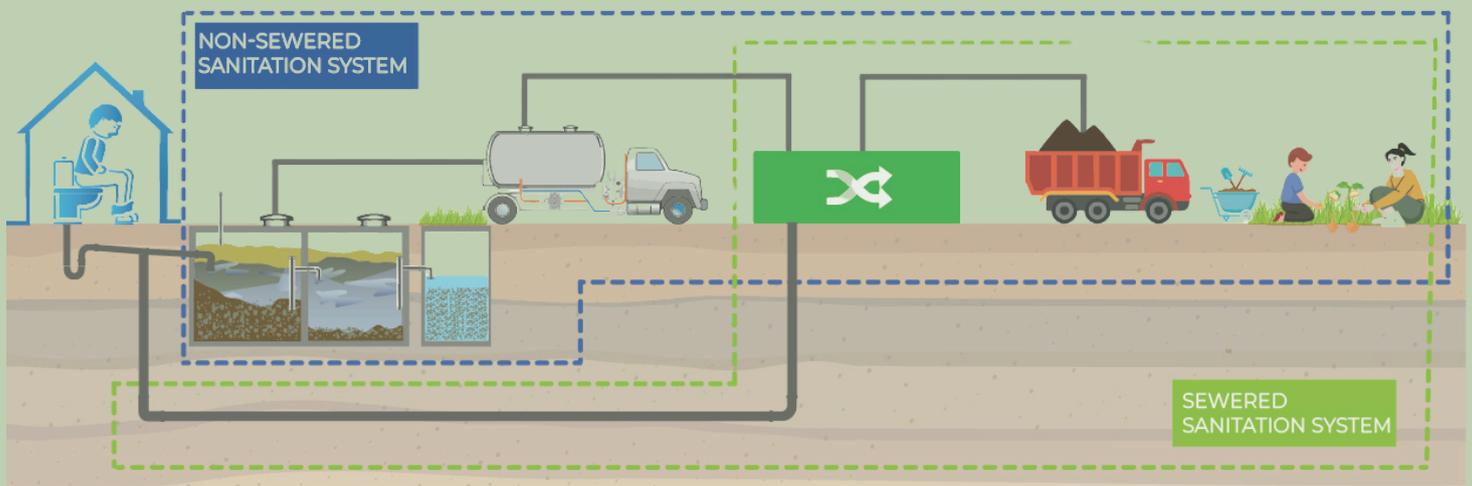


Mentor City : Waling Municipality

Learnings from Waling's Sanitation Initiatives

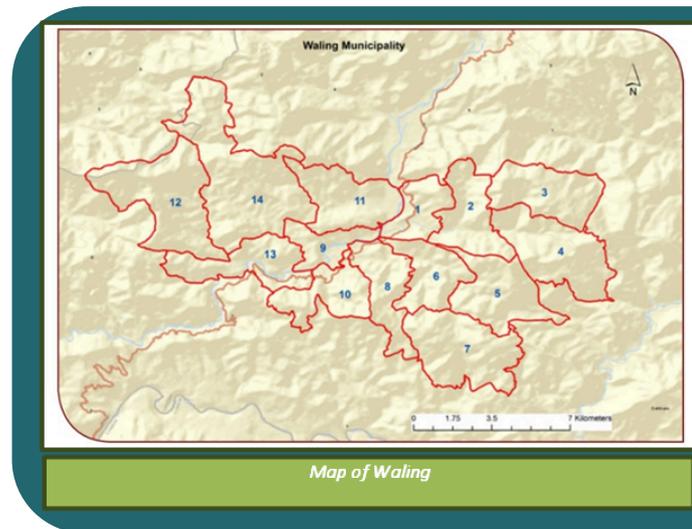


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WALING PROFILE

DEMOGRAPHICS

Waling Municipality, located in Syangja District of Gandaki Province, is a historically and religiously significant city. Established in 2054 B.S. and restructured in 2073 B.S. under Nepal's federal system, it comprises 11 wards. As per the 2021 census, Waling has 11,365 households and a total population of 50,488 —with 23,482 males and 27,006 females. Its strategic location along the Siddhartha Highway supports growing urbanization and service delivery, presenting both opportunities and challenges in achieving inclusive and sustainable WASH services.



BACKGROUND

Waling Municipality was declared an Open Defecation Free (ODF) zone on 14th May 2013, with all merged Village Development Committees (VDCs) having achieved ODF status between 2011 and 2013. At first glance, the sanitation condition appeared strong; nearly all households had access to toilets, either private or shared.

UNCOVERING THE GAPS

However, further assessments revealed hidden challenges in the sanitation system. One key analytical tool, the Shit Flow Diagram (SFD), is used in sanitation planning to visually represent the flow of excreta (faeces and urine) within a specific geographic area. It helps to understand where excreta originate, how it is contained, transported, treated, and potentially reused or disposed of. SFDs are crucial for identifying gaps in the sanitation system and guiding targeted improvements.

The 2019 Shit Flow Diagram (SFD) for Waling Municipality revealed that almost the entire population relied on on-site sanitation systems, as there were no sewer networks or faecal sludge treatment plants. Approximately 84% of faecal sludge was considered safely managed, with the majority (68%) contained but never emptied, and another 16% treated in household anaerobic biogas digesters. However, around 16% of the total faecal sludge flow remained unmanaged and unsafe including 8% emptied or discharged without treatment, 6% leaking into the ground from poorly constructed pits or tanks, and about 3% directly discharged into drains or open areas. Additionally, a small proportion (~1%) of the population still practiced open defecation. These findings highlighted significant risks of environmental contamination and public health threats, particularly given that surface water and natural springs were key sources of drinking water for the community. Confronted with this reality, Waling Municipality recognized that achieving ODF status alone was insufficient. The gaps in safe containment, treatment, and regulation became a turning point, prompting decisive action. The municipality embarked on a focused and inclusive sanitation journey, establishing systemic, sustainable solutions and ultimately shaping its vision to become a mentor city in sanitation.

WALING SANITATION JOURNEY





INITIATIVES



Initiated Municipal-level FSM program through MoU signing with MUNASS



Before 2018, Waling Municipality lacked a structured approach to addressing non-sewered sanitation. Despite increasing urbanization, there were no clear policies, frameworks, or technical guidelines in place for managing faecal sludge, leading to unregulated containment practices and environmental pollution. Sanitation was largely limited to toilet access, with minimal focus on the full sanitation service chain—especially on safe treatment and disposal.

Recognizing the urgent need for systemic sanitation planning, Waling Municipality signed a Memorandum of Understanding (MoU) with the Municipal Association of Nepal (MuAN) under the MUNASS project in 2018. This formal agreement, supported technically by ENPHO and financially by UCLG ASPAC, marked the municipality's first strategic step into Faecal Sludge Management (FSM). The initiative laid the foundation for:

- Building institutional ownership of FSM at the municipal level
- Aligning local efforts with national FSM priorities and SDG 6.2
- Planning for evidence-based sanitation interventions, starting with need identification and policy formulation
- Accessing technical expertise and cross-learning from other municipalities engaged in the MUNASS network.

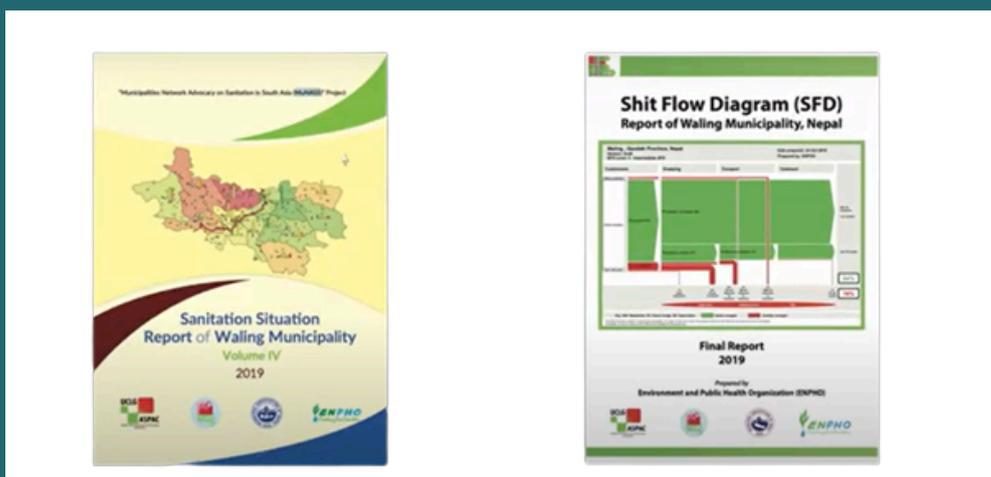
The MoU served as a catalyst for structured FSM interventions in Waling. It enabled the municipality to transition from ad-hoc sanitation management to a more strategic, long-term vision. Following the MoU, Waling undertook key steps such as the SFD survey, FSM policy development, DPR preparation, and eventual establishment of a FSTP. The partnership built a collaborative foundation that allowed Waling to emerge as a model city for inclusive sanitation, now recognized nationally and regionally. This early initiative demonstrated how a single institutional commitment can spark citywide transformation in sanitation governance.

Diagnostic Mapping through Shit Flow Diagram (SFD) Survey

Despite being declared Open Defecation Free (ODF), Waling Municipality faced serious hidden risks related to faecal sludge management (FSM). A Shit Flow Diagram (SFD) survey conducted in 2019 revealed that inappropriate containment and unsafe sludge disposal posed a high threat to groundwater and public health. The municipality lacked a sewer network, and about 2% of the population discharged toilet waste directly into stormwater drains. Though lined tanks with open bottoms were common, only 4% of the containments had ever been emptied, with most being oversized and unlined, increasing infiltration risks. Surface water was the main source of drinking water, and the surrounding geography—with high permeability soils and unlined tanks—made contamination of natural springs highly probable. Despite ODF status, 1% of the population still practiced open defecation in forests and riverbanks, further threatening water safety.

In response to these sanitation gaps, ENPHO conducted the 2019 SFD survey to:

- Map how faecal sludge was generated, contained, emptied, and disposed of
- Collect household-level data, site observations, and technical assessments
- Quantify the proportion of safely versus unsafely managed faecal sludge
- Highlight containment types, emptying practices, and high-risk zones



The survey proved to be a critical turning point in Waling’s sanitation journey. It revealed that over half of the faecal sludge was unsafely managed despite ODF status. Based on these findings, the survey identified key needs, including the establishment of a Faecal Sludge Treatment Plant (FSTP), preparation of a Detailed Project Report (DPR), and formulation of a municipal-level FSM policy. These findings highlighted the urgent need for comprehensive FSM strategies in Waling Municipality. In response, the municipality-initiated actions to improve FSM, including allocation of resources for FSM activities. The SFD survey served as a critical tool in identifying gaps and guiding these interventions, strengthening local capacity and enabling Waling to move toward proactive, data-driven sanitation solutions.

DPR Design & FSM Policy Endorsement:

The 2019 SFD survey exposed critical FSM gaps—over 50% of sludge was unmanaged, high risk of groundwater contamination from on-site systems, and unsafe disposal practices persisted. Without a guiding plan or regulatory framework, Waling lacked a clear roadmap for infrastructure development and sustainable sanitation governance.

- DPR Preparation (2019): Post-SFD, Waling Municipality commissioned the Detailed Project Report for a Faecal Sludge Treatment Plant (FSTP), outlining technical design, location assessment, cost estimates, and operational strategy.
- FSM Policy Endorsement (2019): The municipal council formally endorsed the Municipal FSM Policy, making septic tanks mandatory for new buildings, promoting anaerobic biogas digesters, and integrating FSM into construction permits.

The DPR provided Waling Municipality with a comprehensive blueprint for constructing a FSTP, enabling the municipality to move from planning to infrastructure implementation within a year. Simultaneously, the endorsement of the Municipal FSM Policy brought regulatory clarity and accountability. By making septic tanks mandatory at the building permit stage, the municipality ensured that future constructions would incorporate safe containment systems. The promotion of anaerobic biogas digesters to farmers not only encouraged sustainable on-site treatment but also introduced a circular economic approach in rural-urban sanitation. Together, these actions laid the foundation for institutionalizing FSM in Waling and significantly strengthened the municipality's capacity to safeguard public health and the environment.



Establishment and Operation of FSTP (2020–2021)

Prior to 2020, Waling Municipality had no regulatory framework or institutional setup dedicated to FSM. FSM was not prioritized, and no specific budget was allocated. In the absence of treatment facilities, faecal sludge emptied from containments was directly disposed of without treatment, posing a severe risk to public health and the environment. The lack of designated units, operational guidelines, or a clear mandate for FSM could have potentially led to outbreaks of waterborne diseases. Additionally, as larger, never-emptied containments began to fill, the demand for safe emptying and treatment grew steadily.

In 2020, Waling Municipality took a bold step by constructing its own FSTP with a daily treatment capacity of 6 m³. The plant was established using municipal funds alone, without external donor financing—demonstrating strong local ownership. Technical assistance was provided by ENPHO for the preparation of the Detailed Project Report. The municipality also designated the solid waste management site as the Waling Municipal Sanitation Centre, integrating FSM and solid waste management in one location. In 2021, the plant became fully operational. Alongside this, the municipality began mechanical desludging services, complementing existing private service providers. The maximum vehicle capacity per trip was 5 m³, with rising demand for 4 trips per week from both households and institutions.

The Faecal Sludge Treatment Plant (FSTP) marked the establishment of Waling's first formal FSM (Faecal Sludge Management) infrastructure, addressing years of untreated sludge disposal and enabling a shift toward safe, circular sanitation practices. Currently treating an average of 2 m³ of sludge per day, the municipality is preparing to implement scheduled desludging to further optimize FSTP utilization and enhance overall sanitation service delivery.

Beyond treatment, the facility promotes resource recovery: sludge cake is repurposed as organic fertilizer for local farmers, and treated effluent is reused for landscaping and beautification around the Sanitation Centre. The site also serves as a demonstration center for visiting municipalities and institutions, reinforcing Waling's position as a learning city in FSM.



Waling FSTP



Locals picnic at Waling's FSTP

"At first, we used to think of the FSTP as a smelly place that no one would want to visit. Like many others, I thought faecal sludge was something dirty and far removed from our lives. But after visiting the Sanitation Centre, my vision has completely changed. It's not just a treatment plant—it's clean, informative, and beautifully maintained. The greenery, peaceful environment, and educational displays make it feel more like a park. These days, we come here with our children for picnics, and the youth even make TikTok videos in the open space! It's amazing to see how Waling has turned something unpleasant into a source of learning, pride, and even recreation for the whole community."

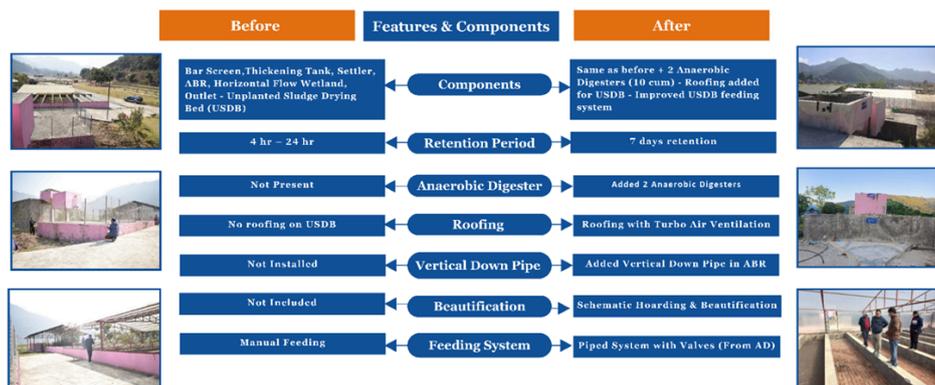
Ms. Shanti Kumari, Local Resident of Waling Municipality

Upgradation of FSTP & Recognition as a Mentor City and Sanitation Tour Site (2024)

After operating FSTP for over three years, Waling Municipality observed that the facility, while functional, was not consistently treating faecal sludge to its full 6 m³/day capacity. Seasonal challenges, inefficient flow systems, and basic infrastructure limited operational effectiveness.

Meanwhile, Waling's growing success in FSM was gaining national attention, but the municipality lacked a formal platform to share its learnings and model with others.

In 2024, Waling undertook a comprehensive upgradation of its FSTP to improve treatment performance and showcase its progress. Major improvements included:



National and International Recognition:

Waling Municipality's exemplary efforts in urban sanitation and FSM have garnered both national and international acclaim. In 2021, it was rewarded as the Best Municipality in the sector of Urban Development, Environment & Disaster Management by the Municipal Association of Nepal (MuAN), recognizing its strong foundation in sustainable urban services. Building on this momentum, Waling was honored with the Asia Pacific Sanitation Excellence Award by UCLG-ASPAC in 2023, acknowledging its innovation and leadership in sanitation at a regional level. These continued achievements culminated in Waling being officially recognized as a Mentor City in 2024, signifying its role in guiding other municipalities through its proven sanitation model. Further strengthening its leadership status, Waling was also selected as a host city for the Nepal Sanitation Tour, where it welcomed municipalities from across the country to observe and learn from its inclusive FSM practices. The upgraded FSTP further reinforced its reputation by increasing treatment efficiency, improving sludge and effluent quality, and ensuring operational reliability throughout the year. Through exposure visits and knowledge-sharing sessions, Waling is actively inspiring and supporting replication of its FSM model in municipalities across Nepal.



Awarded the Asia Pacific Sanitation Excellence Award by UCLG-ASPAC in 2023.



Nepal Sanitation Tour: International Team at FSTP Waling

Capacity Strengthening for Sustainable Sanitation Governance

While Waling Municipality made strong infrastructure and policy advancements in faecal sludge management, significant capacity gaps persisted at both institutional and operational levels. Municipal staff had limited exposure to Citywide Inclusive Sanitation (CWIS) principles, and frontline workers such as Masons, FSM operators, and focal persons lacked targeted technical training. These gaps posed challenges in maintaining infrastructure quality, ensuring inclusive services, and sustaining long-term FSM efforts.

To build institutional ownership and operational expertise, Waling Municipality, in collaboration with ENPHO, rolled out a series of structured capacity-building programs aimed at diverse sanitation actors.

The training included:

- Introduction to the CWIS Approach for municipal leadership, including the Mayor and Deputy Mayor
- Training on Standard Septic Tank Construction for local masons to ensure proper containment
- GESI in Sanitation sessions for WASH focal persons to strengthen equity and inclusion in sanitation service delivery
- Operation & Maintenance (O&M) of FSTP for plant operators to enhance daily functionality and safety
- CWIS Training of Trainers (ToT) for municipal WASH engineers to replicate learning within and beyond Waling
- Mentor City Orientation involving 36 municipal staff and leadership to build confidence in representing Waling as a national sanitation learning hub.

The series of training led to visible improvements in Waling's sanitation governance and service delivery. Municipal leaders began integrating CWIS principles into local planning, budgeting, and decision-making, aligning strategies with inclusive sanitation goals. Trained masons started applying standard septic tank construction techniques in new buildings, improving the quality of containment and reducing environmental risks. FSTP operators enhanced their operational practices, ensuring better performance, safety, and maintenance of the treatment plant. WASH focal person became more equipped to address gender and social inclusion, ensuring that sanitation services reach all community members equitably. Municipal engineers who received CWIS ToT have begun replicating knowledge within the municipality and supporting peer learning. Moreover, the Mentor City Orientation empowered Waling's officials to confidently host learning visits, effectively showcasing the municipality's FSM journey to 36 visiting municipalities. These outcomes reflect a significant shift from infrastructure-focused progress to a more professional, inclusive, and sustainable sanitation system embedded within the municipal structure.

"Before the GESI training, I mostly viewed sanitation from a technical and service delivery angle. But the training completely shifted my perspective. I realized that if our sanitation systems don't consider the specific needs of women, children, people with disabilities, and marginalized communities, we are not truly being inclusive. Now, when we plan or implement sanitation programs, I make it a point to ask—who might be left out? The training has empowered me to advocate for equitable budgeting, inclusive facility design, and meaningful community engagement. It has helped me move from being just a service provider to becoming a more sensitive and responsive WASH professional."

Er. Dhurba Regmi, WASH Focal Person, Waling
Municipality

CHALLENGES

Waling Municipality confronted several challenges during the initiative, which it successfully addressed through targeted strategic actions. Key obstacles included the lack of an established sanitation framework, insufficient technical expertise, gaps in infrastructure, and limited emphasis on faecal sludge management at the household level. By implementing comprehensive measures such as policy formulation, enhancing capacity, upgrading infrastructure, and fostering community participation, the municipality effectively overcame these barriers to deliver inclusive and sustainable sanitation services.

S.N.	Challenges	Scenario / Case	Strategic Measures Implemented
1	Lack of Structured Sanitation Framework	Sanitation practices were inconsistent due to no municipal FSM policy, guidelines, or enforcement mechanisms. Poorly built toilets, unmanaged sludge, and pollution prevailed.	<ul style="list-style-type: none"> • Developed and endorsed FSM policy (2019) • Integrated FSM into building permit process • Adopted CWIS approach to ensure inclusive and systematic sanitation • Created a municipal roadmap via DPR for infrastructure development
2	Poor Public and Household Perception of FSM	FSM was viewed as unnecessary once toilets were built; emptying was rare (only 4%) and unsafe disposal was common. Sanitation was equated with toilet access only.	<ul style="list-style-type: none"> • Conducted awareness campaigns on sanitation beyond toilets • Used SFD as a visual tool to communicate hidden risks • Promoted scheduled desludging and safe emptying through training and policy
3	Inadequate Containment and Infrastructure	Over 90% of systems were unsafe connected to soak pits or drains. 1.1% are still discharged into open areas. No sewerage or treatment facilities existed.	<ul style="list-style-type: none"> • Constructed and operationalized 6 m³/day FSTP (2020–2021) • Made standard septic tank construction mandatory • Promoted biogas digesters and on-site treatment technologies
4	Low Institutional and Technical Capacity	Municipality lacked FSM-specific units, trained engineers, and operational guidelines. Masons and FSTP operators had limited technical knowledge.	<ul style="list-style-type: none"> • Delivered CWIS and GESI training for staff and WASH focal persons • Conducted ToT for engineers • Trained masons on Septic Tank Construction • Strengthened O&M skills of FSTP operators
5	No Platform for Knowledge Sharing & Learning	Despite progress, Waling had no mechanism to share lessons or host peers. The FSTP was underutilized, and the site lacked visibility.	<ul style="list-style-type: none"> • Upgraded FSTP with better technology and landscaping (2024) • Recognized as a Mentor City and sanitation tour host • Hosted exposure visits and shared FSM learnings nationally

KEY LEARNINGS

- **SFD as a Catalyst for Evidence-Based Planning**

The Shit Flow Diagram (SFD) proved instrumental in revealing critical gaps in the sanitation value chain, despite the municipality's Open Defecation Free (ODF) status. It served as a powerful diagnostic and advocacy tool, enabling data-driven decision-making and laying the groundwork for a comprehensive Faecal Sludge Management (FSM) strategy.

- **Leadership Commitment as a Cornerstone of Sanitation Transformation**

The municipality's progress underscores the pivotal role of strong and visionary leadership. Proactive engagement by elected officials and municipal staff facilitated timely policy formulation, resource allocation, and institutional ownership of sanitation initiatives.

- **Reconceptualizing the FSTP as a Multi-Functional Sanitation Centre**

By redesigning the Faecal Sludge Treatment Plant (FSTP) as a public-friendly Sanitation Centre—with informative signage, 3D models, animation videos, and site beautification—Waling successfully enhanced community acceptance, improved transparency, and positioned the site as a national demonstration and learning facility.

- **Public Awareness Beyond Toilet Access is Critical**

The experience of Waling demonstrates that achieving ODF status is not sufficient. Transformative sanitation outcomes require widespread community understanding of the entire sanitation service chain, including safe containment, scheduled emptying, treatment, and end-use or disposal.

- **Capacity Development is Fundamental to System Sustainability**

The municipality invested significantly in building technical and institutional capacities. Targeted training for masons, FSTP operators, engineers, and municipal focal persons enhanced the quality, safety, and inclusivity of sanitation services while embedding Citywide Inclusive Sanitation (CWIS) principles into governance structures.

- **Institutionalization through Policy and Regulatory Frameworks**

The formulation and endorsement of a municipal FSM policy, linked to building permits and regulatory compliance, ensured a systemic shift towards safe containment and long-term sanitation planning. These frameworks aligned local efforts with national sanitation priorities and global Sustainable Development Goals (SDGs).

- **Strategic Knowledge Sharing Elevates Municipal Leadership**

Waling's recognition as a Mentor City and host for national sanitation tours established its role as a thought leader in inclusive urban sanitation. Structured learning exchanges with peer municipalities have amplified the municipality's impact and facilitated model replication.

- **Monitoring of Emptying and Disposal is Essential for Environmental Safety**

The municipality identified that robust monitoring mechanisms for desludging practices are essential to prevent indiscriminate disposal and to safeguard environmental and public health, reinforcing the need for ongoing regulation and oversight.

WAY FORWARD

Building on its success, Waling Municipality stands at a pivotal point to transition from demonstration to long-term sustainability and national influence in urban sanitation. To preserve the momentum and ensure that its achievements are institutionalized and scalable, the municipality must focus on strengthening systems, fostering collaboration, and embedding innovation in its future actions. The following priorities outline a clear path ahead:

1. Strengthening operational systems and institutionalize practices

- Formalize scheduled desludging services to ensure regular, safe emptying.
- Improve regulatory enforcement for safe containment and disposal.
- Institutionalize FSM practices across departments for consistency and sustainability.

2. Build technical capacity across all levels

- Provide ongoing training to sanitation workers, desludging operators, and FSTP staff.
- Enhance technical support for municipal staff managing FSM systems.

3. Promote community engagement and behavior change

- Conduct regular public awareness campaigns to address misconceptions about FSM.
- Use behavior change communication strategies to increase public participation and ownership.

4. Deepen inter-municipal collaboration

- Facilitate learning exchanges and mentoring support to other municipalities.
- Share tools, experiences, and templates to support replication of best practices.

5. Integrate climate-resilient and circular sanitation approaches

- Promote resource recovery from sludge and wastewater (e.g., biogas, compost).
- Upgrade systems to be more adaptive to climate risks like flooding or drought.

6. Document and share Waling's learning journey

- Produce case studies, knowledge products, and documentation for broader dissemination.
- Engage with federal and provincial governments to influence sanitation policy and planning.

7. Establish Waling as a replicable model for other municipalities

- Inspire other municipalities to learn from Waling's approach and replicate it using their own resources and context.
- Demonstrate how sustainable sanitation practices can be implemented locally, improving health and environmental outcomes.
- Facilitate the broader adoption of Waling's model, contributing to Nepal's overall sanitation transformation.

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