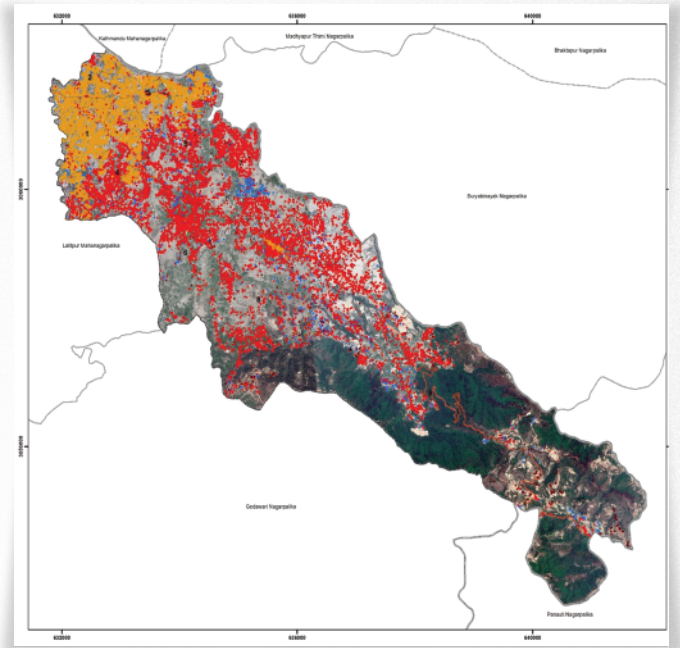


Integrating NS-ISO 24521 Certified Guidelines into FSM By-Laws to Ensure City Wide Inclusive Sanitation Services: The Nepal Story

A. Context

When you flush your toilet, where does it go? Wastewater from 30%¹ urban homes is whisked away by sewer network which could be either connected to a treatment plant or discharging untreated wastewater. Sludge from septic tank owners – 70% urban homes – is dumped randomly into nearby water bodies or marginal lands without any treatment with severe public health and environmental consequences. Safe water and sanitation services is accorded as a fundamental human right in Constitution of Nepal (2015). While the country was declared ODF in September 2019, safely managed sanitation services is dismally poor due to lack of political will, inadequate programme and investment priorities, weak capacity and design standards, and non-existence regulation.

Located in southern periphery of Kathmandu Valley, Mahalaxmi Municipality is one of the most rapidly urbanizing Municipalities² in Nepal with 28,000 households. Two-third population still rely on on-site sanitation services as only core areas are sewerred, constructed by the federal Government (see map on the right where red depicts on-site sanitation). House owners call upon informal desludging services only when their septic tanks begin to overflow.



Given that Municipality was declared ODF in 2017, additional sewerred network expansion has not been programmed for immediate future, and that non-sewerred areas are somewhat scattered, Municipal authorities realized importance of non-sewerred sanitation solutions for ensuring “no one is left behind.” As a key strategy to realizing its vision of a “clean, hygienic, prosperous city”, the Municipality is testing ISO 24521 guidelines, using the City Wide Inclusive Sanitation (CWIS) Service Framework, for safely managed on-site sanitation services in partnership with Kathmandu Valley Water Supply Management Board (KVWSMB), Nepal Bureau of Standards and Metrology (NBSM), BMGF, GGGI and ENPHO.

B. Integration of ISO 24521 Guidelines with CWIS Service Framework

What is ISO 24521 Guidelines?

This International Standard provides guidance for the management of basic on-site domestic wastewater services. It includes:

- Guidelines for the management of basic on-site domestic wastewater services from the operator’s perspective, including maintenance techniques, training of personnel and risk considerations;
- Guidelines for the management of basic on-site domestic wastewater services from the perspective of users;
- Guidance on the design and construction of basic on-site domestic wastewater systems; and
- Guidance on planning, operation and maintenance, and health and safety issues

¹ Central Bureau of Statistics, 2011

² On any working day, the Municipality issues design permits to 5 new houses for construction



CWIS – The Enabling Framework

CWIS is characterized by seven fundamental principles³ as: 1. Everyone in an urban area, including the urban poor, benefits from equitable, safe sanitation services, 2. Gender and social equity are designed into planning, management and monitoring, 3. Human waste is safely managed along sanitation service chain, starting with containment, 4. Authorities operate with a clear, inclusive mandate, along with performance targets, resources, and accountability, 5. Authorities deploy a range of funding, business, and hardware approaches – sewered and non-sewered, to meet goals, 6. Comprehensive long-term planning fosters demand for innovation and is informed by analysis and needs/resources, 7. Political will and accountability systems incentivize service improvements in planning, capacity and leadership.

CWIS Service Framework capturing a simplified set of core outcomes and functions of a public service delivery system for sanitation, as applied in Mahalaxmi, is presented below.

Demonstrating Integration of ISO 24521 into FSM By-Laws for CWIS Services

SERVICE OUTCOMES	<p style="text-align: center;">Equity</p> <ul style="list-style-type: none"> • Co-existence of Sewered Sanitation (33%) and Non Sewered Sanitation (67%) • 20,000 houses, relying on NSS, have standard septic tanks as integral part of new house construction permits and have containment upgrades in 1000 “hotspots” houses to begin with and gradual expanded thereafter • Poor, vulnerable, and scattered houses are covered through customized provisions backed up by incentive schemes and tax rebates both on NSS and tertiary sewered connection, ensuring “no one is left behind” 	<p style="text-align: center;">Safety</p> <ul style="list-style-type: none"> • By 2025, 20,000 houses have access to safely managed sanitation services – safe containment, safe transportation, safe treatment and end use • Front line sanitation workers fully practice occupational health and safety measures • FSTP effluent meets nationally defined wastewater standards • Resilience against future public health risks 	<p style="text-align: center;">Sustainability</p> <ul style="list-style-type: none"> • Opex fully covered for the first three years as part of FSTP construction and operation contract issued by KVWSMB • By 2025, revenue earned through robust application of Service and Business Model, combined with waste-to energy, increasingly meet institutional and financial sustainability while also contributing to circular economy • Well trained human capital making Sanitation MIS functional • By 2025, 10 Municipalities adopt Integration Model
SYSTEM FUNCTIONS	<p style="text-align: center;">Responsibility</p> <ul style="list-style-type: none"> • As an integral part of Municipality structure, a dedicated and empowered Sanitation Cell spearheads sanitation to contribute Municipality’s vision of a “clean and beautiful city” • Operationalization of regulation through Municipal approved FSM By-laws • Service and Business Model is governed by public-private partnership: (1) two “licensed” private operators for scheduled desludging services, (2) A fully trained private FSTP operator, and (3) A local private entrepreneur ensuring supply chain management 	<p style="text-align: center;">Accountability</p> <ul style="list-style-type: none"> • Defined KPIs is applied for service operation, monitoring and oversight • Sanitation Cell demonstrate aptitude, skills and competence in applying and enforcing FSM By-laws including penalty for non-compliance • Grievance redress mechanism in Sanitation Cell 	<p style="text-align: center;">Resource Planning and Management</p> <ul style="list-style-type: none"> • Application of Sanitation MIS for evidence based decision-making and equitable resource allocation in Municipal plan and budget • Promotional campaign (audio-visual and social media platforms) for public awareness and support • Knowledge catalyst (train, educate) for demonstration of ISO 24521, CWIS Plan and FSM By-laws in 25 Municipalities • Federal and Municipal policies and practices are influenced in safely managed sanitation services

C. Results

The key results, during 18 months of project implementation, include:

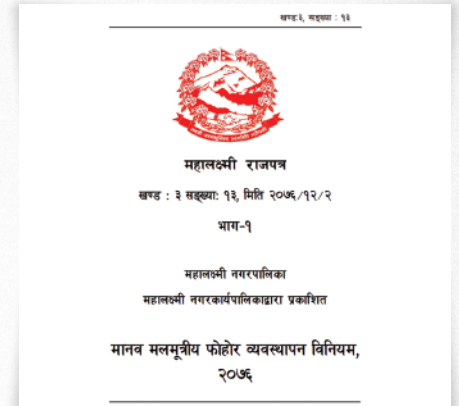
Approved ISO 24521 Guidelines: The issue of NS/ISO 24521 guidelines by the NBSM lends credibility and recognition to the Project work being piloted in Mahalaxmi Municipality which, in turn, provides legitimacy for scaling up.

Municipal Leadership: Since ODF declaration in 2017, the Mayor has been demonstrating steadfast commitment recognizing the urgency for addressing unregulated septage practices in Mahalaxmi. Informed by GIS-based Sanitation Situation Assessment, development of City-Wide Inclusive Sanitation Plan coupled with learning and advocacy have contributed to policy reforms.

Dedicated Sanitation Cell: Operationalization of sanitation services is spearheaded by a fully empowered Sanitation Cell overseeing planning, management and regulation of FSM. Strategic collaboration framework signed between Municipality, Global Green Growth and ENPHO is aimed at strengthening partnerships to contribute to the realization of safely managed sanitation services.

FSM By-laws: This is the first time in Nepal that a specific By-laws⁴ on FSM (2020) has been enacted by Mahalaxmi Municipality. With clear provisions for regulating the entire sanitation chain, safe management of containment, transport, treatment and end use can be revolutionized in the coming months. The unique features of FSM By-laws include:

(a) scheduled desludging of septic tanks once in three years especially in new houses, and as a precondition during sale and buying of properties and in the vulnerable areas with inherent risks to nearby water wells (b) occupational health and safety (c) prohibited acts and penalty for non-compliance and (d) CWIS principles. It will require unrelenting “political will” and public awareness and support, but the solid foundation has already been laid in the municipality.



Containment Improvement: Municipality has adopted a two pronged strategy as follows:

Types	Measures
New construction	As per FSM By-laws, application of standard septic tanks is mandatory in new house construction permits
Improvement	Ready to install system, septic tank cast-in-situ



“The construction of the tanks has been made mandatory in all new house design permits.”

Mr. Rameshor Shrestha,
Mayor, Mahalaxmi Municipality

Service and Business Model: Based on PPP model, Kathmandu Valley Water Supply Management Board (KVWSMB) plans to issue a bid by mid-Sept 2020 for soliciting contractors for USD 417,000-FSTP construction, jointly financed by the Board and Municipality at 80:20. It is expected that construction will be completed by December 2021, after which commissioning phase will commence. Two licensed operators will be engaged in scheduled desludging and transportation services.

⁴ <http://mahalaxmimun.gov.np/en/act-law-directives>

Public Private Partnership

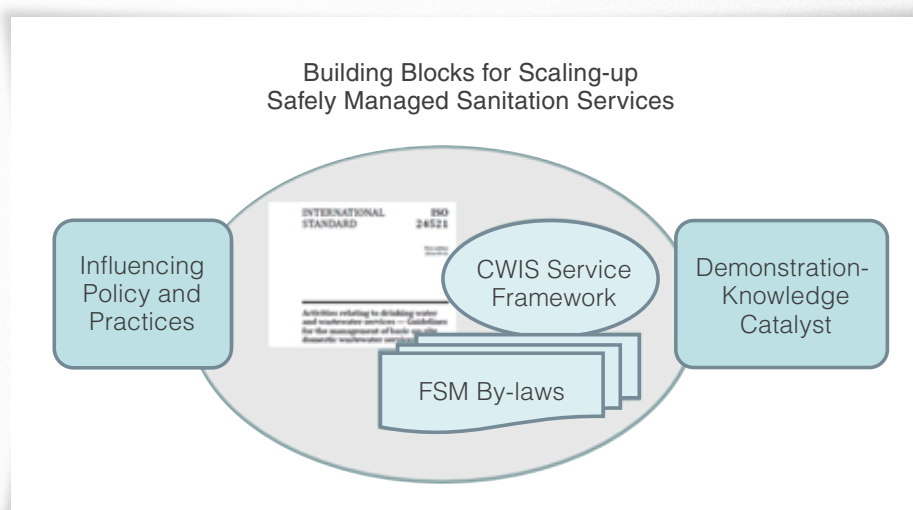
Elements	Desludging and Transport	FSTP
Operation	2 Private Desludging and Transport Operators (area delineation)	Private FSTP Operator
Operating Instrument	Licensing agreement between Municipality and operators	Construction and O&M Contract with built-in KPIs
Service Fees/Tariff	Business Model	O&M cost for 3 years provided for by KVWSMB in contract, sustained through fees earned by application of Business Model
Regulator	Municipality as per licensing agreement	KVWSMB for three years then handover to Municipality
Beginning 4th year, whole FSM service chain planned for operation by a FSM Utility Operator		

D. Demonstration for Scaling Up

The effective application of ISO 24521 guidelines, coupled with FSM By-laws as a regulatory instrument, for the management of basic on-site domestic wastewater services in Mahalaxmi Municipality not only has garnered public support but also its explicit linkage with CWIS service framework has gained interest from other Municipalities as well.

Going forward, there is a clear merit for the Project to use this **proven model as a knowledge demonstration catalyst** to train, educate and influence other Municipalities and thereby help them emulate and improve policy and practices in their respective areas in partnership with Municipal Association of Nepal.

As Nepal experiences rapid urbanization, scaling up of this model is the key to contribute Nepal realize its SDG6.2 target of safely managed sanitation services to 90% (2030) from 30% (2015).



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Rosy Singh, Bhawana Sharma, and Sanjaya Adhikary

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Rowan Fraser, and Luna Kansakar, GGGI



Environment and Public Health Organization

110/25 – Aadarsha Marg, New Baneshwor | P.O. Box 4102, Kathmandu, Nepal

Tel.: +977-1-5244641, 5244051 | Fax : +977-1-5244376

Email. enpho@enpho.org | web : www.enpho.org