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A Review of Fecal Sludge Management in 12 Cities

Annexure A.12
Manila, Philippines

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FINAL DRAFT

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A.12 Manila, Philippines

A.12.1. Summary

Population (millions)	15.3
Percentage of households using on-site sanitation or open defecation	88%
Percentage of total fecal waste (sewage and fecal sludge) safely managed	39% to 44%
Percentage of sewage safely managed	78%
Percentage of fecal sludge from OSS safely managed	35% to 40%

FSM Framework	Improving
FSM Services	Improving
City Type	2/3

Two water utilities provide water and sanitation services in Manila under concession contracts. The Manila Water Company (MWCI) were assigned to operate the East Zone with 23 cities/municipalities serving around 6.1 million people; and the Maynilad Water Services Inc (MWSI) the West Zone with 16 cities/municipalities serving around 9.2 million people. The concessions were signed in 1997 with a contract length of 25 years and have now been extended for a further 15 years to 2037. Initially, little progress was made with improving sanitation coverage, the focus was on sewerage alone which still only serves 9% of the combined service areas. However, since 2005 and through the adoption of a more affordable strategy involving the use a septage management programme (primarily using households' existing septic tanks) the concessionaires are now accelerating coverage and are currently targeting full coverage by 2037(World Bank, 2012a). In addition to the concessionaires some municipalities also deliver services within the service area.

A.12.2. Institutional framework

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

Despite the prevalence of on-site sanitation, the Philippines has limited capacity to collect and treat fecal sludge. Recognizing this the national government introduced the 2004 Clean Water Act (CWA) which called upon local government units (LGU) and water districts to manage fecal sludge. However, only a few cities have responded to the challenge and generally many local municipalities in the Philippines lack the capacity and political will necessary to design and implement FSM (USAID, 2010). Under the CWA the Philippines has comprehensive national regulations on FSM and requires the Department of Environment and Natural Resources (DENR), the Department of Public Works and Highways (DPWH), and the Department of Health (DOH) to support LGUs in developing sanitation infrastructure including that for managing waste from on-site sanitation.

A key part of the Clean Water Act is the National Sewerage and Septage Management Program (NSSMP) which the Philippine government has recently approved (in June 2012) to promote FSM alongside sewerage projects (Robbins et al, 2012). Drafting of the NSSMP was begun in 2005 (USAID, 2010) and although it has taken a long time to be finalized it is hoped that it will accelerate progress by, for instance, providing technical assistance and targeted training to build capacity of local officials to undertake FSM programmes (Roberts et al 2012). Within the Manila Metro area one municipality, Marikina, has pressed ahead with improved FSM (Roberts et al, 2012 and USAID, 2010).

A.12.3. The FSM scorecard

Description of key points in SDA scorecard….

The FSM scorecard for Manila shows that the framework in the Philippines is being developed and parts of it are in place, particularly at the level of policy and planning. However, the budget allocations are clearly inadequate and the low levels of FSM infrastructure development in cities outside of Manila (and a small number of pilot project cities) confirm this. The pilot projects are predominantly donor-led, have been successful (Roberts et al, 2012) and have concentrated on the emptying, transport and treatment components as confirmed by the improving scores in the developing pillar. In Manila, the concessionaires have also focused on emptying, transport and treatment and their services are also developing. However, further work is required to expand services to all customers within their respective zones. In addition, areas of weakness remain in improving containment and with introducing formal reuse of treated fecal sludge and its proper disposal.

A.12.4. FSM along the sanitation service chain

A brief description of each part of the chain….

Containment:

In Manila it is estimated that 3% of the population practice open defecation (UNICEF/WHO, 2012) while 9% have a sewerage connection, the remainder (88%) have access to on-site sanitation, primarily in the form of septic tanks (USAID, 2010).

Emptying:

The two concessionaires carry out emptying of septic tanks in their respective zones. In addition the municipality of Marikina encourages the emptying of septic tanks within its own municipality boundary which lies within the MWCI area (USAID, 2010). Both concessionaires operate a regular desludging service on a five-year emptying cycle. Around 100,000 pits per year are emptied peer year in the MWCI area while MWSI empties around 40,000 pits per year (estimated from data in World Bank, 2012a and World Bank, 2012). Based on an occupancy rate of five persons per household they therefore provide an emptying service to approximately 34% of the population.

The balance of the population are assumed to use private companies who provide an emptying service in Manila but they dispose of all the fecal waste in waterways, drains and onto open land (USAID, 2010). In addition, when pits become full, some are left unemptied and abandoned unsafely - overflowing to the local environment – while others are covered by the users and safely contain the fecal waste. In the absence of data, it is assumed that private operators empty 45% of the remaining facilities, 45% fill up and are either abandoned unsafely (in the case of pit latrines) or are allowed to overflow; while 10% provide safe containment. There is no manual emptying in Manila.

Transport:

The MWCI uses 50 vacuum trucks for emptying and transport of the fecal waste to treatment (the number of trucks that MWSI uses is not known). In the absence of data on the quality of service provided it is assumed that the concessionaires illegally dump a nominal 5% of the amount emptied.

Treatment:

The MWCI operates two FSTP with a combined installed capacity of 814m^3/day, these currently operate at a daily flow rate of 40 to 50% of their capacity. A single FSTP with an installed capacity of 250m^3/day operates at a daily flow rate of 85% capacity in the MWSI zone (Robbins et al, 2012). A nominal treatment efficiency of 95% is assumed for all three FSTPs.

Reuse/disposal:

Roberts et al (2012) indicates that MWCI have initiated the formal reuse of treated fecal sludge but the details are not clear. There are no reports of formal reuse being developed by MWSI.

A.12.5. Outcome

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

Overall in Manila the two concessionaires safely dispose of approximately two-fifths of the fecal waste generated in the city. The FSM systems used by the two companies provide effective emptying, transport and treatment services but it is estimated that around half the users of on-site sanitation use private operators who dump waste in the environment or abandon their pits when they fill up or allow their full septic tanks to overflow. The FSM service in Manila is therefore considered to be 'improving' as there are some services and some framework is in place.

References

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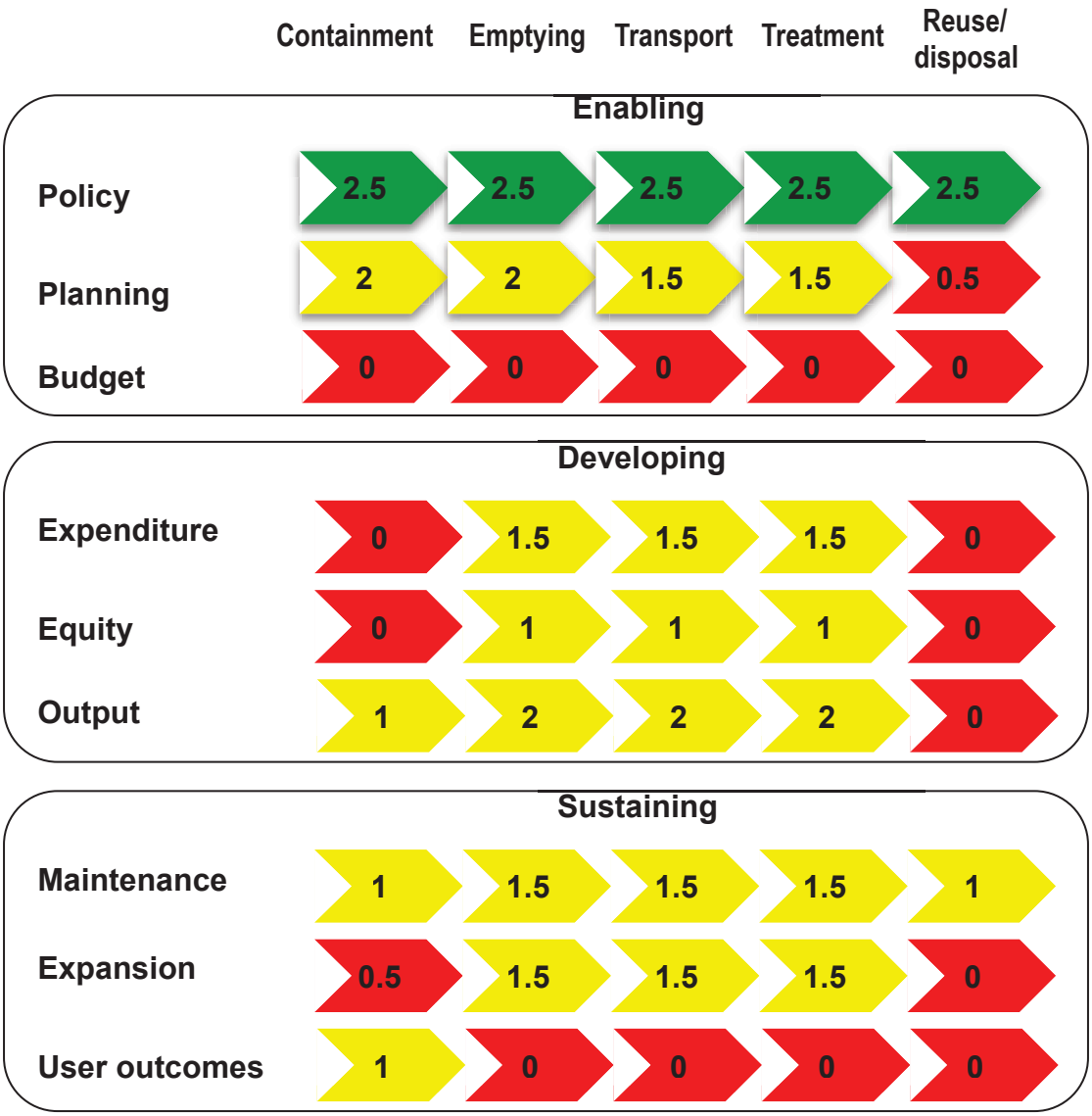


Figure 54: FSM scorecard for Manila, Philippines

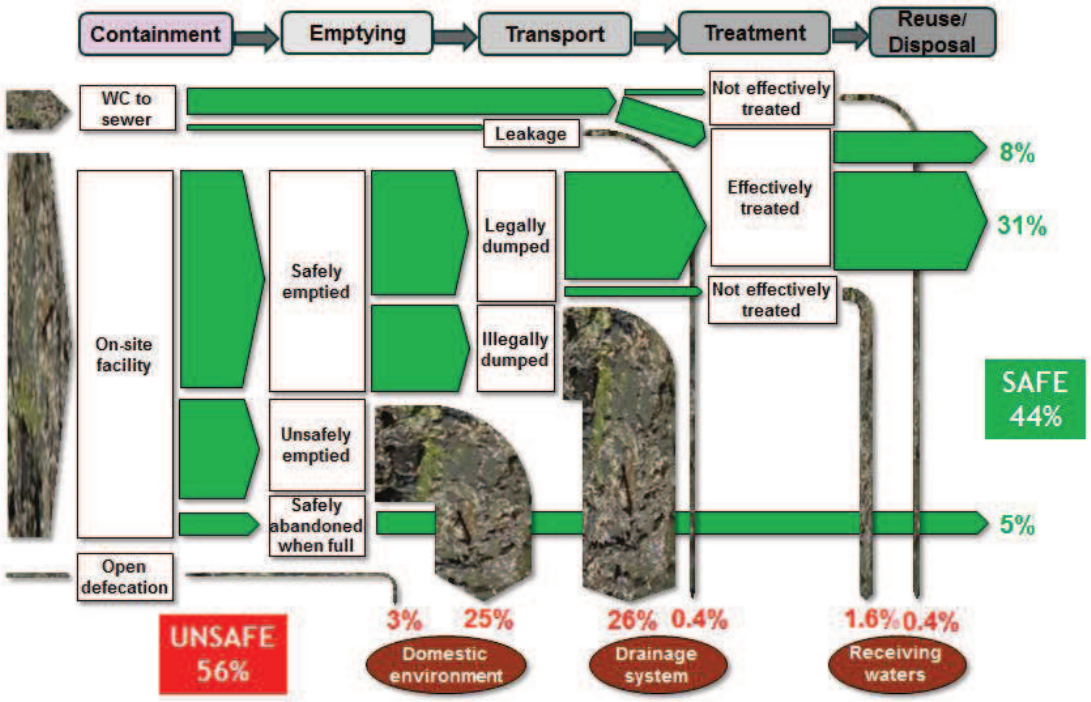
Fecal waste flow matrix Type of system	*% of FW*	*of which safely collected*	*of which safely delivered*	*of which safely treated*	**Safe: 39% to 44%**
Sewered (off site centralised or decentralised)	9%	100%	95%	95%	**8%**
On-site containment - permanent/emptiable	83%	70%	56%	95%	**31%**
On-site containment - single-use/not emptied/safely abandoned (see note 1)	5%	100%	100%	100%	**5%**
Open defecation	3%	0%			
Unsafe: 56% to: 61%		**28%**	**26%**	**2%**	
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 55: Fecal waste flow matrix for Manila, Philippines



Sources:	Open defecation is 3% from (UNICEF/WHO, 2012 for urban Philippines); Sewered 9% (WB 2012a); balance is DSS (88%) Emptying by concessionaires 34% of FW (estimated from data in WB, 2012a Annex 5; WB, 2012 Annex 2a; and USAID, 2010) Assume nominal 5% losses for dysfunctional sewerage and 5% losses for dysfunctional sewage treatment. Assume nominal 5% losses for dysfunctional transport and 5% losses for dysfunctional FS treatment. Assume balance (54% of FW) is either: not emptied and safely contained (nominal 10%); mechanically emptied by private sector and dumped illegally (45%); or not emptied and abandoned unsafely (45%)

Figure 56: Fecal waste flow diagram for Manila, Philippines