Coordination Among Government Tiers for Safely Managed Sanitation in Nepal: How Local Government Can Sustainably Operate a Large Scale Wastewater Treatment Plant Built by Federal Government?

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1. Introduction/ Background

While the constitution of Nepal, 2015 emphasize coordination & partnership among the **three tiers of government in Nepal i.e. FEDERAL, PROVINCIAL and LOCAL Governments** for effective governance, this paper discuss the coordination among three tiers of government towards sustainable operation of a large scale wastewater treatment plant (WWTP), such as Guheshwori WWTP.

Guheshwori WWTP [**32.4 MLD** serving **0.3 million** population]

1995 — Conceptualization
30 years back, the idea of saving Bagmati river civilization along with the holy river water protection intrigued the Guheshwori WWTP project, acquiring 100 ropanis of land by the then government.

2001 — Phase I [16.2 MLD; 190 lps]
Since 2001, Nepal Government operated the GWWTP: an Activated sludge system with self-funded initiative titled **'Pashupati Area Sewerage System Development'**

2016 — Change in 15 Years
Population growth in surrounding Gokarna, Boudha, and Gothatar areas increased wastewater inflow beyond 190 lps, causing overflow. It prompted government to seek an ADB loan for capacity expansion and rehabilitation.

2020 — Phase II [32.4 MLD]
Rehabilitation & Expansion of Phase II was completed and operation resumed.

2. Methodology

The paper is based on the experts panel discussion at the national level workshop dialogue, consultation and review of Acts, Policies, Regulations and documents. Eight key questions were formulated to ask the local leaders and key officials engaged with the three tiers of government, namely; Ministry of Water Supply, Bagmati Province - Provincial Assembly Member, Local Government (Kathmandu Metropolitan City Office) and Project Implementation Directorate as an utility operator of Guheshwori WWTP.

5. Recommendations

1. Inter-ministerial coordination is needed (e.g., Ministry of Agriculture for sludge use as fertilizer, Ministry of Industry & Commerce for treated effluent from large WWTPs reuse in industries, Ministry of Health for implementation of hospital wastewater effluent standards).
2. Responsibility of Operation and Maintenance of the WW Management System should be well agreed among/ between government tiers from the design phase.
3. A Mutual Accountability Mechanism should be developed among horizontal and vertical governments.
4. Sector Ministry to collaborate with the Tariff Fixation Commission to ensure WWTP revenue generation.
5. Plan for future expansion to accommodate increased wastewater volumes (e.g. Guheshwori WWTP expansion, in section 1 above).
6. With availability of the Federal Water Supply and Sanitation Regulation 2025, develop provincial/local regulations tailored to local conditions.

References:
- Chitrakar, Y. (2024), 'Assessment of Operational Challenges of WWTP: A Case Study of Guheshwori WWTP', Masters Thesis, Pokhara University, Nepal
- Water Supply and Sanitation Act, 2022; Section 8, Sub-Section 2 and 6
- Water Supply and Sanitation Regulation 2025; Section 3, Sub-Section 1
- Local Government Operation Act, 2017

Acknowledgement: Ministry of Water Supply – Department of Water Supply & Sewerage Management (DWSSM), Water Aid Nepal, SOPHEN, Experts and panelists at the World Toilet Day 2024.

3. Findings

Roles of Three Government Tiers

Few criteria to decide upon the responsibility and obligation of three government tiers towards a large scale wastewater project category;

NPR	> 500 million	150 – 500 million	0 – 150 million
Beneficiary — Terai	> 15000	8000 - 15000	< 8000
Beneficiary — Hill	> 5000	2000 - 5000	< 2000
Beneficiary — Mountain	> 1000	500 - 1000	< 500
	> 2 MLD	N/A	N/A
Responsibility & Obligations of	**FEDERAL Government**	**PROVINCIAL Government**	**LOCAL Government**

FEDERAL Government
- ✓ Projects related to large and complex nature, co-financing, foreign aid, coverage of more than one province, multi-purpose waste-water treatment and management requiring large investments, and monitoring
- ✓ Project related to more than one province or Project prescribed by the GoN or requested by Provincial government

PROVINCIAL Government
- ✓ Wastewater Management & Treatment
- ✓ Implement project requested by Local government, and
- ✓ Projects affecting more than one local level within province

LOCAL Government
- ✓ Operation of Wastewater Management systems,
- ✓ Maintenance & Rehabilitation of sanitation projects operated by the local level,
- ✓ Management of treated solid and liquid waste discharged from wastewater management system
- ✓ Enhancing public awareness regarding sanitation

Key Challenges

- ❖ Limited and inefficient Human Resource (for system performance & monitoring)
- ❖ Tariff collection from service area for the operation of WWTP
- ❖ Sludge Management; due to large volume (including industrial & hospital sources) and extra treatment needed for agriculture use
- ❖ Public offence while selecting location for WWTP and FSTP

Prediction of sludge management challenge in next few years

2024: 7 ton/day

Increase in sludge production after **additional 160 MLD WWTP** will operate in Kathmandu valley beside the existing 32.4 MLD WWTP

2027: 30-35 ton/day

4. Conclusion

- ❖ **A local government solely cannot manage the operation of large WWTP** as sewerage has been collected from more than single municipality and the operation shall be at inter-city level.
  One example below;

(Lalitpur Metropolitan city) **Dhobighat WWTP** ← Wastewater inflow from 10 municipalities of **Kathmandu Valley**

- ❖ Local government needs support and coordination from both Federal & Provincial governments, in terms of finance, technical human resources and preparing regulations.