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A Review of Fecal Sludge Management in 12 Cities

Annexure A.8 Delhi, India

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FINAL DRAFT

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

A.8 Delhi, India

All data sourced from BMGF (2011d) except where shown.

A.8.1. Summary

Population (millions)	16.3
Percentage of households using on-site sanitation or open defecation	25%
Percentage of total fecal waste (sewage and fecal sludge) safely managed	34%
Percentage of sewage safely managed	45%
Percentage of fecal sludge from OSS safely managed	0%
FSM Framework	Poor
FSM Services	Poor
City Type	1

The sanitation service in Delhi is very poor with only a third of the waste generated being treated and disposed of safely. The city's FSM service is extremely unsatisfactory with none of the sludge emptied from on-site sanitation being treated and disposed of (or reused) safely.

A.8.2. Institutional framework

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

In 2008, the Ministry of Urban Development (MOUD) issued the National Urban Sanitation Policy (NUSP). The policy sets goals to: raise awareness and promote behavior change; achieve ODF cities; develop citywide sanitation plans; and provide 100% safe confinement, transport, treatment and disposal of human excreta and liquid wastes. The NUSP mandates states to develop state urban sanitation strategies and work with cities to develop city sanitation plans. Furthermore, it explicitly states that cities and states must issue policies and technical solutions that address onsite sanitation, including the safe confinement of fecal sludge (USAID, 2010).

Nevertheless, the NUSP is relatively new and FSM in India continues to receive little attention and inadequate funding. The Urban Local Bodies (ULBs) who are mandated with responsibility for sanitation in cities are critically understaffed and underfunded.

The provisions for regulating sewage management exist under environmental laws that cover water and disposal of wastewater but management of on-site sanitation and fecal sludge is not covered, except in specifying prohibition of its discharge into water bodies. By default, FSM is covered under Municipal Wastes (Handling and Management) Rules 2000 but separate regulation does not exist and guidelines and enforcement laws are completely absent. This lack of existing local and state policies and management practices is restricting the ULBs capacity to manage FS.

A.8.3. The FSM scorecard

Description of key points in SDA scorecard...

The FSM scorecard for Delhi highlights that framework is weak in all three building blocks. The 2008 NUSP provides a foundation for FSM at the national but weak planning

and budgetary capacity are restricting improvements at the city level. Significantly there are no dedicated fecal sludge treatment plants in the whole of India. The nationally led focus on increasing sanitation coverage – which has resulted in high levels of access to sanitation - is indicated by the slightly higher scores for the containment element of the service chain. However, the generally low scores in the developing and sustaining blocks indicate the low level of involvement of the ULBs (city governments) in managing the collection and disposal of fecal sludge.

A.8.4. FSM along the sanitation service chain

A brief description of each part of the chain....

Containment:

It is estimated that 1% of the population of Delhi practice open defecation while 75% are connected to the city's sewer network¹¹. The remaining 24% have access to an on-site type sanitation facility with the use of traditional pit latrines and septic tank type systems being roughly equal. However, the quality of the containment systems is variable and commonly, in order to avoid having to empty pits and tanks, the owners adapt their facility to allow them to overflow in to open drains and local sewers that discharge into the municipalities storm water sewers.

Emptying:

It is estimated that 29% of the non-sewered households use a mechanical pit emptying service provided by around 35 small 'one-truck' private companies. The service they provide is variable and they operate without any control. Importantly, they do not need a profession-specific license to operate and the Municipal Corporation of Delhi (MCD) does not regulate or supervise their activity.

The Constitution of India has banned manual emptying (known as scavenging) and requires cities to provide scavengers with alternative, dignified work. BMGF (2011d) reports that the prevalence of manual pit emptying has reduced considerably in Delhi in recent years but the practice does continue. Current estimates suggest that around 4% of Delhi households who use on-site sanitation use a manual pit emptier who then buries or dumps the waste locally. Manual emptying remains an occupation carried out by members of the scheduled castes (regardless of whether or not they are government or private employees) and this cultural practice has resulted in low levels of political and societal interest in sanitation and FSM in particular (USAID, 2010).

Transport:

The mechanical sludge emptying companies transport the fecal waste to the three sanitary landfills sites or dump the waste illegally in open drains and on open fields. Nevertheless, since disposal to landfill sites is not a safe solution all the sludge emptied from pits (around 7% of fecal waste generated) is disposed of unsafely.

Treatment:

There is no fecal sludge treatment plant in Delhi and none of the exhausted sludge is taken to the various wastewater treatment plants.

Reuse/disposal:

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

A.8.5. Outcome

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

Overall the management of fecal sludge in Delhi is poor with all of the fecal sludge emptied from pits remaining untreated and unsafely reused/disposed of to the

¹¹ Note: actual coverage of the sewer network is hard to ascertain and varies greatly from 20% (IBNET); 55% (Wall Street Journal, 2012); 73% (Delhi Jal Board, 2004); to 75% (BMGF (2011d))

environment. Furthermore, since only 45% of the waste generated from households connected to the sewer network is treated, it is estimated that at least two-thirds of the total waste generated in Delhi is unsafely reused or disposed of to the environment.

References

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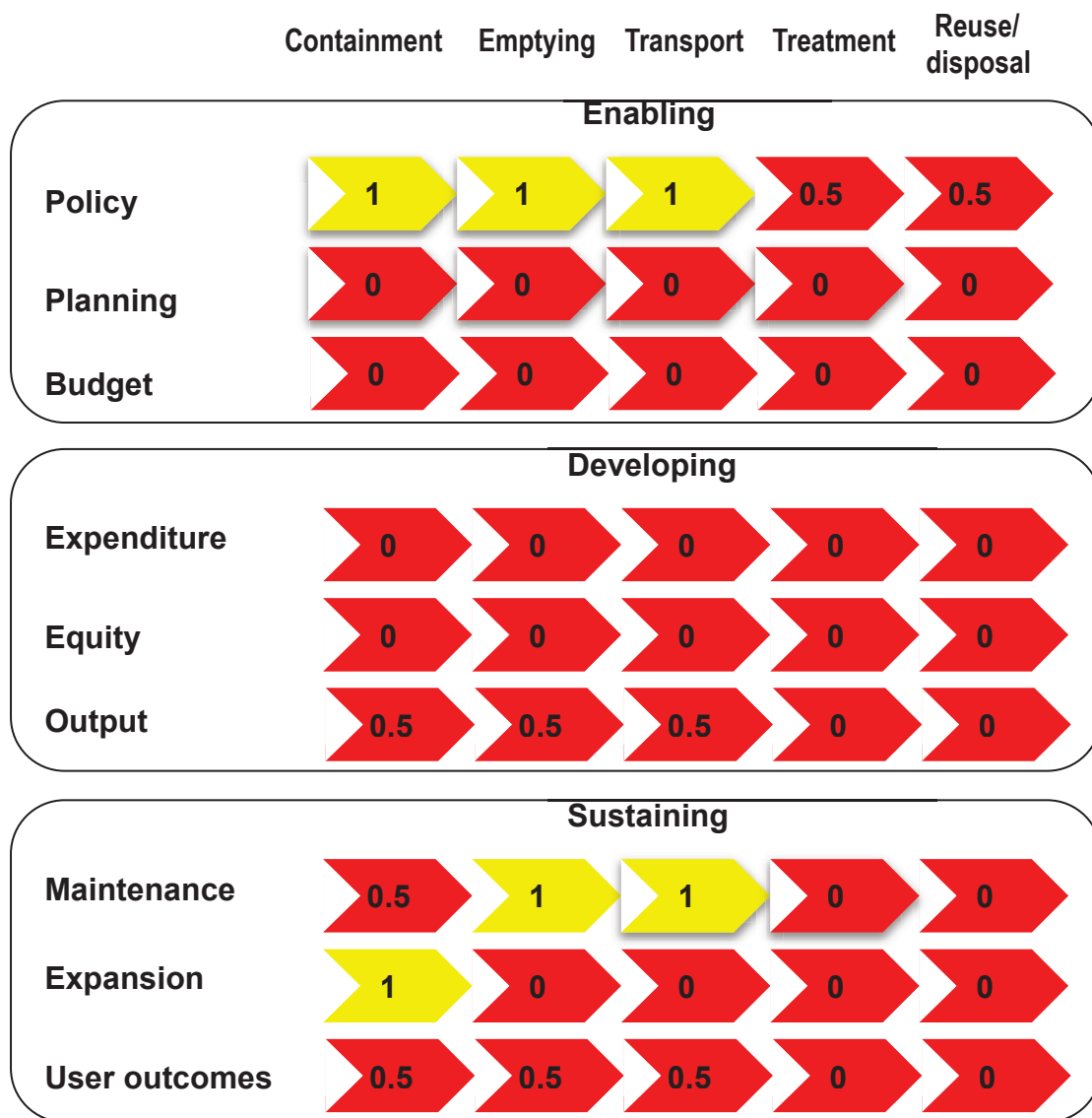


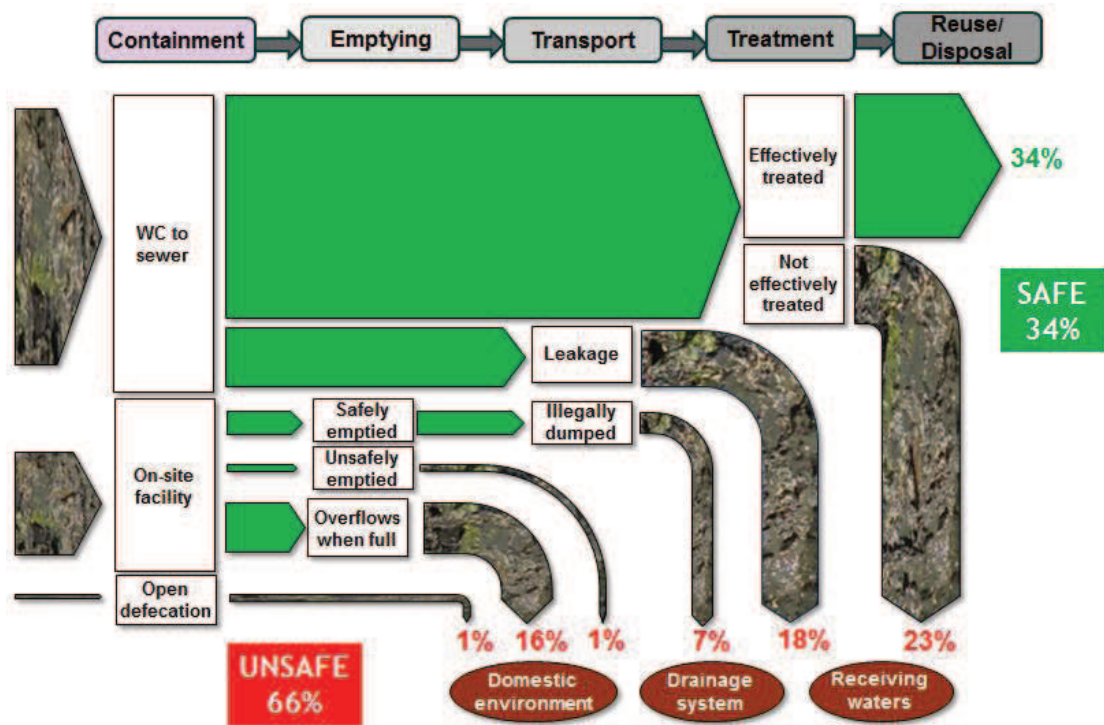
Figure 42: FSM scorecard for Delhi, India

Fecal waste flow matrix	% of FW	of which safely collected	of which safely delivered	of which safely treated	
Type of system					Safe: 34%
Sewered (off site centralised or decentralised)	75%	100%	76%	60%	34%
On-site containment - permanent/emptiable	24%	29%	0%	0%	0%
On-site containment - single-use/not emptied/safely abandoned	0%	100%	100%	100%	0%
Open defecation	1%	0%			
Unsafe: 66%		18%	25%	23%	
<i>Affected zones</i>		<i>local area & drainage</i>	<i>drainage system</i>	<i>receiving waters</i>	

Notes:

1: All sources shown in waste flow diagram below.

Figure 43: Fecal waste flow matrix for Delhi, India



Sources: 1. Open defecation is nominal (BMGF 2011); p. 24.
 2. Sewered 75% and non-sewered 24% from MGF (2011d); Table 2.1.
 3. Sewerage production that is treated: 5% (CPCB, 2004) p. 2.
 4. Manually emptied (4% of DSS) and percent mechanically emptied (29% of DSS) from MGF (2011d); p. 42.
 5. Mechanically emptied and disposed in sanitary landfills (100%) from MGF (2011d) p. 38.
 6. Not emptied (67% of DSS) (BMGF 2011d) p. 42 and allowed to overflow to environment (BMGF 2011d) p. 38.

Figure 44: Fecal waste flow diagram for Delhi, India