wsp
water and
sanitation program

An international partnership to help poor people gain sustained access to improved water supply and sanitation services

A Review of Fecal Sludge Management in 12 Cities

Annexure A.11
Dumaguete, Philippines

March 2013, updated June 2015

FINAL DRAFT

Prepared by:
Andy Peal and Barbara Evans
with
Isabel Blackett, Peter Hawkins and Chris Heymans

For WSP Urban Global Practice Team

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

A.11 Dumaguete, Philippines

A.11.1. Summary

Population (millions)	0.12
Percentage of households using on-site sanitation or open defecation	100%
Percentage of total fecal waste (sewage and fecal sludge) safely managed	78% to 92%
Percentage of sewage safely managed	NA
Percentage of fecal sludge from OSS safely managed	80% to 95%

FSM Framework	Improving
FSM Services	Partial
City Type	3

In Dumaguete, an FSM system has recently been introduced to serve the whole city. The project has been implemented with technical assistance from USAID under their Local Initiatives for Affordable Wastewater Treatment (LINAW) programme. Cost-sharing partnership has been established between the City Government, who operate and maintain the FSTP, and the local Water District who collect and transport the FS to treatment. Both contribute towards capital and operating costs. The arrangement is the first of its kind in the Philippines (CGoD2, nd). While the system is relatively new it is estimated that at present as much as 80% of the fecal waste generated in the city is safely managed; however, further data and ongoing monitoring to confirm this analysis.

A.11.2. 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).

A.11.3. The FSM scorecard

Description of key points in SDA scorecard….
The FSM scorecard for Dumaguete shows that the core of the enabling environment is in place, although the policy element is clearly much more advanced than the planning and budget components. The developing pillar is improving fast and this highlights the recent introduction of the new FSM service led by the City government and Water District partnership. The service is so new that at this stage there is little data on which to measure the outcomes. Nevertheless, the sustaining pillar does indicate that uptake by households has been good and that from containment to treatment the service is improving. However, areas of weakness remain in reuse/disposal – this will need to be addressed in the future.

A.11.4. FSM along the sanitation service chain

A brief description of each part of the chain….

Containment:
In Dumaguete it is estimated that 3% of the population practice open defecation (UNICEF/WHO, 2012) while the remainder have access to on-site sanitation. There is no sewerage in Dumaguete. The Dumaguete City Government (CGoD2, nd) reports that before the implementation of the LINAW project there were over 20,000 (of 25,000) poorly-designed and badly maintained septic tanks in Dumaguete which were a potential risk to public health and the environment. Under the LINAW project, a public information campaign was executed to raise public awareness of the benefits of improved sanitation. The campaign included workshops, posters, fliers and consultations with the community (CoGD1, 2012). Robbins et al (2012) indicates that there is strong evidence to suggest that the promotions helped improve household willingness to pay for fecal sludge management in Dumaguete. However, there are no details on the current condition of the 25,000 septic tanks in Dumaguete following the sanitation promotion and it is not known how many are now emptiable.

Emptying:
The Water District operates seven second-hand vacuum trucks which provide the city FS emptying service; the trucks emptied over 5,000 containment systems in the first 17 months of operation from May 2010 (CGoD1, nd). Robbins et al (2012) report that the FSM system is designed so that all containment systems are emptied once every five years.

However, the intervention in Dumaguete is relatively new. At this stage, and from the data available, it is not clear a) how many of the 25,000 containers in the city are emptiable or b) how many of the households will choose alternative desludging services. For the purpose of this analysis it is assumed that a nominal 5% of households will have their pits emptied by private contractors who then discharge the contents to the environment. Furthermore, owners who have built large pits in order to avoid the need for costly and inconvenient desludging or owners who have open-bottom pits that percolate efficiently may also choose not participate in the scheduled desludging programme; here it is assumed that a nominal 15% of the households' containers will not be emptied, however, this fecal waste is considered safely contained (at least in the short to medium term).

There is no manual emptying in Dumaguete.

Transport:
The Water District's seven tankers haul the emptied sludge to a fecal sludge treatment facility (FSTP) (Robbins et al, 2012). There are no reports of waste being illegally discharged en-route and it is understood that to date the plant has received 100% of the sludge emptied by the Water District operated service.

Treatment:
The City Government is responsible for operation and maintenance of the FSTP. The plant is designed to process all of the FS generated from both households and business establishments (CGoD2, nd). The capacity of the FSTP (a series of waste water stabilisation ponds and a sludge drying bed) is 80m^3/day and the current daily flow is 40% to 60% of capacity (Robbins et al , 2012). A second treatment plant – a decentralized wastewater treatment system (DEWAT) - receives fecal waste from a public toilet in the market (CoGD2, nd). The general impression (World Bank, 2012) of the septage treatment facilities is that their operation is generally good, the systems are being utilized and treated effluent is of acceptable standards; for this analysis it is therefore assumed that 100% of the fecal waste received in each plant is currently treated before disposal.

Reuse/disposal:
There is formal reuse of the treated fecal sludge generated from the dying beds, which is distributed free of charge to farmers as a soil improver; the City Government also makes use of both the treated sludge and the treated effluent from the DEWAT unit in their municipal parklands (CoGD2, nd).

A.11.5. Outcome

An overview or summary of the situation (i.e. poor FSM service delivery, limited FSM service delivery or partial FSM service delivery)
A regular desludging programme has only been in operation in Dumaguete since May 2010. The programme is based on a five-yearly emptying cycle and until the first full cycle has been completed it will be difficult to fully assess level of service reported by the City Government and how many households it is actually reaching. With this in mind it is suggested that a 'partial' level of service is being delivered to the city's households.

References

USAID (2010). A Rapid Assessment Of Septage Management In Asia: Policies And Practices In India, Indonesia, Malaysia, The Philippines, Sri Lanka, Thailand, And Vietnam.

Robbins, B. D., Strande, L., & Doczi, J. (2012). Lessons Learned In Faecal-Sludge Management : Experiences From The Philippines (pp. 1–6).

City Government of Dumaguete2. (n.d.). Local Initiatives For Affordable Wastewater Treatment (Linaw Project).

City Government of Dumaguete1. (n.d.). Septage Management System in Dumaguete, Philippines; powerpoint presentation; (pp. 1–6).

World Bank (2012a). East Asia Urban Sanitation Flagship Study: Philippines Country Study.

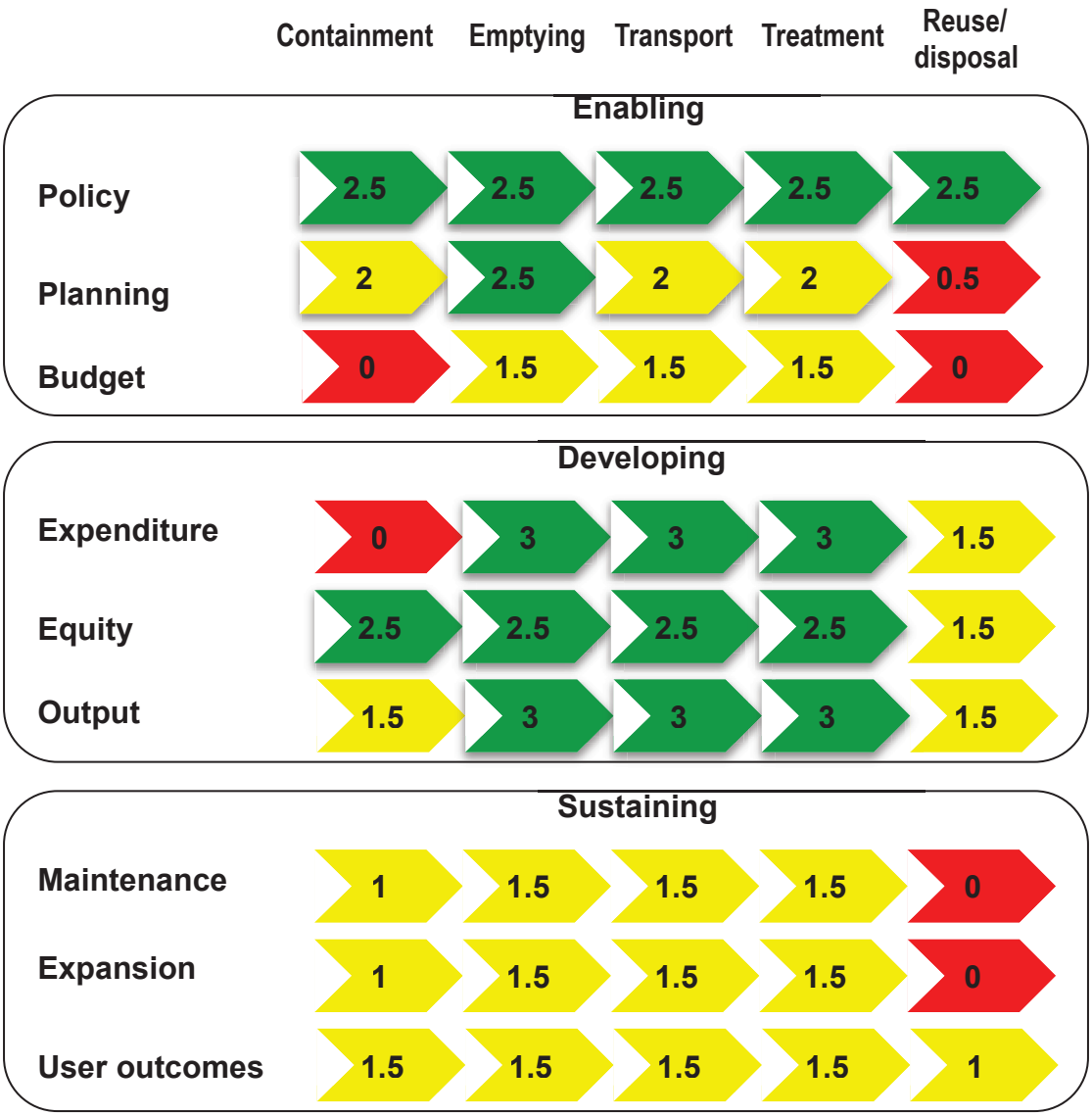


Figure 51: FSM scorecard for Dumaguete, Philippines

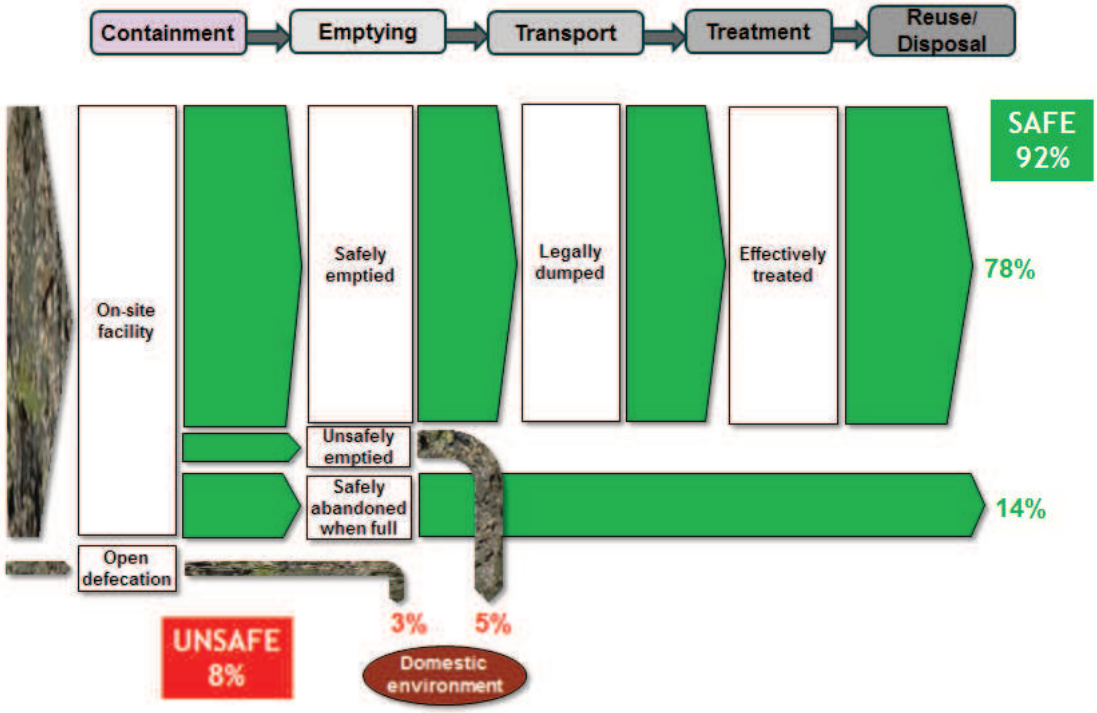
Fecal waste flow matrix Type of system	*% of FW*	*of which safely collected*	*of which safely delivered*	*of which safely treated*	**Safe: 78% to 92%**
Sewered (off site centralised or decentralised)	0%	100%	60%	0%	**0%**
On-site containment - permanent/emptiable	83%	93%	100%	100%	**78%**
On-site containment - single-use/not emptied/safely contained (see note 1)	14%	100%	100%	100%	**14%**
Open defecation	3%	0%			
Unsafe: 8% to: 22%		**8%**	**0%**	**0%**	
Affected zones		*local area & drainage*	*drainage system*	*receiving waters*	

Notes:

1. The "single-use/not emptied/safely contained" on-site containment refers to large tanks (or pits) built in order to avoid the need for costly and inconvenient desludging and/or leach pits that percolate very efficiently. In neither case is desludging considered to be required in the short- to medium-term. These are both considered safe disposal methods but data available is poor so total 'safe' and total 'unsafe' are shown as ranges.

2: All sources shown in waste flow diagram below.

Figure 52: Fecal waste flow matrix for Dumaguete, Philippines



Sources: Open defecation 3% of households (UNICEF/WHO, 2012). On-site sanitation used by the remaining 97% of households. Mechanical emptying by municipality 80% of DSS (from CGoD1, nd); not emptied and safely contained 15% of DSS (nominal); emptied and discharged to the environment by private emptiers 5% of DSS (nominal).

Figure 53: Fecal waste flow diagram for Dumaguete, Philippines