitated by WASH-FIN resulted in an opportunity to bring the various stakeholders together across all

three levels of government and more formal collaboration. NSMC opted to continue with NWSC as the service provider, with enhanced coordination, and therefore was not seeking to mobilize financial resources.

2. All assets—including grant funded ones—must be created with a clear plan for sustainable service delivery, full cost recovery, and monitoring of provider performance.

Like most WSUCs in Nepal, SVWSUO received a legacy water supply system financed through DFIs and designed for a city, region, and climate that have changed dramatically since the original construction decades ago. Designs did not account for rapid urban population growth, road development in the watershed causing silt to build up in treatment plants, and the extremes of drought and floods. Below cost recovery tariffs resulted in deferred maintenance and deposits from customers for new connections were used to stem the losses—a vicious downward cycle. In short, the “hardware” was delivered, but not the “software” required to sustain it.

Similarly, the Gulariya Municipality enthusiastically received its FSTP asset from donors, believing it was the missing link to safely managed sanitation since ODF was achieved. The city contributed to the effort by arranging land, investing in a desludging truck, and covering operational expenses. However, the municipality did not receive adequate investment or support to establish a fee-based service delivery model to ensure cost recovery or build internal capacity to manage a new and unfamiliar service. A flood knocked out the plant shortly after completion, and the absence of sufficient technical and management capacity coupled with low demand resulted in a suspension of the service.

The key lesson for decision-makers is that assets created without due consideration for the institutional capacity and financial resources to operate them are at risk. Asset creation must consider capacity to sustain services including cost recovery, internal capabilities, asset management and finance, and resilience to shocks. The business plan development process is an excellent opportunity to reinforce this. The SVWSUO business plan included soft projects to address risks as well as investment in NRW reductions and new assets to access, treat, store, and deliver new source water. For Gulariya Municipality, the intensive demand-side assessments, planning, technical knowledge-sharing, and facilitation provided by the program helped the city restart the plant, justify additional small investments to improve its operation and, as the program ended, enter into an agreement with a private operator.¹⁹

Business plans can also help overcome the absence of national standards, indicators, or targets to benchmark provider performance objectively or assess creditworthiness. As more providers capture objective measures of utility performance they can be used as a benchmark to plan, design, prioritize, and sequence interventions to achieve specific performance improvements, set baselines and targets, and finally as indicators to monitor strategic and business plan implementation.

3. Increased attention to and investment in FSM by government and development partners is encouraging, but require intensive and sustained reforms, and increased data collection.

According to an analysis of Nepal’s Central Bureau of Statistics Multiple Indicator Cluster Survey (MICS) data, as of 2019,²⁰ roughly 10 percent of homes in Nepal had sewerage coverage (although not all waste was adequately treated). Human waste from on-site sanitation systems used in the remaining 90 percent

¹⁹ As noted previously, WASH-FIN was informed that the municipality and private operator suspended the agreement after less than one year and the IWM service delivery reverted back to the municipality.

²⁰ Central Bureau of Statistics, Government of Nepal (2020). Nepal Multiple Indicator Cluster 2019 Survey Findings Report, and USAID’s WASH-FIN (2021), Nepal Fecal Sludge Management Service Delivery Landscape Assessment

of homes is largely dumped into water bodies or lowlands, without treatment. Meanwhile, the 2020 United Nations Development Programme (UNDP) Human Development Report²¹ noted that data for safely managed sanitation services in Nepal was unavailable. Undoubtedly, all of Nepal's 753 rural and urban municipalities require significant additional technical resources to develop and institutionalize FSM. Despite high rates of urbanization, and progress on ODF, cities have not been adequately resourced to replicate limited FSM pilots and invest in safe management of fecal sludge. Accelerating projects in the planning stage and bringing many more into development will require fully utilizing public budgets and increasing capacity for preparing commercially viable FSM infrastructure and services projects.

Recent initiatives supported by development partners have resulted in increased understanding and capacity at the national and local levels. Enabling environment improvements include municipal FSM by-laws supported by the Bill and Melinda Gates Foundation and the model FSM service level agreement supported by USAID.²² USAID also supported development of the FSM design and training curriculum being implemented by DWSSM targeting public sector engineers and professionals. As other country experiences have shown (e.g., India and Bangladesh), delivering viable FSM services broadly will require a sustained and intensified effort to build on these accomplishments in Nepal, and continued government leadership, funding, and innovation. The GoN is demonstrating this leadership in accordance with devolution and development partners are supporting many GoN initiatives.

4. Even when options for repayable financing exist, WASH service providers are often constrained by low capacity, weak creditworthiness, and few financially viable projects.

Many WSS service providers do not generate sufficient revenues to cover O&M costs, let alone new capital expenditures. Even among the few water service providers that are generating sufficient revenues for O&M cost recovery, most do not have the capabilities and capacity to fully scope, plan, and estimate the impacts of a new project, and present bankable proposals to providers of finance. Water tariffs set below cost recovery are a particular hindrance that impacts performance and financial viability. Most WSMBs and WUSCs lack incentives (discussed above in Lesson 1) to shift to a commercial orientation and are managed without an explicit objective to be financially viable. These factors impede their ability to maintain reliable services and generate revenues making them unattractive for repayable finance.

Repayable finance is available in Nepal from a variety of sources (including the TDF), which remains an important channel for repayable finance in the sector. However, TDF experienced repayment challenges by some water service providers even with its highly concessionary lending terms and it is reflective of demand-side challenges to access repayable finance. The Nepal WASH Financial Landscape identified a variety of additional sources as having potential in the WASH sector including commercial banks; however, these sources do not instinctively see the WASH sector as presenting viable business opportunities, and projects will need to be well structured to mobilize these sources.

The expansion of FSM services in Nepal could present an opening for TDF to finance investment across the service chain. The emptying and transport links which are typically managed by small businesses and municipalities often require smaller investments (e.g., desludging trucks), and this could be a niche for commercial banks. Leasing of vehicles could also be considered and would be less risky, as the financial institution would own the asset under lease (see [USAID's WASH-FIN Senegal Country Brief](#) for an

²¹ UNDP (2020) "Human Development Report: The next frontier, Human development and the Anthropocene"

²² Ibid.

example of a lease program for desludging trucks). If institutional constraints can be overcome, TDF could finance municipal investment in FSTPs and potentially other assets.

In terms of GoN efforts to improve capacity and creditworthiness, DWSSM's Business Plan Guideline for water supply and sanitation, and FSM design training modules offer pathways to enhanced understanding and capacity for creditworthiness and viable service delivery.

5. To maximize impact, technical assistance activities must be demand-driven with objective technical criteria for partner selection.

Technical assistance efforts targeting WSS service delivery reforms and access to finance are laden with complex challenges and entrenched institutional constraints. In this context, it is extremely difficult for service providers to break with old patterns of dependency on development partners and perverse incentives that prioritize short term political goals over long term transformation. While all providers can benefit from technical assistance to improve performance, those that can demonstrate good governance, as well as leadership and management committed to make difficult changes, are likely to have enhanced capacity to absorb technical assistance and benefit more. Programs should seek to identify these providers through objective criteria—especially when working on reforms related to transitioning to customer-centric service delivery, cost recovery, creditworthiness, and accessing repayable finance. Over the long term, independent and autonomous service providers accountable to customers create the foundation for sustained services based on cost recovery.

WASH-FIN partners in Nepal had compelling technical needs and showed potential to receive assistance. However, at times the providers had capacity constraints to absorb the assistance, and there was confusion regarding the value of technical assistance vs. traditional contributions of physical inputs. Future projects should aim to establish objective partner selection criteria to target service providers with the highest likelihood of achieving not only technical improvements but also governance and operational results. Including support for the construction of small-scale works or goods purchases that align with the technical assistance (for example, to improve efficiency) could help providers in their transition to cost recovery and increased self-reliance and resilience but need to be carefully considered so as not to entrench dependency. Larger or longer-term programs can explore using the criteria to segment technical assistance according to the service provider's stage of development and readiness for absorbing assistance as a means to overcome governance barriers and develop a broader pool.

ABOUT WASH-FIN. USAID's WASH-FIN program works in collaboration with national governments, development partners, financial institutions, service providers, and local stakeholders in eight countries. The program's Country Briefs summarize the development challenges, activity design, and results to date for each country of operation. The briefs focus on the lessons learned and their applicability in each country, as well as for USAID and the broader water and sanitation sector.