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A Review of Fecal Sludge Management in 12 Cities

Annexure A.2
Tegucigalpa, Honduras

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FINAL DRAFT

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Link to full report: http://www.susana.org/en/resources/library/details/2212

A.2 Tegucigalpa, Honduras

All data sourced from Ortuste (2012) except where shown.

A.2.1. Summary

Population (millions)	1.3
Percentage of households using on-site sanitation or open defecation	19%
Percentage of total fecal waste (sewage and fecal sludge) safely managed	6% to 11%
Percentage of sewage safely managed	8%
Percentage of fecal sludge from OSS safely managed	0% to 25%

FSM Framework	Poor
FSM Services	Poor
City Type	1

The sanitation service in Tegucigalpa is essentially a failed sanitation service chain with only a fraction of the waste generated being treated and disposed of safely. The majority of the waste (an estimated 81%) is contained and transported in a sewer network that discharges largely untreated wastewater into the environment (Ramirez, 2013). The FSM service is poor with none of the sludge emptied from on-site sanitation being treated and disposed of (or reused) safely while only a small volume of fecal waste is contained safely in traditional pit latrines and septic tanks.

A.2.2. Institutional framework

Brief summary of who is responsible for urban sanitation in the country and in the city if different…

At the national level, the National Autonomous Water and Sewerage Service (SANAA) is the operator responsible for water and sanitation services. Since 2003 and the promulgation of the Decrees 118-2003 and 180-2003, a process of decentralisation has been ongoing. These Decrees transfer responsibility for water and sanitation (although not explicitly for fecal sludge management) to the municipalities (including Tegucigalpa City Government) but progress has been slow. A new Framework Law on Water, which regulates the discharge of wastewater into receiving water bodies, does not cover the collection of and disposal of fecal sludge, which remains unregulated.

A.2.3. The FSM scorecard

Description of key points in SDA scorecard….

The FSM scorecard for Tegucigalpa shows that improvement is required in all three pillars. The lack of a supportive enabling environment at national and local level, with weak policy, planning and budgetary capacity, is at the root of the problem. In addition, the low scores in the developing and sustaining pillars across all parts of the sanitation service chain indicate the low level of involvement of the city government in managing the collection and disposal of fecal sludge.

A.2.4. FSM along the sanitation service chain

A brief description of each part of the chain….

Containment:

It is estimated that 3% of the population of Tegucigalpa practice open defecation while 81% are connected to the city's sewer network. The remaining 16% have access to an on-site type sanitation facility; the majority use traditional pit latrines while around one quarter of on-site users have septic tank type systems.

Emptying:

Only a small percentage (approximately 12%) of the non-sewered households use a mechanical pit emptying service. This service is provided by three private companies and also by the water and sanitation provider (SANAA); these companies focus on the industrial, commercial and middle- and upper- income residential customers – neglecting the peri-urban areas. There is no manual emptying in Tegucigalpa. For the purpose of this analysis it seems reasonable to assume that two thirds of the on-site facilities are not emptied and are either abandoned unsafely or overflow to the environment and the remainder are either abandoned safely when they fill up by covering the pit with soil or have not yet filled and currently safely contain the waste.

Transport:

The four sludge collection companies are authorised to transport the waste to sanitary landfills sites or it is dumped illegally. Nevertheless, since disposal to landfill sites is not a safe solution all the sludge emptied from pits (around 2% of fecal waste generated) is disposed of unsafely.

Treatment:

There is no fecal sludge treatment plant in Tegucigalpa and none of the exhausted sludge is taken to the SANAA operated wastewater treatment plant.

Reuse/disposal:

There is no formal reuse of fecal sludge or wastewater in Tegucigalpa.

A.2.5. Outcome

An overview or summary of the situation (i.e. poor FSM service delivery, improving FSM service delivery or partial FSM service delivery)

Overall, the management of fecal sludge in Tegucigalpa is very poor. None of the fecal sludge emptied from pits is treated and only the small proportion contained in covered abandoned pits is safely disposed of. Furthermore, since only 8% of the waste generated from households connected to the sewer network is treated (Ramirez, 2013) it is estimated that as much as 90% of the waste generated in Tegucigalpa is unsafely reused or disposed of to the environment.

References

Ortuste, F. R. (2012). *Living without Sanitary Sewers in Latin America. The Business of Collecting Fecal Sludge in Four Latin American Cities*. WSP, LAC

Ramirez, R. M. (2013). *Personal communication*.

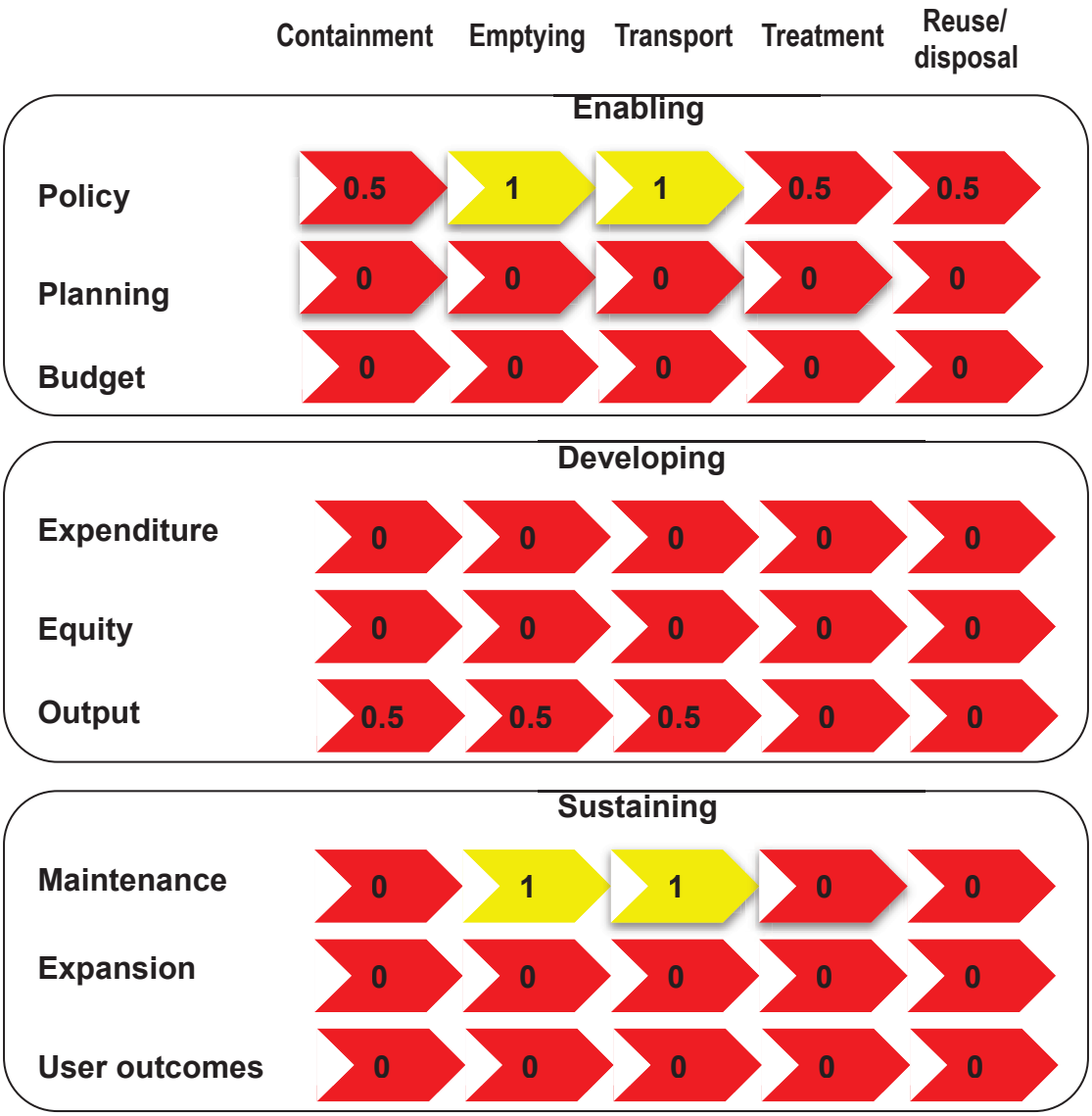
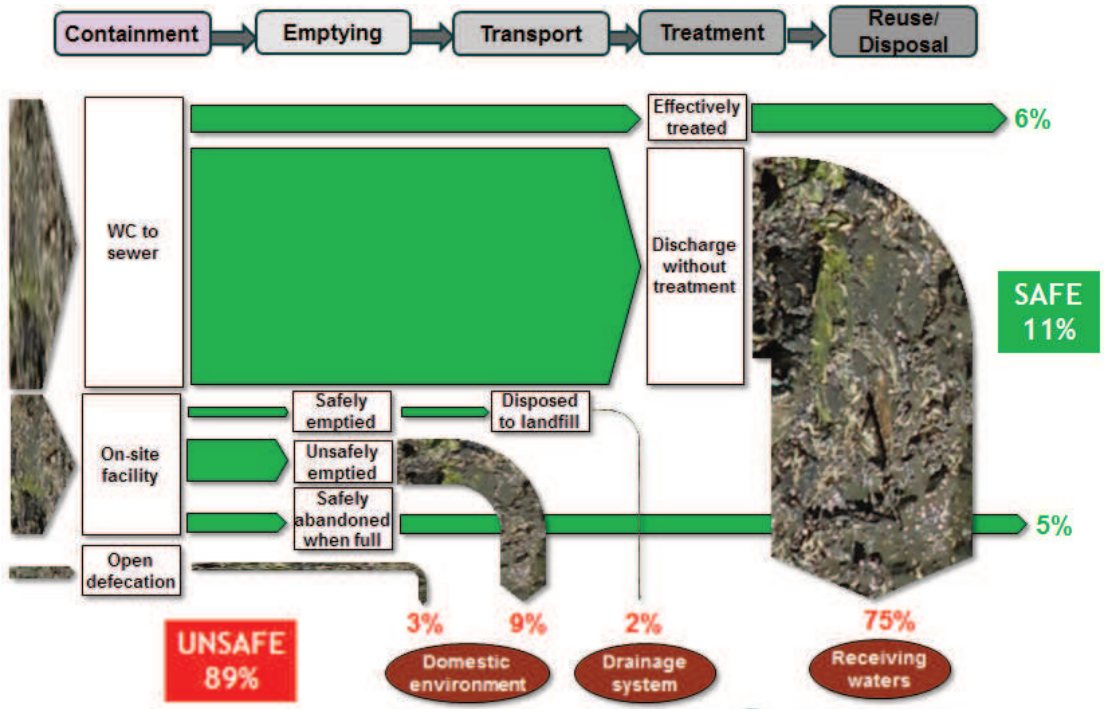


Figure 24: FSM scorecard for Tegucigalpa, Honduras

Fecal waste flow matrix Type of system	*% of FW*	*of which safely collected*	*of which safely delivered*	*of which safely treated*	**Safe: 6% to 11%**
Sewered (off site centralised or decentralised)	81%	100%	100%	8%	**6%**
On-site containment - permanent/emptiable	11%	17%	0%	0%	**0%**
On-site containment - single-use/not emptied/safely abandoned (see note 1)	5%	100%	100%	100%	**5%**
Open defecation	3%	0%			
Unsafe: 89% to: 94%		**12%**	**2%**	**75%**	
Affected zones		*local area & drainage*	*drainage system*	*receiving waters*	

Notes:
1. Single-use/not emptied/safely abandoned on-site containment is considered a safe disposal method but data available is poor so total 'safe' and total 'unsafe' are both shown as ranges.
2: All sources shown in waste flow diagram below.

Figure 25: Fecal waste flow matrix for Tegucigalpa, Honduras



Sources: Open defecation is a nominal 3% (JMP (2012) for urban Honduras).
Sewered: 81% from Ortuste (2012) Table 4.1, page 20; and 8% is treated (Ricardo Mareina Ramirez (2013) Email).
Therefore balance is OSS at 16%
Mechanically emptied: 12% of OSS from Ortuste (2012) Table 6.10, p.43
Disposed of in sanitary landfills: 100% of mechanically emptied from Ortuste (2012) p.31 "fecal sludge is discharged into sanitary landfills.."
Inferred (from Ortuste (2012) p.20) that two-thirds of remaining pits and tanks are abandoned unsafely or overflow to environment when full and one-third are covered safely when full.

Figure 26: Fecal waste flow diagram for Tegucigalpa, Honduras