Global Gateway

Economic and Financial Analysis and Assessment of Business Models for Faecel Sludge Treatment Plants in Northern Ghana

GHANA

URBAN DEVELOPMENT TECHNICAL FACILITY (UDTF)

#GLOBALGATEWAY

JULY 2026

Project rationale

The European Union Delegation (EUD) in Ghana initiated Phase 2 of the EU-Ghana Partnership for Sustainable Cities in March 2024, aiming to support urban infrastructure for climate change adaptation and mitigation, and to promote urban governance and social inclusion. A key objective of this phase is to improve access to sustainable sanitation services in urban areas of northern Ghana through targeted interventions, including the development of faecal sludge treatment plants (FSTPs). The EUD specifically tasked the Urban Development Technical Facility to review existing economic and financial analyses for FSTPs in Bolgatanga, Wa, and Yendi, and to assess business models that could attract private sector participation (PSP) in the management of these proposed plants. The EUD expressed a strong preference for involving the private sector in FSTP management.

Background

Faecal sludge in the cities of Bolgatanga, Wa, and Yendi is currently untreated, as these areas lack FSTPs. A review of economic and financial analyses for proposed FSTPs in these cities identified several key challenges and issues regarding their feasibility and management:

- **Limited financial sustainability of FSTPs.** The proposed FSTPs are economically viable, mainly because of their potential to reduce mortality from diarrhoea, which remains one of the leading causes of death in Ghana. However, the proposed FSTPs are not financially self-sustaining from revenue generated through tipping fees and the sale of by-products, and will therefore require some form of external support.
- **Limited scope for private sector efficiency gains.** While the rationale for PSP includes potentially efficiency gains, there is limited scope for private operators to significantly reduce the O&M expenditure, which are already low (compared to capital expenditure) and largely fixed. Their ability to increase tipping fee revenue is also restricted because fees are set by the municipality, and sludge volumes depend heavily on municipal enforcement of timely desludging and prevention of illegal dumping.

Findings and recommendations

The review of economic and financial analyses, as well as business models for the proposed faecal sludge treatment plants (FSTPs) in Bolgatanga, Wa and Yendi revealed key challenges in the following areas:

- **Financial non-viability of FSTPs from user revenue**
- **Central role of municipal enforcement in plant utilisation**
- **Limited scope for efficiency gains through private sector participation**

THEMATIC AREAS:

- **Sustainable Sanitation Services**

FUNDED BY:

European Union (EU-Ghana Partnership for Sustainable Cities)

KEY STAKEHOLDERS:

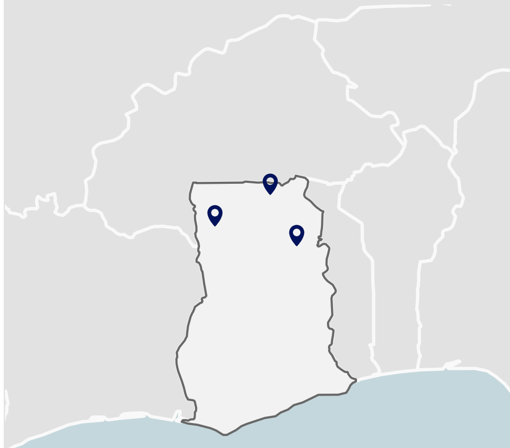
Municipal Governments (Bolgatanga, Wa, Yendi), Central Government (Ministry of Sanitation and Water Resources), private sector entities

DURATION OF THE UDTF ASSIGNMENT:

March-July 2025

PROJECT REGION:

Northern Ghana, specifically the cities of Bolgatanga, Wa, and Yendi



Above: Map of Ghana

- **Financial non-viability of FSTPs from user revenue**

The re-evaluation of the financial analysis, based on more realistic assumptions for sludge volumes, tipping fees and service coverage, confirmed that none of the proposed FSTPs is financially viable based on tariff revenue alone. Revenue from tipping fees and by-product sales can cover only a small portion of the capital expenditure and, under the revised assumptions, remains insufficient to fully offset operations and maintenance (O&M) expenditure.

Nonetheless, the plants retain strong economic viability, primarily due to their potential to reduce mortality from diarrhoea, which is a leading cause of death in Ghana. Given constrained fiscal space, the municipal governments of Bolgatanga, Wa and Yendi cannot contribute significantly from their own budgets.

Recommendations:

- Secure public financing for the capital expenditure of the plants, drawing on the National Sanitation Fund, an EU grant to the Government of Ghana, a sovereign loan from an international financial institution (such as the EIB or KfW), or a combination of these.
- Do not rely on tipping fees and by-product revenue to recover capital expenditure; treat them as a contribution to O&M cost recovery.
- Plan for sustained public support to complement user revenue during the operational life of the plants.

- **Central role of municipal enforcement in plant utilisation**

The successful utilisation of FSTPs depends heavily on decisions and enforcement actions that fall under municipal responsibility: setting tipping fees, enforcing regular desludging of septic tanks and cesspits, and preventing illegal dumping by sludge trucks. Households and businesses have a financial incentive to delay emptying their septic tanks, and truck operators have an incentive to avoid tipping fees, both of which reduce the volume of sludge actually delivered to the FSTP. Without active municipal engagement, sludge volumes and revenues will be systematically below plant potential, regardless of the operating arrangement chosen.

Recommendations:

- Formally grant the FSTPs to the municipal governments of Bolgatanga, Wa and Yendi, even where the central government finances construction.
- Anchor municipal responsibility for setting and updating tipping fees, enforcing desludging requirements, and controlling illegal dumping in the operating framework of the plants.
- Build monitoring and enforcement capacity at municipal level in parallel with the construction of the plants.

- **Limited scope for efficiency gains through private sector participation**

Private sector participation (PSP) is often justified by expected efficiency gains, but the scope for such gains in FSTP management is objectively limited. O&M expenditure is already low and largely fixed; tipping fees are set by the municipality; and sludge volumes depend on municipal enforcement.

Private operators are best placed to increase revenue from the sale of by-products such as compost and biosolids, but this in turn depends on sludge volumes. Most existing FSTPs in Ghana operate under simple service contracts, which offer municipalities little scope to benefit from performance improvements. More elaborate public-private partnership arrangements face constraints on both the municipal side (risk aversion, capacity limitations) and the private side (limited contractor interest for small plants).

Recommendations:

- If the municipal governments wish to involve the private sector, start with a simple management contract of up to three years.
- Include a small number of easy-to-monitor, performance-based elements fully under the control of the contractor, such as plant uptime and the quantity of compost sold.
- Allocate to the private sector the risks it can best manage (O&M performance, regulatory compliance, revenue from by-products), and keep tipping-fee and demand risk on the public side.

  Use the initial contract as a learning phase, paving the way for more complex arrangements if experience is positive.

Lessons learned

The review of the FSTPs planned for Bolgatanga, Wa and Yendi highlights that faecal sludge treatment is best approached as a public service and public-health investment rather than a commercial venture, with private sector participation targeted where it genuinely adds value. Key lessons include:

FSTPs are economically valuable but not financially self-sustaining

The primary benefit of the plants lies in reducing mortality from diarrhoea, not the revenue they generate. Revenue from tipping fees and the sale of by-products can cover only a fraction of the capital expenditure and, under realistic assumptions, falls short of fully funding O&M. This is a structural feature of FSTPs in Ghana and elsewhere, and needs to be built into their financing strategy from the start.

Municipal ownership and enforcement drive plant utilisation

Even where central government or development partners finance the plants, their day-to-day performance depends on tools that only municipal governments control: the setting of tipping fees, the enforcement of regular desludging, and the prevention of illegal dumping. Formally granting the plants to the municipal governments is therefore not only an ownership matter but a way of aligning responsibility with the levers of implementation.

A phased, pragmatic approach to private sector participation yields better results

Given the limited scope for efficiency gains and the constraints on both the municipal and private sides, PSP is more likely to succeed if it starts small. A simple, short-duration management contract with a few well-chosen performance indicators allows municipalities to gain experience with performance incentives at low risk, and creates the conditions for more complex arrangements later. Revenue from the sale of by-products, where private operators are genuinely best placed to add value, deserves particular attention as an incentive lever.