

FAECAL SLUDGE AND SEPTAGE MANAGEMENT IN RAJASTHAN: A REVIEW OF THE LAW AND POLICY FRAMEWORK

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I. BRIEF BACKGROUND TO FSSM: ISSUES AND CONCERNS

A. Background

Urban sanitation has been a focus of policymakers in India at least since the colonial period (Chaplin, 2012: 40). The focus on sanitation continued after independence albeit with varying intensity, which eventually led to the launch of the Swachh Bharat Mission (SBM) in 2014. The implementation of various sanitation interventions led to several states declaring open defecation free (ODF). The State of Rajasthan declared ODF in March 2018. This transformation indeed led to an exponential increase in the number of toilets. The sudden increase in number of toilets coupled with lack of adequate facilities and services to ensure proper collection, treatment and disposal of faecal sludge and septage led to the issue of untreated faecal sludge and septage entering the environment. This defeats the purpose of sanitation interventions

Box 1: Definitions

Faecal sludge: faecal sludge is raw or partially digested, in a slurry or semisolid form, the collection, storage or treatment of combinations of excreta and black water, with or without grey water. It is the solid or settled contents of pit latrines and septic tanks.

Septage: is the liquid and solid material that is pumped from a septic tank, cesspool, or such onsite treatment facility after it has accumulated over a period of time. Usually, septic tank retains 60% - 70% of the solids, oil, and grease that enter it. The scum accumulates on the top and the sludge settles to the bottom comprising 20% - 50% of the total septic tank volume when pumped.

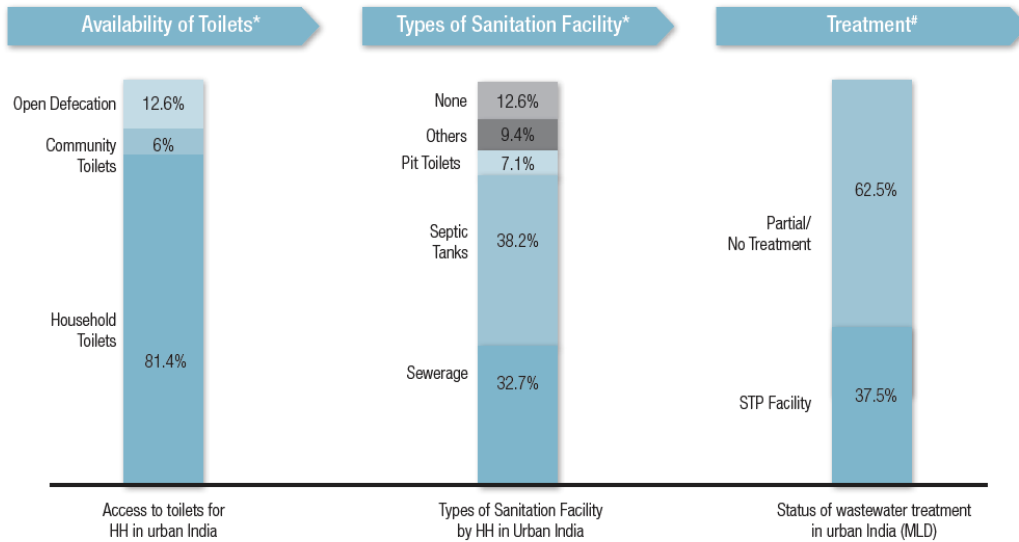
Faecal sludge vs septage: There appears to be a very thin line between septage and faecal sludge. Septage is limited to septic tanks, and has already undergone partial digestion, whereas faecal sludge includes contents from other onsite technologies, including septic tanks, and may or may not be digested.

Source: Suresh Kumar Rohilla et al, Septage Management: A Practitioner's Guide (Centre for Science and Environment, 2017) 18; Ministry of Urban Development, National Policy on Faecal Sludge and Septage Management (FSSM) (MoUD 2017) 9.

FSSM is essential because of potential implications for public health and environment. For instance, a report underlines that 'a truck load of faecal sludge dumped into the environment is equivalent of 5,000 people practicing open defecation'. Given the highly concentrated nature of faecal sludge and septage when compared to sewage which is more diluted in nature, a policy document adopted by the Government of Rajasthan advocates 'more care in handling and management'. This is particularly relevant in urban areas in India where about 50 per cent of the households rely on on-site sanitation systems such as septic tanks and pits. According to Census 2011, India's urban population is 377 million or 31 per cent of the total population, which is expected to increase to 600 million by 2031 (Ministry of Urban Development, 2017a). In urban areas, around 48 per cent of the households depend on on-site facilities (Ministry of Urban Development, 2017). This is due to several reasons, most importantly that the conventional sewerage system is not economically and technically viable in all urban areas. Therefore, the basic sanitation

infrastructure in urban areas in India follows a hybrid approach where off-site and on-site sanitation systems co-exist. Therefore, FSSM is extremely important in the urban sanitation context.

Figure–1: Status of urban sanitation in India¹



FSSM is the process of safe collection, conveyance, treatment and disposal/ reuse of faecal sludge and septage from on-site sanitation systems such as pit latrines and septic tanks. According to the Policy on Faecal Sludge and Septage Management, 2018 prepared by the Government of Rajasthan, a typical FSSM system involves the following steps:

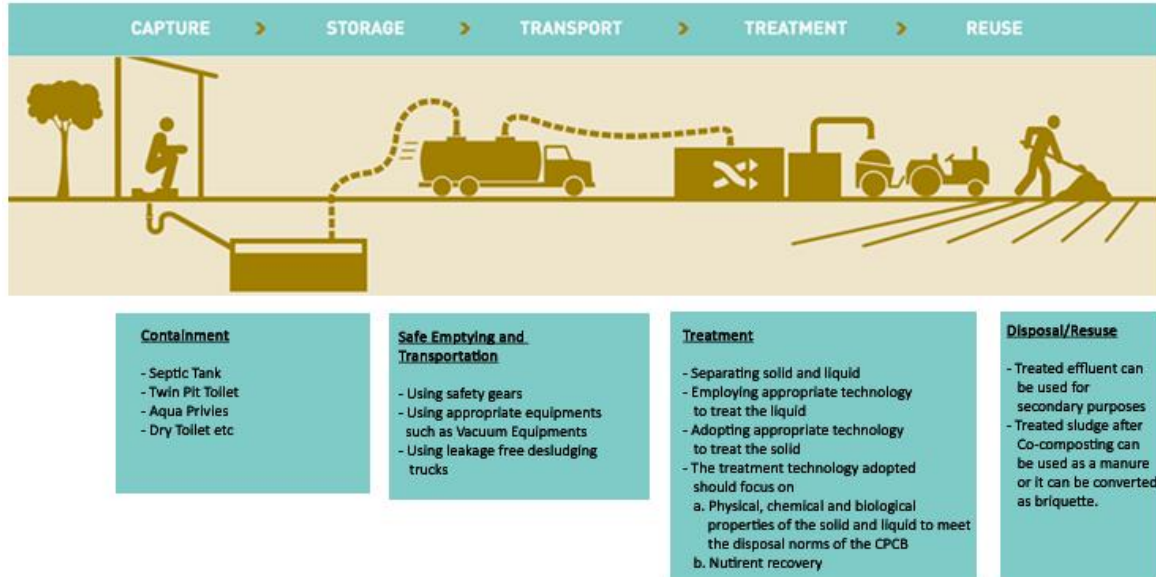
- (a) Desludging of a septic tank/pit latrine;
- (b) Storing of the collected waste in a sealed container;
- (c) Transportation of it to a treatment facility;
- (d) Treatment; and
- (e) Disposal of treated waste or recycle/reuse of the treated waste.

Safety, both in terms of safety of individuals involved in the above work and safety of the environment, is an important aspect of FSSM. Thus, manual desludging is absolutely unacceptable. Desludging must be a mechanised process. The treatment facility could be either a dedicated Faecal Sludge Treatment Plant (FSTP) or a Sewage Treatment Plant (STP) where both sewage and faecal sludge and septage are co-treated. However, faecal sludge and septage is different from sewage in terms of its chemical and physical characteristics. It has a much higher pollution load and its degradation characteristics are very different

¹ Ministry of Urban Development, National Policy on Faecal Sludge and Septage Management (MoUD 2017) 11.

from (Ministry of Urban Development, 2017: 5). Thus, co-treatment of faecal sludge and septage in STPs along with sewage may involve technical challenges or issues of feasibility.

Figure–2: FSSM Chain²



B. Issues and Concerns

The increase in the number of toilets poses a significant threat to water quality. A major concern is the tendency among people to dig a deep pit because they perceive a shallow pit to be inconvenient as it may require frequent emptying. As a result, people dig deep, in most cases unlined, pits that raise the issue of faecal contamination of groundwater sources in the area. A study conducted in Kerala has underlined the impact of such toilets on groundwater (Megha et al, 2015).

The toilets that are connected to septic tanks also pose risks to the quality of the environment. It is quite common for people to understand a septic tank as a storage system and therefore, to build oversized tanks to avoid cleaning it or emptying it periodically. This practice is also linked to the absence of, or inadequate, mechanisms such as suction emptier trucks, trained workers and safety equipment to facilitate the regular cleaning or emptying of septic tanks (World Bank, 2015). Ideally, septic tanks are to be desludged once in every two to three years, or when the tank becomes one-third full (Ministry of Urban Development, 2013: 17). However, this hardly happens in practice. Septic tanks are quite often cleaned or emptied when they are full or leaking. Moreover, there is hardly any mechanism to empty and dispose the septage in an environment-friendly manner. This situation has paved the way for the entry of several private enterprises to this field who dispose the septage clandestinely, including into water bodies (Rohilla et al, 2016; Harris-White, 2015).

The scenario in Census Towns is of particular significance from an FSSM point of view in the urban context. Census Towns are the areas which are not statutorily notified and administered as a town, and therefore administered as rural areas. Nevertheless, their population has attained urban characteristics such as high population density, and an overwhelming majority of the male working population is engaged in non-agricultural sector. The number of Census Towns has been constantly increasing. The toilets in Census Towns are mostly connected to septic tanks. In the absence of a sewerage network that is connected to

2 MDWS (*) (n *) 11.

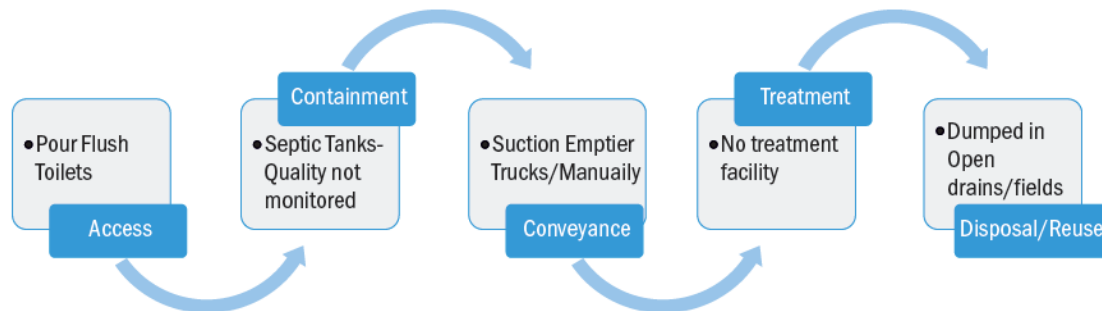
STPs, faecal sludge generated in these areas are collected and disposed either in water bodies or on open land.

The prevailing practice regarding the construction of toilets coupled with the lack of proper FSSM facilities leads to the direct dumping of faecal sludge and septage on open land, or into drains or fresh water bodies (Ministry of Urban Development, 2013: 12). A study conducted in Delhi highlights that private parties who carry out the emptying of septic tanks in the city discharge the waste in the nearby drainage although there are sewage treatment plants in Delhi (Rohilla et al, 2016). An empirical study conducted in a few towns in the state of Tamil Nadu also confirms that the common practice followed by urban local bodies (ULBs) and private parties is to dispose the untreated septage on open land or agricultural land and into freshwater bodies (Water Aid, 2016: 98, 104). Septage from on-site sanitation systems is worse than open defecation from an environmental and public health point of view as it carries higher level of pathogens and micro-organisms (Water Aid, 2016: 33). It also causes a host of diseases including diarrhoea and environmental degradation (Ministry of Urban Development, 2017: 5). A study notes that the number of infections that faeces can transmit is fifty (George, 2008: 175). The clandestine disposal of untreated septage by private tankers in various isolated places including into freshwater bodies has even led to a public interest litigation in the High Court of Kerala (*R Sudha v Union of India*, 2011; *State of Kerala v R Sudha*, 2013). The case led to the adoption of a specific policy on septage management by the Government of Kerala (Government of Kerala, 2015).

It is also not uncommon in urban areas that toilets are neither connected to a sewerage system nor to an on-site mechanism such as pits or septic tanks (Rohilla et al, 2016). In areas without sewer lines, the storm water drainage system or freshwater sources such as lakes and ponds are used for the disposal of wastewater including human excreta (Zimmer, 2012). As a result, human excreta are exposed directly to the environment.

Thus, the implementation of sanitation interventions (toilets, in this case) represents a complicated scenario where they may also cause environmental pollution and pose serious risks to public health. The problem likely to be worse when India becomes ODF without focusing adequately on FSSM.

Figure–3: Current FSM practice in India³



³ S.K. Sarkar et al, Faecal Sludge Management in Urban India: Policies, Practices, and Possibilities (TERI Discussion Paper 2016) 6.

Box-2: Key legal and institutional issues for FSSM in Rajasthan

- a) Construction of septic tanks is not in accordance with standard specifications*
- b) Direct discharge of septic effluent into open drains*
- c) Long gap in desludging of septic tanks (10-20 years)*
- d) No regulation of desludging by private operators*
- e) Dumping of untreated waste into the environment*
- f) Institutional capacity of ULBs to monitor and provide for FSSM*
- g) Financial and human resource capacity of ULBs to monitor FSSM*

C. FSSM IN RAJASTHAN

Rajasthan is the largest State in India situated in the north-western part of the country with a geographical area of 3.42 lakh sq. km. The topography of the State is diverse with the Aravalli hills range that runs from south-west to north-east and desert on the west and the north-west part of the State. Administratively, the State has been divided into seven divisions and 33 districts, comprising 295 panchayat samitis, 9,891 village panchayats, and 43,264 inhabited villages (Government of Rajasthan, 2018: 1).

The State of Rajasthan is one of the driest states in India. The water scenario of the State is characterised by scarcity and uneven distribution both in time and space. It has only one per cent of the total surface water resources in the country, although it houses around five per cent of the total population of the country.⁴ This water scenario has significant implications for sanitation particularly in a context when the prevailing model of sanitation is water-based.

According to Census 2011, the total urban population in Rajasthan is 1,70,48,085, which is around 24.87 per cent of the total population of the state. According to a document prepared by the Government of Rajasthan, there are 297 urban settlements in the state and the total number of urban local bodies (ULBs) is 191 (Government of Rajasthan, 2018a). As per a recent estimate, there are around 2.74 Million toilets in the State and out of which only around 30 per cent are connected to sewerage systems (Government of Rajasthan, 2018a: 18). The ongoing effort by the Government of Rajasthan will increase the coverage of sewerage systems to around 60 per cent of the population by 2021. This indicates the significant contribution of the OSS in the urban sanitation sector in Rajasthan even after the successful completion of the ongoing efforts to build sanitation infrastructure such as the sewerage network and sewage treatment plants.

In fact, a sewerage system is absent in an overwhelming majority of urban areas. Major cities such as Jaipur and Jodhpur are exceptions where a sewerage system exists although the coverage varies significantly. For instance, the coverage of the sewerage system in Jaipur is 80 per cent, whereas only 30 per cent of the households are connected to a sewerage system in Bikaner. Thus, OSS is the predominant method in urban areas in the state.

Insofar as issues and concerns related to FSSM are concerned, the state of Rajasthan is not an exception. All the issues mentioned in Section B above are prevalent in the state (see Government of Rajasthan, 2018a: 21).

⁴ Rajasthan State Water Policy, 2010, p. 1.

TABLE-1: TYPE OF SANITATION SYSTEMS IN RAJASTHAN AS PER CENSUS 2011

As per census 2011											
	Total HH	Percentage of HH having									
		Water Closet	Pit latrine	Other latrines	No latrine						
Rajasthan	1,25,81,303	27.6	6.5	0.8	65						
Type of Latrine facility											
		Piped sewer system	Septic tank	Other system	With slab/ventilated improved pit	W/o slab or open pit	Night soil disposed into open drain	Night soil removed by human	Night soil serviced by animals	Public latrine	Open
Total Rajasthan	1,25,81,303	7.2	18.6	1.8	4	2.5	0.7	0	0.1	0.7	64.3
Rural	94,90,363	1.2	9.8	1.7	3.9	2.9	0.1	0	0	0.5	79.9
Urban	30,90,940	25.6	45.6	2.4	4.3	1.2	2.7	0.1	0.1	1.3	16.7

As the Table below indicates, the prevalence of on-site and off-site sanitation systems varies from city to city. For instance, while more than 80 per cent of the total households in Ajmer use OSS, the number of such households in Jodhpur and Jaipur is 20 per cent. There are also toilets in the state from which the waste is discharged into open drains.

Table 1: Distribution of Settlements according to coverage of households by On-Site Sanitation Facilities

% of HHs with On-Site Sanitation System	Number of Towns	% of Total no. of Towns	Total HHs in these Towns	HHs with OSSF in these Towns	OSSF as % of Total HHs	Major Towns in the Category
> 75%	67	22.60%	793,009	652,480	82%	Ajmer, Udaipur, Bhilwara, Sri Ganganagar, Hanumangarh, Sikar
50 - 75 %	130	43.80%	1,057,743	659,956	62%	Kota, Jaisalmer, Alwar, Bharatpur, Tonk, Sawai Madhopur, Jhalawar
25 - 50 %	89	30.00%	462,110	185,146	40%	Pali, Bikaner
< 25 %	11	3.70%	778,078	155,497	20%	Jodhpur, Jaipur

A majority of the towns (66.4%) have coverage of more than 50% through OSSFs such as Septic Tanks and Pit latrines. More than 13 lakh households had some form of OSSF.

Source: Rajasthan Sewerage and Waste Water Policy, 2016, p. 19.

TABLE-2: DETAILS OF DAILY PRODUCTION OF FAECAL SLUDGE AND SEPTAGE IN RAJASTHAN AS PER CENSUS 2011

Source	Quantity (in lakh litres)
septic tanks, public latrines and pit latrines	38.7
open defecation	3.3
piped sewer system and service latrines	9

Similarly, some toilets are serviced manually, which points to the continuing practice of manual scavenging in the state despite its explicit legal prohibition since 1993. According to an estimate prepared by the Ministry of Social Justice, there are still latrines serviced by human beings in two out of the three focus districts (Bikaner and Jaipur).

TABLE-3: SANITATION SCENARIO IN THE FIELDWORK CITIES

State	District	Area Name	Total No. of HH	No. of HH having latrine facility within the premises	Night soil deposited into open drain (a)	Service latrine-night soil removed by human (b)	Total (a+b)
Rajasthan	Bikaner	Bikaner (M Corp.)	1,09,041	1,03,128	18,039	17	18,056
	Bikaner	Deshnoka (M)	3,008	1,981	16	-	16
	Bikaner	Nokha (M)	9,593	8,584	3	-	3
	Bikaner	Dungargarh (M)	7,938	7,057	1	-	1
	Rajsamand	Nathdwara (M)	8,103	6,914	1,395	-	1,395
	Rajsamand	Rajsamand (M)	12,877	10,430	18	-	18
	Rajsamand	Deogarh (M)	3,469	2,296	5	-	5
	Rajsamand	Amet (M)	3,590	2,131	1	-	1
	Jaipur	Bagru (M)	4,695	2,753	69	-	69
	Jaipur	Jaipur (M Corp)	5,75,268	5,39,717	1,029	40	1,069
	Jaipur	Chomu (M)	9,736	7,815	44	-	44
	Jaipur	Phulera (M HDG)	4566	4150	7	29	36
	Jaipur	Sambhar (M)	3,973	2897	19	-	19
	Jaipur	Chaksu (M)	5,463	2587	11	-	11
	Jaipur	Shahpura (M)	5,219	3087	5	-	5
	Jaipur	Viratnagar (M)	3,269	1252	4	-	4
Jaipur	Kotputli (M)	7832	5733	1	-	1	

Source: <http://socialjustice.nic.in/writereaddata/UploadFile/3546statutorytowns.pdf>.

Given the limited availability of the piped sewer system, absence of sewage treatment facilities in most urban areas, and reliance on-site sanitation as the primary sanitation system in urban areas, FSSM must be at the centre of sanitation interventions in Rajasthan.

D. Methodology

The key objectives of the research are:

- Mapping and analysis of the potential and limitations of existing law, policy, institutional and operational framework concerning FSSM at the level of the Central Government and in the target states/cities; and
- Analysis of institutional issues and challenges to implement the operations and maintenance and regulatory framework for FSSM with a special emphasis on the selected cities in the selected states.

This research followed a two-stage process to achieve the above-mentioned objectives. The first stage involved the mapping of relevant law, policy and institutional framework in the context of FSSM in Rajasthan with a special emphasis on three cities/towns (Bikaner, Jaipur and Rajsamand) on the basis of a desk-based review of primary documents and secondary literature.

The second stage involved the examination of implementation of the regulatory framework through fieldwork in the three cities—Bikaner, Jaipur and Rajsamand. These three cities belong to three different geographical regions of the state, that is Bikaner in Western Sandy Plains, Jaipur in Eastern Plains and Rajsamand in Aravalli Range. Further, these three cities present a contrasting scenario, which is relevant for a FSSM study. For instance, Jaipur is the capital of the state where a majority of households rely on off-site sanitation systems, whereas Rajsamand relies almost completely on on-site sanitation systems. The fieldwork involved in-depth semi-structured and unstructured interviews with different agencies and stakeholders at the state and local level. This was supplemented by unstructured or semi-structured interviews or focus group discussions with the residents of concerned urban areas (see Annexure I).

II. REGULATORY FRAMEWORK

There are mainly two aspects of legal control and regulation for FSSM. First, regulation of construction and maintenance of on-site containment system. Second, the provisioning and management of FSSM infrastructure and facilities such as de-sludging services, management of STPs or FSTPs. While the former is mainly in the domain of users, the latter could be provided by ULBs or private sector operators or both.⁵ Issues related to FSSM are not regulated by a single statute. In fact, there is no comprehensive statute on FSSM in the state. The existing regulatory framework, therefore, consists of a number of binding and non-binding instruments. This includes instruments at the national level and state level [for a brief outline of individual instruments, see Annexure III and IV].

A. Design, construction and maintenance of OSS

Regulation of design, construction and maintenance of toilets and the related OSS are important aspects of FSSM from a legal point of view. At a general level, these are undertaken at the individual user level although financial assistance is available to certain individual users as part of the sanitation programmes and schemes such as the ongoing SBM.

There are no legally binding standards on design, construction and maintenance of OSS. At the same time, detailed norms and standards on these aspects are provided under various instruments at the national level. Four instruments are particularly relevant in this context—BIS Code of Practice for Installation of Septic Tanks (IS:2470), 1985; CPHEEO Manual on Sewerage and Sewage Treatment, 2013; SBM-Urban Guidelines 2014/2017; and National Building Code of India, 2016. These instruments cover in detail almost all-important aspects of OSS. The BIS Standards makes it mandatory to have septic tanks in areas that are not connected to sewer networks. It also addresses issues such as the location of septic tanks, its size etc. For instance, it provides that septic tanks are not be constructed in swampy areas or areas prone to flooding and it should also be accessible to cleaning.

The National Building Code of India, 2016 makes it necessary for everyone to obtain permission from the concerned authority to install water borne sanitary or drainage installations (Part 9, 3.2). It further prescribes the design parameters to be followed while constructing sanitary fixtures such as water closet and urinal. For instance, it prescribes that ‘water closet compartment shall not be less than 760 mm in width and 1 520 mm in depth for floor mounted closets, and not less than 760 mm in width and 1 420 mm in depth for wall hung water closets’ (Part 9, 4.5.1.3). It also lays down a minimum distance of 18 m between septic tanks

⁵ MDWS, note **Error! Bookmark not defined.** above, p. 8.

and wells. The National Building Code of India, 2016 underlines that OSS like septic tanks is a preferred system in rural and fringe areas of suburban where underground system may neither be feasible nor economical (part 9, para 4.5.14.5.2). In other words, it seems to advocate for off-site systems in urban areas as a preferred system.

Similar guidelines are provided under the CPHEEO Manual on Sewerage and Sewage Treatment, 2013, which includes location of pits, size of pits/septic tanks, distance between OSS unit and drinking water sources, depth of pits in accordance with geological and hydrological feature of the area etc. (see eg Ch 9, Vol. I). SBM-Urban Guidelines, 2014/2017 (Annexure II) also provides technical feature and specifications for different types of toilets/OSS such as twin-pit latrines, septic tanks, public toilets etc.

A review of regulatory instruments reveals that:

- (a) there are guidelines to ensure that OSS is constructed and used in an environmentally safe manner;
- (b) these norms and standards are not legally binding; and
- (c) these norms and standards are the national level

B. Desludging and transportation

OSS requires proper and frequent desludging. From a legal point of view, there are mainly three issues emerge. First, the frequency in which the users undertake the desludging process; second, the availability of service providers to carry out desludging and safe transportation to a treatment facility; and third, the manner in which the process of desludging and transportation are carried out. There are clear guidelines as to how to carry out all these steps.

As far as the frequency of desludging is concerned, BIS Standards for Installation of Septic Tanks (IS:2470), 1985 provides that ‘half yearly or yearly desludging of septic tank is desirable’. It is to be noted that the word used is ‘desirable’. As a result, the BIS Standards further provides diluted norms and states that ‘small domestic tanks, for economic reasons, may be cleaned at least once in 2 years provided the tank is not overloaded due to use by more than the number for which it is designed’. It also discourages desludging too frequently as it may inhibit the anaerobic action in the tank. An Advisory Note issued by the MoHUA suggests a slightly modified norm and states that ‘though desludging frequencies vary, it is generally recommended to desludge tanks once every two to three years, or when the tank becomes one third full’. The SBM-Urban Guidelines also prescribes desludging of septic tanks in two to three years. In case of pit latrines, the SBM-Urban Guidelines underlines the responsibility of the householder concerned and provides a very vague standard for emptying of pits. It only provides that the users should ensure emptying of pits at the ‘appropriate time’.

Availability and regulation of FSSM service providers are important challenges. The urban sanitation sector across the country is fraught with either limited or no service providers. In many cases, the absence of a formal mechanism provided by ULBs has led private players to enter the sector. They carry out the operation in a regulatory vacuum. As a result, the operation of existing service providers is not monitored or regulated to check how they carry out the operation and how, and where, they dispose the waste. Nevertheless, there is overwhelming consensus at policy level that the private operators, currently, enter the sector at their will, they charge the user and discharge the untreated waste in any place convenient to them (practitioners guide: 30). For instance, a study notes that a service provider in Tamil Nadu charge rupees 2000 per trip.⁶ The issue of dumping of untreated faecal sludge and septage directly to the environment by private operators is confirmed by the fact such an incident in Kerala led to a public interest

⁶ S.K. Sarkar et al, Faecal Sludge Management in Urban India: Policies, Practices and Possibilities (The Energy and Resource Institute, Discussion Paper, 2016), p. 8.

litigation being filed in the High Court of Kerala and the litigation led to a direction from the High Court to the state government to set at least a septage treatment plant in every district. This scenario points to the need for a regulatory framework and institutional mechanism to ensure that desludging and transportation of faecal sludge and septage are carried out in an environmentally safe manner. It is in this context that the Rajasthan Faecal Sludge and Septage Management Policy, 2018 sets the goal of registration and licensing of service providers. It also sets the goal of preparing a database to help scheduling of desludging services and regulation of tariff collection among other things.

The act of dumping of untreated faecal sludge and septage to environment attracts environmental law in India. As it is likely to pollute environment, this action is prohibited under the Environment (Protection) Act, 1986 and the act of dumping of untreated faecal sludge and septage to freshwater sources is prohibited under the Water (Prevention and Control of Pollution) Act, 1974. The violators are liable to be prosecuted and punished under these laws.

The manner in which desludging and transportation are carried out is subject to strict legal regulation. This is extremely important in the context of the fact that the practice of manual scavenging is absolutely prohibited under law—the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013. Thus, manual desludging amounts to manual scavenging and therefore it is not permissible. Further, the Prohibition of Employment as Manual Scavengers and their Rehabilitation Rules, 2013 makes it mandatory to provide adequate safety gears and devices to any person engaged to clean a sewer or a septic tank. Thus, Rule 4 of the 2013 Rules provides a list of protective gears and safety devices to prevent or control the exposure of workers to hazardous substances and gases while cleaning septic tanks. The list containing 44 protective gears and safety devices is illustrative in nature and is not meant to be exhaustive. It also provides an illustrative list of 14 cleaning devices to be provided to the workers. It is the duty of the local bodies to ensure that the workers are using cleaning devices so that they do not need to clean sewers manually.

It is in this context that the various FSSM specific or related instruments underline the need for mechanisation of the sludge removal process. For instance, the BIS Standards (IS: 2470) provides that ‘manual cleaning of sludge should be removed’ and the Rajasthan Sewerage and Waste Water Policy, 2016 underlines the need for mechanised sludge removal. Nevertheless, in Indian cities, most of the septic tanks are desludged manually and an Advisory Note by the MoHUA categorically states that ‘this is tantamount to manual scavenging’.⁷ This scenario requires sensitisation of users and local bodies in urban areas about this issue and the law and the concerted action to punish the violators.

It is to be noted that ULBs have very important roles to play here. Sanitation is one of the core functions of ULBs under the Rajasthan Municipalities Act, 2009 (s 45). Effective mechanism to dispose faecal sludge and septage is therefore a responsibility of ULBs. Presumably these provisions cover faecal sludge and septage, although not sure if it was explicitly intended for that as in most of the provisions seem to target sewerage system and a focus on FSSM seems to be absent. This means the major focus seems to be on provisioning of sanitation facilities such as toilets, sewerage system and STPs, with little focus on OSS and secondary treatment facilities. This may need further clarification to explicitly include FSSM within the scope of this law.

C. Treatment and disposal

Treatment and safe disposal of faecal sludge and septage are important parts of the FSSM chain because of its potential to pollute the environment. Thus, direct discharge of untreated faecal sludge and septage to land or water is undoubtedly not permissible under the Environment (Protection) Act, 1986 and the Water

⁷ Ministry of Urban Development, note **Error! Bookmark not defined.** above, p. 17.

(Prevention and Control of Pollution) Act, 1974. Further, the treatment and disposal operations are regulated under these laws. The setting up of STPs or FSTPs is subject to the consent procedure under the above-mentioned laws, which means their working is subject to the terms and conditions stipulated by the concerned State Pollution Control Board (SPCB). These operations are also subject to the effluent discharge standards prescribed under the Environment (Protection) Rules, 1986.

These laws also give an overarching supervising power to the Central Pollution Control Board and the Union Government to step in to take necessary actions if needed. Thus, these operations are to be monitored by the Rajasthan Pollution Control Board. In other words, it is the responsibility of the Rajasthan Pollution Control Board to ensure that the FSSM chain functions properly so that the risk to environment due to faecal sludge and septage is minimum or within the permissible limit.

D. Institutional framework—national, state and city level

The institutional framework related to FSSM is complex because of the presence of a number of institutions at different levels. From a law perspective, the statutory framework related to FSSM is supposed to be developed at the state level because sanitation is a State subject in respect of which the state legislature has the power to make laws. The Constitution of India further promotes decentralisation and envisages sanitation interventions to be governed at the ULB level. However, the Central Government also plays a key role in FSSM partly because certain aspects of FSSM such as environmental pollution and manual scavenging are regulated through central laws and partly because sanitation interventions in urban areas are being undertaken mainly through programmes and policies adopted at the national level such as SBM, AMRUT and the Smart Cities Mission. As a result, the governance structure of FSSM in India is complex with the presence of multiple institutions (statutory and administrative), laws and policies from national to the ULB level (Annex VI).

III. REGULATORY ISSUES, CONCERNS AND CHALLENGES: LESSONS FROM THE FIELD

A. Current FSSM practices: neglect and non-regulation

Current FSSM practices in the three cities where fieldwork was conducted reflect the general scenario in the country as described above. A number of people including officials of ULBs stated that the prevalent system for on-site storage/treatment of human excreta is *Kui* (pit). This is by definition and function different from a septic tank.

There does not seem to be any regulation of the design of toilets. In fact, one official of the SBM in one of the fieldwork cities stated that people generally follow their own understanding and perceptions while constructing toilets rather than the guidance from the government. While this has been the general response, an officer working with the building section in one of the fieldwork cities stated that people build ‘proper’ septic tanks because they fear spillage of wastewater and consequent damage to buildings. In addition, there is also the practice of connecting toilets directly to the drain in places where there is no enough space to build a septic tank or the place is not connected to a sewer network.

There is no single system in place to empty septic tanks/Kuis/pits. The general scenario in all the three cities is that desludging is carried out both by ULBs and private agencies. In many cases big vehicle/lorry with suction pumps is used and therefore, they are unable to reach places where road is narrow. In such places, private agencies/individuals carry out the work. An important aspect in this regard is that ULBs do not carry

out this work directly in some cases. Instead they outsource the work to private agencies. For instance, a Delhi based company was found carrying out the work in Bikaner.

Insofar as the disposal of septage is concerned, there were varied responses. Three practices were observed fieldwork. First, the agency to whom the Bikaner Municipal Corporation has outsourced the work transports the septage to the nearest sewage treatment plant or dumps it in sewer. Second, the private contractors either dump the waste in sewers or on any land/in any forest according to their convenience. Third, although the private contractors stated that they do not sell the waste to farmers to use it on their land, they mentioned that such practices are being followed in some other districts, for instance, in Ganganagar.

Overall, an appropriate mechanism for FSSM is generally absent in all the three districts. However, modest initiatives have been commenced. The State is in the process of adopting a separate Guidelines for FSSM. In addition, FSSM has become a part of ongoing sanitation projects implemented by RUIDP, and FSTPs are being built at least in two cities—Phulera and Sambhar.

B. Need for FSSM: multiple narratives and lack of clarity

It appears that the need for FSSM is felt and assessed differently at different levels of administration. At the level of the Central Government, FSSM has been recognised as an issue to be addressed through proper regulatory and policy interventions. For instance, the Ministry of Urban Development issued an Advisory Note in 2013 to make FSSM a part of the City Sanitation Plans, which are envisaged under the NUSP. In 2017, the Ministry of Urban Development adopted a distinct policy on FSSM.

Similar responses have also begun to take shape at the state level in Rajasthan recently as exemplified by the new policy on FSSM for the State – the Faecal Sludge and Septage Management Guidelines for Urban Rajasthan, 2018. A city level engineer in Bikaner confirmed that while discussion on FSSM is generally absent at the level of city administration, the issue is being discussed in certain state level meetings. The responses at the state level seem to be triggered more by the push from outside rather than as a felt need from inside. Thus, it appears that the Central Government (eg agencies like NIUA) and development aid agencies (eg ADB and BMGF) have played a key role in introducing FSSM into the state government's agenda.

However, the understanding and recognition of FSSM seem to be abysmal at this level of administration. The interviewees from Bikaner and Rajsamand generally underlined the fact that FSSM issues are unlikely to arise in their districts mainly because the groundwater level is very low (400-500 ft in Bikaner). They generally do not seem to be bothered about groundwater pollution due to improper on-site sanitation systems because groundwater is not a source of drinking water due to salinity. While this may still raise the issue of probable pollution of surface water sources due to the practice of disposal of untreated septage, the general response has been that people have constructed very deep pits (eg 70-80 ft), which are unlikely to get filled up in the near future mainly because they are unlined and the topography allows seepage. Some interviewees, however, highlighted the fact that this may not be the case in all districts particularly in places where the groundwater table is high and groundwater is a source of drinking water.

C. Sanitation policy: FSSM as a secondary intervention

As mentioned above, FSSM has slowly made it on to the policy agenda. However, there appears to be an order of priority between on-site and off-site sanitation systems with the latter taking priority over the former. An explicit incorporation of this prioritisation can be found in the FSSM Guidelines, 2018, which underline FSSM as ‘an interim solution for improvement of sanitation situation, till a comprehensive sewerage sanitation solution is in place’. Most of the ongoing sanitation initiatives in this regard, thus, focus on construction of the sewerage network and STPs. For instance, new STPs have been built/are being built in Bikaner and Rajsamand with funding from the Central Government (eg under AMRUT). A district level officer in Bikaner stated that around 50 per cent of the city has already been connected to sewerage and the target is to achieve around 80 per cent coverage. In Rajsamand, the first STP for the city with 5 MLD capacity has been functioning since September 2017. The STP currently receives only 2 MLD and it may function at full capacity once the ongoing work of expanding the sewerage network is completed.

A representative of the RUIDP also pointed out that the policy focus is on construction of sewerage network and STPs. He underlined the fact that FSSM began receiving policy attention recently. As a result, some of the STPs that are being built or planned to be built are co-treatment plants (to treat both sewage and septage) under the ongoing ADB-funded project being implemented by the RUIDP. As part of this project, the RUIDP has planned co-treatment plants in 40 towns.

While FSSM has slowly and gradually found a place in sanitation projects in some places, mainly in big cities (eg AMRUT cities) or cities where projects are funded by external aid agencies such as the ADB and BMGF (eg RUIDP cities), a vast number of small towns are left unattended. This is ironical because these are the towns where sewer networks and STPs are non-existent. Therefore, these small towns probably need more FSSM facilities due to existing on-site sanitation systems and the possible increase in toilets as a result of the implementation of the SBM-Urban. The Directorate of Local Bodies (DLB) of the Government of Rajasthan has initiated a study in 100 such small towns and managed to prepare DPRs for implementation of FSSM for a few cities. However, an officer at DLB stated that the DPRs were prepared with the financial and technical assistance of the NIUA and the actual work cannot be commenced without significant funding from the Central Government or other agencies.

D. co-existence of public and private Service providers

There are mainly four kinds of service providers in the FSSM sector who empty on-site sanitation systems and transport the septage and faecal sludge to disposal sites. First, the ULBs carry out this work through their own employees. It is to be noted that at the time when the fieldwork for this study was conducted, the Government of Rajasthan was in the process of recruiting sanitation workers. Second, in many places, sanitation work such as septic tank emptying and sewage cleaning are outsourced to private companies. For instance, in Bikaner, the Municipal Corporation has engaged a Delhi-based company to carry out this work under the supervision of the Health Officer of the Corporation. Third, in addition to the ULBs and private companies engaged by ULBs, there are private contractors and individuals who carry out the work in places that are not serviced by the ULBs and private companies. A representative of the private company engaged by the Bikaner Municipal Corporation highlighted the limitation of the big trucks that they cannot reach places due to narrow roads. He stated that they generally operate in places where they can access the on-site sanitation systems with their vehicles and devices. This gap is filled by individual contractors, as

confirmed by a contractor during fieldwork in Bikaner. Fourth, in some cases, the residents simply call ‘anyone who is a Harijan’ to carry out the work. Thus, individuals or a group of individuals are involved in this work adding informality to the FSSM related work in the urban sanitation sector in Rajasthan. A respondent from Rajsamand stated that he and other residents in his area do not face a serious problem in getting the septic tanks/pits emptied and cleaned although their area is not accessible for the big trucks because there is a Harijan Basti near their place.

Insofar as the fee is concerned, different service providers follow different systems. ULBs do not charge individual households for the service of emptying of septic tanks/pits. This service is considered as a function of ULBs and therefore deemed to be part of the water/sewerage charges that are paid by the households. The private service providers seem to charge different rates ranging from rupees 250 to 500 per trip. A contractor confirmed that the number of trips depends upon the size of the tank/pit. He further mentioned that generally a couple of trips are required to complete the work on one tank/pit. He said that they charge rupees 3000 to empty a Kui and rupees 10,000 to 12,000 to empty a septic tank.

There is a mixed response to the issue of adequacy of service providers. While following the work of the private company engaged by the ULB in Bikaner, we were told that the number of employees is insufficient compared to the number of service requests they receive. Further, in certain areas, the work takes at least a couple of days because roads are constructed without providing easy entry points to the sewer line. As a result, a lot of time is spent in identifying the manhole and digging the road to reach it. At the same time, a government hospital in Rajsamand told us that they do not face any serious problem in getting the ULB to empty their septic tanks. Usually they get the service within 24 hours of submitting a request.

It is important to underline that while service providers engaged by ULBs and private contractors were available to interact, it was difficult to trace individual service providers. This can be attributed to several reasons. Probably the individual service providers do this work as an additional work. The interaction with people cleaning a sewer in Rajsamand points to the fact that they do this work whenever a contractor engages them. Otherwise, they do any work they get. Caste could be another key factor that renders these service providers invisible. It is almost clear that while households use Harijans for the work, they do not want to talk about them. There seems to be a general consensus that the sanitation work is ‘their’ job. A contemporary way of enforcing untouchability against sanitation workers (and Dalits in general) can also be seen from the fact that they live in the outskirts of the city. Thus, during the fieldwork in Bikaner and Rajsamand, we were told repeatedly about Harijan Bastis where sanitation workers live.

E. Institutions: multiplicity, lack of co-ordination and narrow understanding

Several government agencies are directly or indirectly involved in FSSM in Rajasthan. Currently, different aspects of FSSM are dealt with by different agencies at different levels. The following table illustrates the fragmented nature of FSSM regulation.

Table–6: FSSM regulation

Actual work	ULBs, private companies or contractors engaged by ULBs, informal service providers
Monitoring	ULBs (eg Health Officer in Bikaner). Informal service providers are not monitored because they generally carry out the work secretly probably because they believe or know their work as ‘against the rules’ or ‘illegal’.
Enforcement of environmental standards	Rajasthan State Pollution Control Board
Policy making	State Government, special state-level agencies created for specific projects (eg RUIDP) Eg RUIDP has drafted the current FSSM Guidelines
Project design	Generally, this is done at the ULB level. However, sometimes, this is also done at the state level, for instance the preparation of DPRs for certain towns by the DLB.

Overall, the institutional mechanism related to FSSM in Rajasthan is fragmented both vertically and horizontally. While this may be fine due to the essential link between the FSSM chain on the one side, and other sectors such as health and environment on the other side. However, the narrow understanding of certain institutions of their roles seems to be a key challenge. While ULBs generally recognise their duties and functions in the context of FSSM, the way in which the RSPCB understands its role seems problematic. For instance, they believe that their role is limited to the cases of industrial pollution and FSSM as being completely a responsibility of ULBs. Institutional capacity is also an issue as the RSPCB does not have offices and staff in all districts (eg Rajsamand). In the context of FSSM, they understand their role begins ‘as and when pollution occurs’. Another key challenge is the issue of informal service providers not being part of the institutional framework. As a result, their functions are not recognised and regulated. This raises issues related to health, environment and exploitation of the workers.

F. Sanitation workers’ condition: awareness, compliance and enforcement

Sanitation work in India is generally regarded as a caste-based work, which is carried out predominantly by members of scheduled castes. The fieldwork conducted as part of this study also found a strong influence of caste in the context of sanitation work. A representative of Jai Bhim Sanstha, an organisation working for Dalits in Bikaner, confirmed that a majority of the sanitation workers with the Bikaner Municipal Corporation belong to scheduled castes. He also narrated the different kind of discriminatory practices faced by sanitation workers on a daily basis. He said that until recently retirement related functions of sanitation workers used to be organised on the road as opposed to the general practice, in case of other officers or employees, of conducting them in the meeting rooms or halls in the building of the Corporation. They had to fight a lot to change this practice. He also narrated that even now they are far from thinking of conducting a retirement function of a sanitation worker along with another person’s retirement function if the latter person belongs to a higher caste.

During our visit to one of the community toilets in Rajsamand, we asked the lady who was the care taker of the toilet complex about the person who cleans the toilets. Her answer was “a Harijan will come and do that”. A number of people we met almost casually acknowledged the fact that sanitation work is a Harijan’s job. During fieldwork in Bikaner, we met a sewage worker who was an employee of the Corporation. When

we asked about his caste, his reply was “I am a Harijan and I got this job because my father died while he was in employment”. However, officials denied the link between caste and sanitation work. Thus, a senior officer with Bikaner Municipal Corporation stated that people of all castes including higher castes are engaged in sanitation work in Bikaner.

Similarly, there were different narratives about safety-related issues. Officials in the concerned department of Bikaner Municipal Corporation stated that they follow safety measures. As a matter of proof, we were taken to a place where sewage cleaning was going on and the workers were found wearing boots and helmets.

However, we also encountered different scenarios. We were told that six sanitation workers died while doing sanitation work in the last one-and-a-half years. The Director of the Jai Bhim Sanstha complained that they are still struggling to get the compensation of rupees ten lakhs as prescribed by the Supreme Court while disposing *Safari Karamchari Andolan v Union of India* in 2014 [<http://ielrc.org/content/e1402.pdf>]. In another situation, we witnessed during the fieldwork a sanitation worker working by wearing only an underwear and with a shovel. He said that the workers generally do not get anything else. He also narrated an incident where he had to pick and throw a snake with his hands while doing sanitation work. We also saw workers standing inside, and cleaning, sewers without any protective gears and devices. The Director of the Jai Bhim Sanstha also mentioned that there are no medical check-ups for sanitation workers and first aid kits are not generally kept on the work site. He also emphasised that sanitation inspectors are not present while sewers are being cleaned. According to him, although the presence of sanitation inspectors and many other measures are mandatory under the existing law, the Corporation officers either do not know about the law or they pretend to be ignorant.

IV. REGULATORY LESSONS IN STATE PERSPECTIVE

The overall lessons from the fieldwork explained above in this section point to some of the key issues, challenges and potential of FSSM regulation in the state. This can be summarised as follows:

- i) At the outset, the regulatory framework for FSSM in Rajasthan is characterised with presence as well as absence of regulatory norms, standards and procedure. In some cases, there are laws, but they are hardly implemented. Reasons for non-implementation or ineffective implementation could be lack of awareness, lack of financial resources and/or lack of trained people. This highlights the need for money and human resource to ensure effective implementation of the regulatory framework. Therefore, mere formulation of a robust regulatory framework is not enough to achieve the desired goals. It must also provide the necessary money and human resource to ensure the working on the ground. Put it differently, effective implementation of the regulatory framework is a cost intensive and technology intensive process.
- ii) In the context of construction and design of toilets, there are norms and standards such as the BIS Standards and CPHEEO Manual. However, they are hardly implemented or followed. This is a nuanced issue caused by multiple factors. First, the very nature of these instruments is voluntary in nature. They are non-binding norms and standards. As a result, the implementing agencies might not be feeling compelled to follow them. Second, erstwhile and the ongoing sanitation programmes predominantly focus on increasing the number of toilets with little focus

- on the design factors. Therefore, the practical concerns such as the immediate need to achieve ODF status lead to the side-lining of the existing norms and standards. Third, the key stakeholders such as the household users, masons and the implementing agencies/wing of the ULBs are not aware of these norms and standards in some cases or in other cases, they find it difficult to follow them due to financial and human resource related constraints. Therefore, multifaceted interventions at multiple levels of administration are required to address these concerns. For instance, these issues cannot be addressed by the state government or ULBs alone because they are apparently under pressure from the central government to implement different programmes including SBM.
- iii) Safe collection and transportation of faecal sludge and septage constitute an area where regulatory gap exist. These activities are currently carried out by public and private service providers. Public service providers are working under the direct supervision and control of the ULBs, private service providers are functioning in a regulatory vacuum. As a result, unsafe collection, transportation and disposal of faecal sludge and septage is common and raise public health and environmental concerns. This needs to be addressed by formalising these services and by providing a robust system of regulation as well as infrastructure and incentives. Building a robust system in this regard needs significant investment and expertise. Further, this is a segment of the FSSM chain that has the potential to cause significant environmental pollution. Therefore, it is very important to bring the SPCB on board for the purpose of monitoring and surveillance. Currently, such a coordination does not seem to be in place because of lack of coordination between ULBs and the SPCB. In fact, in some cases, both these agencies indulge in burden shifting and blame game.
 - iv) Treatment and disposal of faecal sludge and septage is a part of the FSSM chain that is governed by existing environmental laws. However, the role of environmental laws in this regard comes into action only when the necessary infrastructure is in place, which is primarily a responsibility of ULBs, drawing from the concerned legislation governing ULBs, albeit with financial and technical assistance from the state government and the central government. The construction, operation and maintenance of such facilities are governed by environmental laws, mainly the Water (Prevention and Control of Pollution) Act, 1974 and the Environment (Protection) Act, 1986. This involves the process such as obtaining consent from the SPCB and the duty to follow the parameters prescribed by the CPCB and SPCB while discharging the treated waste to the environment. A vigilant and equipped SPCB is inevitable to ensure proper implementation of the law in this regard, which seems to be lacking. On the one hand, the SPCB does not seem to have adequate human resource and infrastructure to ensure effective implementation. On the other hand, the SPCB seems to follow a very restrictive understanding of their role being limited to industrial pollution, that too a role in the context of post-facto remediation rather than precautionary monitoring and surveillance.
 - v) Safety for sanitation workers is a serious issue not just in Rajasthan but across in India. This part of the FSSM process is governed by the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 and the Rules framed under this Act coupled with the judgement of the Supreme Court in *Safai Karamchhari Andolan v. Union of India* (2014). This legal framework consists of provisions criminalising employing of manual scavengers, detailed list of safety gadgets to be provided to sanitation workers and the provision of compensation

in case of accidental deaths. There is rampant violation of the law in this regard. Instead of considering this primarily as a question of strict enforcement of law, there seems to be tendency to treat it as an issue to be addressed through soft policy approaches. While, provisioning of technology and awareness creation are much appreciated, the state government and ULBs are duty bound to take actions prescribed under this law. To put it differently, this is a legal duty and there is no question of gradual and incremental implementation. The law has to be implemented immediately. The state government and ULBs cannot take the excuse of financial and human resource constraints in this regard as the Supreme Court of India declared in a case (*Ratlam Municipality v Vardhichand*, 1980) that such a government or local bodies have no right to exist if it is unable to fulfil its mandatory legal obligations.

V. TOWARDS A BETTER FSSM REGULATION: THE NEW REGULATORY FRAMEWORK IN RAJASTHAN

In 2018, the Government of Rajasthan adopted two key documents related to FSSM—the Faecal Sludge and Septage Management Policy (the Policy) and the Faecal Sludge and Septage Management Guidelines (the Guidelines). These documents together constitute the key framework governing FSSM in the state. In this context, this part of the report briefly analyses this framework. This is particularly relevant in a context when these documents were adopted after the completion of the fieldwork. However, all the key issues discussed above in this report have been acknowledged and sought to be addressed through this framework.

A. The FSSM Policy and the FSSM Guidelines

The Policy and the Guidelines together seek to ensure a sustainable FSSM in the state. Key features of this framework can be summarised as follows:

- i) It acknowledges almost all issues relevant in the context of FSSM in the state such as lack of infrastructure, money, expertise, awareness and lack of regulation among other things. This is impressive in a context when there has been significant lack of recognition of FSSM issues at all levels of administration for long. This is even now the case in some states.
- ii) It brings in some of the key statutes relevant in the context of FSSM such as the law relating to ULBs and the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013. It also makes a link with norms and parameters prescribed in non-binding instruments such as the BIS standards and the CPHEEO Manual. In this way, the Policy and the Guidelines seek to build upon the existing regulatory framework and most importantly it seeks to give effect to legislation such as the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
- iii) It provides a detailed list of different institutions and agencies relevant in the context of FSSM in the state and outlines the respective roles, powers and functions of each institutions.
- iv) It seeks to establish two key FSSM specific institutions each at the state level and at city level. At the state level, a State FSSM Committee and a State FSSM Cell are sought to be set up. While the former is a policy making body with supervisory powers as well as the power to coordinate different institutions working on FSSM, the latter is entrusted to look after the day-to-day implementation of the Policy and the Guidelines. Similarly, at the city level, the City Sanitation Committee and the City Sanitation Cell are to be constituted. The former is

responsible for formulation of city level plans and documents and the latter is responsible to look after key regulatory functions such as the issuing of license to desludging operators and management of scheduled desludging operations and redressal of grievances.

- v) It seeks to establish a robust regulatory framework by addressing almost all key issues pertaining to all aspects of the FSSM chain.
- a) **Design and construction of toilets:** the framework re-emphasises the need to follow the existing standards and norms prescribed under the BIS Code IS 2470 and the CPHEEO Manual. The framework makes it mandatory for ULBs to adopt regulations on the design and construction methods as part of the building regulations. This makes sense as it is practically convenient to ensure if the agencies responsible to issue permission to build and the completion certificate are duty bound to check all these parameters before issuing the certificate.
 - b) **Desludging and transportation:** the framework makes it mandatory for all users of septic tanks and pits to desludge them through licensed operator in every 3-5 years. This is important from two angles. First, it creates a mandatory obligation on users to desludge within prescribed time period. Second, it seeks to formalise the service through a licensing process (license for 2 years). Thus, the framework aims to exercise effective monitoring over desludging and transportation. This is particularly relevant in a context when the clandestine dumping of untreated septage by private service providers is a serious issue.
 - c) **Treatment and disposal:** the framework envisages two options for treatment and disposal of faecal sludge and septage. It could be either through a dedicated Faecal Sludge Treatment Plant or through co-treatment of both septage and sewage in Sewage Treatment Plants. The underlying objective is to avoid the discharge of untreated faecal sludge or septage to environment, which is already identified as one of the important reasons of water pollution. In addition to that, the framework also aims to generate income by making the treated sludge available for productive uses.
 - d) **Grievance redressal:** the framework provides for a dedicated grievance redressal cell and prescribes time bound process where in a grievance would be replied in 48 hours and would be addressed within three working days.
 - e) **Compliance and penalty:** the framework provides a list of suggestive penalties that may be levied on operators and households on issues such as illegal disposal of faecal sludge or septage, for not providing safety gears to sanitation workers and for any spillage during transportation.

B. further steps to improve the framework

The Policy and the Guidelines together project a robust framework in terms of coverage of issues and mechanisms envisaged under the framework. Nevertheless, there are few areas or points where further improvements can be considered:

- i) The Policy and the Guidelines are urban focused and urban centric although the title of the documents seems to give an impression that they are of general application. They could be made either urban specific documents or documents of general application but this would require substantial changes. While the former approach is easy, the latter requires huge effort to include the rural specific issues and challenges. However, a framework for rural areas also needs to be developed urgently given the fact that the state of Rajasthan has been declared ODF. As a result, the FSSM issues are going to emerge in rural areas in near future.
- ii) While it is a progressive step to make links with existing laws, the Policy and the Guidelines could do it in a different manner: It is a well-established principle that policy documents cannot bypass or modify laws. Modification of laws must be carried out by following prescribed process and procedure by legislatures only. The executive has limited powers to frame rules (known as delegated legislation) by using the power drawn from a legislation and such powers are to be within the boundaries prescribed under the parent legislation. The Policy and the Guidelines seem to have deviated from this principle at least in some cases. It appears that the existing laws were not taken into account while drafting some parts of the Policy and the Guidelines. For instance:
 - a) The list of safety gears for sanitation workers mentioned in the Guideline is very limited when compared to the list mentioned in the Prohibition of Employment as Manual Scavengers and their Rehabilitation Rules, 2013. Even though the list mentioned in the Guidelines could be treated as illustrative, it would be ideal to reproduce the list from the Prohibition of Employment as Manual Scavengers and their Rehabilitation Rules, 2013 and to underline the legal obligation arising from the law.
 - b) The Guidelines seeks to impose penalty on operators for not using protective gears. This is already a mandatory legal duty under the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 and there will be legal consequences for not complying with it. In that case, there cannot be any further punishment because the Constitution of India prohibits punishing any person twice for the same offence.
 - c) The Guidelines provides that ‘all households with insanitary latrines shall be given notices to convert them into septic tanks, twin pits...’. There seems to be a contradiction with the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013. Under this Act, it is the duty of the occupier to demolish insanitary latrines in her premises, violation of which is a punishable offence. Further, as per the Act, the local authority should have undertaken the survey of insanitary latrines and taken action long time ago. Thus, the presence of insanitary latrines amounts to a testimony of inadequate implementation of the Act.
 - d) The Policy envisages penalisation of desludging operators for violating the transportation and dumping related norms. While this sounds impressive, this may raise certain legal issues. The issue of environmental pollution falls within the domain of the Environment (Protection) Act, 1986 and rules framed under

this Act. It may also fall under the domain of the Water (Prevention and Control of Pollution) Act, 1974. In either case, issues arising in the context of these laws are supposed to be decided by the National Green Tribunal which has the power under the National Green Tribunal Act, 2010 to apply the Polluter Pays Principle.

- iii) The Policy and the Guidelines takes special attention to clearly lay down the duties of individual households and desludging operators. They also underline the need for imposing penalties in cases of non-compliance with prescribed norms. However, similar kind of strong provisions are missing in the case of duties and functions of ULBs and the state government. This raises serious accountability issues.

The points raised above underline the need for a rigorous exercise to identify the links with existing laws and constitutional provisions and sincere efforts to bring the Policy and the Guidelines in conformity with the existing laws. Such an exercise would strengthen the foundation of the Policy and the Guidelines by removing identified inconformity with laws.

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VII. ANNEXURES

A. Annexure-1: Questionnaire

a) Design, construction and maintenance of toilets:

- (a) Whether and to what extent implementing agencies and individual users are aware of the existing guidelines and standards?
- (b) To what extent implementing agencies enforce these norms and standards?
- (c) Whether and to what extent individual users follow these norms and standards?
- (d) Whether and to what extent local level masons are aware of and equipped to follow these norms and standards?

b) Desludging and transportation:

- (a) What is the general practice in terms of desludging of OSS?
- (b) Whether cities in Rajasthan have adequate service providers for desludging and transportation of faecal sludge and septage?
- (c) If private service providers are there, how they are regulated?
- (d) What are existing mechanism to treat faecal sludge and septage?
- (e) Whether ULBs have taken initiatives to prevent manual scavenging?

c) Treatment and disposal:

- (a) Whether faecal sludge and septage are treated in the state? If yes how?
- (b) What standards are followed by the existing STPs or FSTPs in Rajasthan?
- (c) Whether and to what extent the treated faecal sludge and septage are recycled/reused?
- (d) In case of recycling and reuse, what are the purposes for which it is used and which agency monitors the safety aspect?
- (e) Whether the Rajasthan Pollution Control Board has taken any action to prevent direct dumping of untreated faecal sludge and septage?

B. Annexure-II: Sanitation scenario in the fieldwork districts

a) Bikaner

Name of SubDistrict	Total/ Rural/ Urban	Total number of household	Number and Percentage of households having following type of latrine facility									
			Flush/Pour latrine			Pit Latrine	Without slab/open pit	Night Soil disposed into open drain	Service Latrine		No latrine within premises	
			Piped sewer sys	Septic tank	Other system	With slab/Ventilated improved pit			Night soil removed by human	Night soil serviced by animals	Public Latrine	Open
2	3	4	5	6	7	8	9	10	11	12	13	14
Sub-District - Bikaner	Total	1,50,387	46,629 (31.01%)	40,058 (26.64%)	8,582 (5.71%)	7,623 (5.07%)	905 (0.6%)	18,119 (12.05%)	91 (0.06%)	314 (0.21%)	476 (0.32%)	27,590 (18.35%)
	Rural	38,338	1,313 (3.42%)	10,043 (26.2%)	1,315 (3.43%)	3,973 (10.36%)	424 (1.11%)	64 (0.17%)	74 (0.19%)	6 (0.02%)	62 (0.16%)	21,064 (54.94%)
	Urban	1,12,049	45,316 (40.44%)	30,015 (26.79%)	7,267 (6.49%)	3,650 (3.26%)	481 (0.43%)	18,055 (16.11%)	17 (0.02%)	308 (0.27%)	414 (0.37%)	6,526 (5.82%)
Sub-District - Poogal	Total	11,961	207 (1.73%)	476 (3.98%)	87 (0.73%)	91 (0.76%)	225 (1.88%)	11 (0.09%)	0 (0%)	4 (0.03%)	35 (0.29%)	10,825 (90.5%)
	Rural	11,961	207 (1.73%)	476 (3.98%)	87 (0.73%)	91 (0.76%)	225 (1.88%)	11 (0.09%)	0 (0%)	4 (0.03%)	35 (0.29%)	10,825 (90.5%)
	Urban	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sub-District - Lunkaransar	Total	33,752	363 (1.08%)	2,615 (7.75%)	1,173 (3.48%)	3,049 (9.03%)	6,621 (19.62%)	45 (0.13%)	0 (0%)	17 (0.05%)	20 (0.06%)	19,849 (58.81%)
	Rural	33,752	363 (1.08%)	2,615 (7.75%)	1,173 (3.48%)	3,049 (9.03%)	6,621 (19.62%)	45 (0.13%)	0 (0%)	17 (0.05%)	20 (0.06%)	19,849 (58.81%)
	Urban	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sub-District - Kolayat	Total	42,523	526 (1.24%)	4,603 (10.82%)	903 (2.12%)	743 (1.75%)	346 (0.81%)	82 (0.19%)	0 (0%)	6 (0.01%)	185 (0.44%)	35,129 (82.61%)
	Rural	40,919	456 (1.11%)	3,864 (9.44%)	875 (2.14%)	725 (1.77%)	331 (0.81%)	74 (0.18%)	0 (0%)	6 (0.01%)	114 (0.28%)	34,474 (84.25%)
	Urban	1,604	70 (4.36%)	739 (46.07%)	28 (1.75%)	18 (1.12%)	15 (0.94%)	8 (0.5%)	0 (0%)	0 (0%)	71 (4.43%)	655 (40.84%)
Sub-District - Nokha	Total	65,481	2,932 (4.48%)	14,624 (22.33%)	895 (1.37%)	2,057 (3.14%)	274 (0.42%)	54 (0.08%)	21 (0.03%)	22 (0.03%)	186 (0.28%)	44,416 (67.83%)
	Rural	55,888	948 (1.7%)	8,410 (15.05%)	786 (1.41%)	1,792 (3.21%)	266 (0.48%)	51 (0.09%)	21 (0.04%)	21 (0.04%)	175 (0.31%)	43,418 (77.69%)
	Urban	9,593	1,984 (20.68%)	6,214 (64.78%)	109 (1.14%)	265 (2.76%)	8 (0.08%)	3 (0.03%)	0 (0%)	1 (0.01%)	11 (0.11%)	998 (10.4%)
Sub-District - Khajuwala	Total	15,984	264 (1.65%)	920 (5.76%)	239 (1.5%)	1,371 (8.58%)	6,093 (38.12%)	51 (0.32%)	31 (0.19%)	7 (0.04%)	162 (1.01%)	6,846 (42.83%)
	Rural	13,690	130 (0.95%)	328 (2.4%)	212 (1.55%)	790 (5.77%)	5,477 (40.01%)	17 (0.12%)	0 (0%)	7 (0.05%)	148 (1.08%)	6,581 (48.07%)
	Urban	2,294	134 (5.84%)	592 (25.81%)	27 (1.18%)	581 (25.33%)	616 (26.85%)	34 (1.48%)	31 (1.35%)	0 (0%)	14 (0.61%)	265 (11.55%)
Sub-District - Chhatargarh	Total	13,858	156 (1.13%)	470 (3.39%)	481 (3.47%)	404 (2.92%)	1,131 (8.16%)	11 (0.08%)	0 (0%)	6 (0.04%)	27 (0.19%)	11,172 (80.62%)
	Rural	13,858	156 (1.13%)	470 (3.39%)	481 (3.47%)	404 (2.92%)	1,131 (8.16%)	11 (0.08%)	0 (0%)	6 (0.04%)	27 (0.19%)	11,172 (80.62%)
	Urban	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sub-District - Sridungargarh	Total	42,024	1,009 (2.4%)	9,565 (22.76%)	3,789 (9.02%)	3,277 (7.8%)	465 (1.11%)	13 (0.03%)	0 (0%)	42 (0.1%)	102 (0.24%)	23,762 (56.54%)
	Rural	34,086	602 (1.77%)	6,886 (20.2%)	998 (2.93%)	2,175 (6.38%)	389 (1.14%)	12 (0.04%)	0 (0%)	41 (0.12%)	82 (0.24%)	22,901 (67.19%)
	Urban	7,938	407 (5.13%)	2,679 (33.75%)	2,791 (35.16%)	1,102 (13.88%)	76 (0.96%)	1 (0.01%)	0 (0%)	1 (0.01%)	20 (0.25%)	861 (10.85%)
District Bikaner	Total	3,75,970	52,086 (13.85%)	73,331 (19.5%)	16,149 (4.3%)	18,615 (4.95%)	16,060 (4.27%)	18,386 (4.89%)	143 (0.04%)	418 (0.11%)	1,193 (0.32%)	179,589 (47.77%)
	Rural	2,42,492	4,175 (1.72%)	33,092 (13.65%)	5,927 (2.44%)	12,999 (5.36%)	14,864 (6.13%)	285 (0.12%)	95 (0.04%)	108 (0.04%)	663 (0.27%)	170,284 (70.22%)
	Urban	1,33,478	47,911 (35.89%)	40,239 (30.15%)	10,222 (7.66%)	5,616 (4.21%)	1,196 (0.9%)	18,101 (13.56%)	48 (0.04%)	310 (0.23%)	530 (0.4%)	9,305 (6.97%)

b) Jaipur

Name of SubDistrict	Total/ Rural Urban	Total number of household	Number and Percentage of households having following type of latrine facility										
			Flush/Pour latrine			Pit Latrine		Night Soil dispose into open drain	Service Latrine		No latrine within premises		
			Piped sewer system	Septic tank	Other system	With slab/Ventilate improved pit	Without slab/open pit		Night soil removed by human	Night soil serviced by animals	Public Latrine	Open	
2	3	4	5	6	7	8	9	10	11	12	13	14	
Sub-District - Kotputli	Total	69,292	709 (1.02%)	9,919 (14.31%)	499 (0.72%)	4,134 (5.97%)	118 (0.17%)	54 (0.08%)	0 (0%)	30 (0.04%)	296 (0.43%)	53,533 (77.26%)	
	Rural	61,460	604 (0.98%)	5,906 (9.61%)	489 (0.8%)	2,573 (4.19%)	78 (0.13%)	53 (0.09%)	0 (0%)	27 (0.04%)	282 (0.46%)	51,448 (83.71%)	
	Urban	7,832	105 (1.34%)	4,013 (51.24%)	10 (0.13%)	1,561 (19.93%)	40 (0.51%)	1 (0.01%)	0 (0%)	3 (0.04%)	14 (0.18%)	2,085 (26.62%)	
Sub-District - Viratnagar	Total	27,209	275 (1.01%)	2,738 (10.06%)	320 (1.18%)	587 (2.16%)	19 (0.07%)	27 (0.1%)	0 (0%)	7 (0.03%)	27 (0.1%)	23,209 (85.3%)	
	Rural	23,940	237 (0.99%)	1,577 (6.59%)	285 (1.19%)	573 (2.39%)	19 (0.08%)	23 (0.1%)	0 (0%)	7 (0.03%)	13 (0.05%)	21,206 (88.58%)	
	Urban	3,269	38 (1.16%)	1,161 (35.52%)	35 (1.07%)	14 (0.43%)	0 (0%)	4 (0.12%)	0 (0%)	0 (0%)	14 (0.43%)	2,003 (61.27%)	
Sub-District - Shahpura	Total	43,660	527 (1.21%)	7,814 (17.9%)	961 (2.2%)	1,991 (4.56%)	52 (0.12%)	28 (0.06%)	0 (0%)	44 (0.1%)	126 (0.29%)	32,117 (73.56%)	
	Rural	35,071	301 (0.86%)	4,242 (12.1%)	766 (2.18%)	1,049 (2.99%)	45 (0.13%)	21 (0.06%)	0 (0%)	40 (0.11%)	100 (0.29%)	28,507 (81.28%)	
	Urban	8,589	226 (2.63%)	3,572 (41.59%)	195 (2.27%)	942 (10.97%)	7 (0.08%)	7 (0.08%)	0 (0%)	4 (0.05%)	26 (0.3%)	3,610 (42.03%)	
Sub-District - Chomu	Total	59,802	1,436 (2.4%)	16,025 (26.8%)	2,455 (4.11%)	4,453 (7.45%)	289 (0.48%)	72 (0.12%)	0 (0%)	38 (0.06%)	90 (0.15%)	34,944 (58.43%)	
	Rural	48,758	697 (1.43%)	9,855 (20.21%)	1,797 (3.69%)	3,543 (7.27%)	135 (0.28%)	25 (0.05%)	0 (0%)	27 (0.06%)	70 (0.14%)	32,609 (66.88%)	
	Urban	11,044	739 (6.69%)	6,170 (55.87%)	658 (5.96%)	910 (8.24%)	154 (1.39%)	47 (0.43%)	0 (0%)	11 (0.1%)	20 (0.18%)	2,335 (21.14%)	
Sub-District - Phulera	Total	72,162	1,492 (2.07%)	17,598 (24.39%)	2,775 (3.85%)	5,849 (8.11%)	329 (0.46%)	50 (0.07%)	29 (0.04%)	29 (0.04%)	380 (0.53%)	43,631 (60.46%)	
	Rural	57,158	769 (1.35%)	7,763 (13.58%)	2,263 (3.96%)	5,483 (9.59%)	255 (0.45%)	24 (0.04%)	0 (0%)	29 (0.05%)	314 (0.55%)	40,258 (70.43%)	
	Urban	15,004	723 (4.82%)	9,835 (65.55%)	512 (3.41%)	366 (2.44%)	74 (0.49%)	26 (0.17%)	29 (0.19%)	0 (0%)	66 (0.44%)	3,373 (22.48%)	
Sub-District - Mauzamadabad	Total	35,228	271 (0.77%)	5,347 (15.18%)	418 (1.19%)	538 (1.53%)	39 (0.11%)	30 (0.09%)	0 (0%)	10 (0.03%)	48 (0.14%)	28,527 (80.98%)	
	Rural	35,228	271 (0.77%)	5,347 (15.18%)	418 (1.19%)	538 (1.53%)	39 (0.11%)	30 (0.09%)	0 (0%)	10 (0.03%)	48 (0.14%)	28,527 (80.98%)	
	Urban	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Sub-District - Phagi	Total	31,468	358 (1.14%)	2,308 (7.33%)	276 (0.88%)	908 (2.89%)	118 (0.37%)	11 (0.03%)	0 (0%)	31 (0.1%)	194 (0.62%)	27,264 (86.64%)	
	Rural	31,468	358 (1.14%)	2,308 (7.33%)	276 (0.88%)	908 (2.89%)	118 (0.37%)	11 (0.03%)	0 (0%)	31 (0.1%)	194 (0.62%)	27,264 (86.64%)	
	Urban	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Sub-District - Sanganer	Total	1,55,278	82,691 (53.25%)	34,322 (22.1%)	3,505 (2.26%)	7,378 (4.75%)	727 (0.47%)	249 (0.16%)	0 (0%)	323 (0.21%)	680 (0.44%)	25,403 (16.36%)	
	Rural	26,155	583 (2.23%)	6,773 (25.9%)	901 (3.44%)	1,860 (7.11%)	177 (0.68%)	27 (0.1%)	0 (0%)	16 (0.06%)	97 (0.37%)	15,721 (60.11%)	
	Urban	1,29,123	82,108 (63.59%)	27,549 (21.34%)	2,604 (2.02%)	5,518 (4.27%)	550 (0.43%)	222 (0.17%)	0 (0%)	307 (0.24%)	583 (0.45%)	9,682 (7.5%)	
Sub-District - Jaipur	Total	4,63,626	325,669 (70.24%)	75,243 (16.23%)	6,053 (1.31%)	17,424 (3.76%)	2,870 (0.62%)	902 (0.19%)	40 (0.01%)	922 (0.2%)	1,810 (0.39%)	32,693 (7.05%)	
	Rural	19,397	682 (3.52%)	6,329 (32.63%)	780 (4.02%)	2,960 (15.26%)	483 (2.49%)	25 (0.13%)	0 (0%)	4 (0.02%)	89 (0.46%)	8,045 (41.48%)	
	Urban	4,44,229	324,987 (73.16%)	68,914 (15.51%)	5,273 (1.19%)	14,464 (3.26%)	2,387 (0.54%)	877 (0.2%)	40 (0.01%)	918 (0.21%)	1,721 (0.39%)	24,648 (5.55%)	
Sub-District - Amber	Total	58,397	1,022 (1.75%)	15,266 (26.14%)	1,607 (2.75%)	3,068 (5.25%)	173 (0.3%)	69 (0.12%)	0 (0%)	44 (0.08%)	249 (0.43%)	36,899 (63.19%)	
	Rural	48,559	438 (0.9%)	9,104 (18.75%)	1,466 (3.02%)	2,511 (5.17%)	160 (0.33%)	68 (0.14%)	0 (0%)	20 (0.04%)	213 (0.44%)	34,579 (71.21%)	
	Urban	9,838	584 (5.94%)	6,162 (62.63%)	141 (1.43%)	557 (5.66%)	13 (0.13%)	1 (0.01%)	0 (0%)	24 (0.24%)	36 (0.37%)	2,320 (23.58%)	
Sub-District - Jamwa	Total	49,640	293 (0.59%)	4,189 (8.44%)	485 (0.98%)	1,012 (2.04%)	78 (0.16%)	48 (0.1%)	0 (0%)	37 (0.07%)	169 (0.34%)	43,329 (87.29%)	
	Rural	48,416	280 (0.58%)	3,762 (7.77%)	481 (0.99%)	750 (1.55%)	78 (0.16%)	48 (0.1%)	0 (0%)	36 (0.07%)	166 (0.34%)	42,815 (88.43%)	
	Urban	1,224	13 (1.06%)	427 (34.89%)	4 (0.33%)	262 (21.41%)	0 (0%)	0 (0%)	0 (0%)	1 (0.08%)	3 (0.25%)	514 (41.99%)	
Sub-District - Bassi	Total	44,454	699 (1.57%)	5,709 (12.84%)	568 (1.28%)	1,110 (2.5%)	280 (0.63%)	32 (0.07%)	37 (0.08%)	49 (0.11%)	222 (0.5%)	35,748 (80.42%)	
	Rural	36,799	492 (1.34%)	2,740 (7.45%)	418 (1.14%)	577 (1.57%)	264 (0.72%)	26 (0.07%)	17 (0.05%)	49 (0.13%)	215 (0.58%)	32,001 (86.96%)	
	Urban	7,655	207 (2.7%)	2,969 (38.79%)	150 (1.96%)	533 (6.96%)	16 (0.21%)	6 (0.08%)	20 (0.26%)	0 (0%)	7 (0.09%)	3,747 (48.95%)	
Sub-District - Chaksu	Total	35,688	511 (1.43%)	3,525 (9.88%)	387 (1.08%)	800 (2.24%)	200 (0.56%)	44 (0.12%)	0 (0%)	12 (0.03%)	100 (0.28%)	30,109 (84.37%)	
	Rural	30,225	350 (1.16%)	1,617 (5.35%)	180 (0.6%)	642 (2.12%)	61 (0.2%)	33 (0.11%)	0 (0%)	9 (0.03%)	65 (0.22%)	27,268 (90.22%)	
	Urban	5,463	161 (2.95%)	1,908 (34.93%)	207 (3.79%)	158 (2.89%)	139 (2.54%)	11 (0.2%)	0 (0%)	3 (0.05%)	35 (0.64%)	2,841 (52%)	
District Jaipur	Total	11,45,904	415,953 (36.3%)	200,003 (17.45%)	20,309 (1.77%)	49,252 (4.3%)	5,292 (0.46%)	1,616 (0.14%)	106 (0.01%)	1,576 (0.14%)	4,391 (0.38%)	447,406 (39.04%)	
	Rural	5,02,634	6,062 (1.21%)	67,323 (13.39%)	10,520 (2.09%)	23,967 (4.77%)	1,912 (0.38%)	414 (0.08%)	17 (0%)	305 (0.06%)	1,866 (0.37%)	390,248 (77.64%)	
	Urban	6,43,270	409,891 (63.72%)	132,680 (20.63%)	9,789 (1.52%)	25,285 (3.93%)	3,380 (0.53%)	1,202 (0.19%)	89 (0.01%)	1,271 (0.2%)	2,525 (0.39%)	57,158 (8.89%)	

c) Rajsamand

Name of Sub-District	Total Rural/Urban	Total number of household	Number and Percentage of households having following type of latrine facility									
			Flush/Pour latrine			Pit latrine		Night soil disposed into open drain	Service latrine		No latrine within premises	
			Piped sewer system	Septic tank	Other system	With slab/ventilated improved pit	Without slab/open pit		Night soil removed by human	Night soil serviced by animals	Public latrine	Open
2	3	4	5	6	7	8	9	10	11	12	13	14
Sub-District Bhim	Total	36,818	211 (0.57%)	3,401 (9.24%)	357 (0.97%)	72 (0.2%)	71 (0.19%)	25 (0.07%)	0 (0%)	26 (0.07%)	10 (0.03%)	32,645 (88.67%)
	Rural	34,575	165 (0.48%)	2,290 (6.62%)	340 (0.98%)	71 (0.21%)	68 (0.2%)	25 (0.07%)	0 (0%)	26 (0.08%)	10 (0.03%)	31,580 (91.34%)
	Urban	2,243	46 (2.05%)	1,111 (49.53%)	17 (0.76%)	1 (0.04%)	3 (0.13%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1,065 (47.48%)
Sub-District Deogarh	Total	23,980	507 (2.11%)	3,306 (13.79%)	60 (0.25%)	100 (0.42%)	20 (0.08%)	7 (0.03%)	0 (0%)	6 (0.03%)	101 (0.42%)	19,873 (82.87%)
	Rural	20,511	111 (0.54%)	1,424 (6.94%)	56 (0.27%)	95 (0.46%)	17 (0.08%)	2 (0.01%)	0 (0%)	5 (0.02%)	98 (0.38%)	18,723 (91.28%)
	Urban	3,469	396 (11.42%)	1,882 (54.25%)	4 (0.12%)	5 (0.14%)	3 (0.09%)	5 (0.14%)	0 (0%)	1 (0.03%)	23 (0.66%)	1,150 (33.15%)
Sub-District Amet	Total	25,064	97 (0.39%)	3,793 (15.13%)	73 (0.29%)	11 (0.16%)	52 (0.21%)	4 (0.02%)	0 (0%)	2 (0.01%)	194 (0.77%)	20,808 (83.02%)
	Rural	20,067	62 (0.31%)	1,166 (5.81%)	71 (0.35%)	3 (0.15%)	52 (0.26%)	3 (0.01%)	0 (0%)	2 (0.01%)	186 (0.92%)	18,677 (93.07%)
	Urban	4,997	35 (0.7%)	2,627 (52.57%)	2 (0.04%)	8 (0.22%)	0 (0%)	1 (0.02%)	0 (0%)	0 (0%)	8 (0.16%)	2,131 (42.65%)
Sub-District Kumbhalgarh	Total	33,528	152 (0.45%)	2,045 (6.1%)	226 (0.67%)	69 (0.21%)	59 (0.18%)	3 (0.01%)	0 (0%)	17 (0.05%)	203 (0.61%)	30,754 (91.73%)
	Rural	33,528	152 (0.45%)	2,045 (6.1%)	226 (0.67%)	69 (0.21%)	59 (0.18%)	3 (0.01%)	0 (0%)	17 (0.05%)	203 (0.61%)	30,754 (91.73%)
	Urban	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sub-District Rajsamand	Total	46,123	1,178 (2.55%)	15,097 (32.73%)	1,81 (0.39%)	73 (0.16%)	106 (0.23%)	35 (0.08%)	0 (0%)	3 (0.01%)	728 (1.58%)	28,722 (62.27%)
	Rural	30,146	289 (0.96%)	13,128 (43.69%)	1,11 (0.37%)	71 (0.24%)	100 (0.33%)	16 (0.05%)	0 (0%)	2 (0.01%)	551 (1.83%)	24,878 (82.53%)
	Urban	15,977	889 (5.56%)	10,969 (68.65%)	70 (0.44%)	2 (0.01%)	6 (0.04%)	19 (0.12%)	0 (0%)	1 (0.01%)	177 (1.11%)	3,844 (24.06%)
Sub-District Raimagra	Total	28,114	751 (2.67%)	3,021 (10.75%)	1,44 (0.51%)	71 (0.25%)	75 (0.27%)	16 (0.06%)	0 (0%)	4 (0.01%)	235 (0.84%)	22,807 (81.12%)
	Rural	28,114	751 (2.67%)	3,021 (10.75%)	1,44 (0.51%)	71 (0.25%)	75 (0.27%)	16 (0.06%)	0 (0%)	4 (0.01%)	235 (0.84%)	22,807 (81.12%)
	Urban	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sub-District Nathdwara	Total	51,861	983 (1.9%)	9,825 (18.94%)	224 (0.43%)	89 (0.17%)	21 (0.04%)	1,429 (2.76%)	0 (0%)	17 (0.03%)	199 (0.38%)	39,074 (75.34%)
	Rural	42,802	386 (0.9%)	4,563 (10.66%)	99 (0.23%)	73 (0.17%)	7 (0.02%)	34 (0.08%)	0 (0%)	9 (0.02%)	139 (0.32%)	37,492 (87.59%)
	Urban	9,059	597 (6.59%)	5,262 (58.09%)	125 (1.38%)	16 (0.18%)	14 (0.15%)	1,395 (15.4%)	0 (0%)	8 (0.09%)	60 (0.66%)	1,582 (17.46%)
District Rajsamand	Total	2,45,488	3,879 (1.58%)	41,488 (16.9%)	1,265 (0.52%)	515 (0.21%)	404 (0.16%)	1,509 (0.61%)	0 (0%)	75 (0.03%)	1,670 (0.68%)	194,683 (79.3%)
	Rural	2,09,743	1,916 (0.91%)	19,637 (9.36%)	1,047 (0.5%)	480 (0.23%)	378 (0.18%)	89 (0.04%)	0 (0%)	65 (0.03%)	1,220 (0.58%)	184,911 (88.16%)
	Urban	35,745	1,963 (5.49%)	21,851 (61.13%)	218 (0.61%)	35 (0.1%)	26 (0.07%)	1,420 (3.97%)	0 (0%)	10 (0.03%)	450 (1.26%)	9,772 (27.34%)

C. Annexure III—REGULATORY FRAMEWORK

a) National level

i. Constitution of India

According to the Constitution of India, sanitation and water are State subjects (Seventh Schedule, List II – State List, Entries 6 and 17 respectively). In other words, the State is vested with the power to make laws on these subjects. According to the 74th Constitutional Amendment Act, 1992, the responsibility for the planning and delivery of urban services, including sanitation, lies with ULBs under local municipal laws.

ii. Laws

Environment (Protection) Act, 1986 and Water (Prevention and Control of Pollution) Act, 1974

Treatment and safe disposal of faecal sludge and septage are important components of the FSSM chain because of the potential of faecal sludge and septage to pollute the environment. Thus, the direct discharge of untreated faecal sludge and septage on land or into water is undoubtedly not permissible under the Environment (Protection) Act, 1986 and the Water (Prevention and Control of Pollution) Act, 1974. For instance, section 24 of the Water (Prevention and Control of Pollution) Act, 1974 explicitly prohibits dumping of any pollutant to streams and wells. The violators are liable to be prosecuted and punished under these laws. Further, treatment and disposal operations are regulated under these laws. The setting up of STPs or FSTPs is subject to the consent procedure under the above-mentioned laws, which means that their working is subject to the terms and conditions stipulated by the concerned State Pollution Control Boards (SPCBs). These operations are also subject to the effluent discharge standards prescribed under the Environment (Protection) Rules, 1986.

These laws also give an overarching supervising power to the Central Pollution Control Board and the Central Government to step in to take necessary actions if required. Thus, these operations are to be monitored by the Rajasthan Pollution Control Board. In other words, it is the responsibility of the Rajasthan Pollution Control Board to ensure that the FSSM chain functions properly so that the risk to the environment from the disposal of faecal sludge and septage is minimal or within the permissible limit.

Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993 and Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013

The manual handling of human excreta amounts to manual scavenging, which is prohibited under law. The Central Government passed the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993. According to this law, the employment of manual scavengers is a criminal offence. It also provides for the conversion of dry latrines into pour/flush latrines. This law is complemented by another law passed—the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013—which is broader in scope and application. The 2013 law specifically includes the acts of manual cleaning of septic tanks and sewerage under the definition of ‘manual scavenging’. Thus, these two laws together prohibit manual scavenging in the contexts of dry latrines, OSS systems such as septic tanks and pits, and cleaning of sewerage systems.

The Prohibition of Employment as Manual Scavengers and their Rehabilitation Rules, 2013 provides details of measures to ensure the safety of the workers engaged in cleaning of off-site sanitation storage systems and sewerage systems. Rule 4 of the 2013 Rules provides a list of protective gear and safety devices to prevent or control the exposure of workers to hazardous substances and gases while cleaning septic tanks. The list, which contains 44 protective gear and safety devices, is illustrative and it is not meant to be exhaustive. It also provides an illustrative list of 14 cleaning devices to be provided to the workers. It is the duty of the local bodies to ensure that the workers are using cleaning devices so that they do not need to clean sewers manually.

iii. Policies, administrative directions and guidelines

BIS Code of Practice for Installation of Septic Tanks (IS:2470), 1985

The BIS Code of Practice for Installation of Septic Tanks (IS:2470), 1985 makes it mandatory to have septic tanks in areas that are not connected to sewer networks. It also addresses issues such as the location of septic tanks, its size etc. For instance, the BIS Standards provide that septic tanks are not be constructed in swampy areas or areas prone to flooding and they should also be accessible to cleaning.

The BIS Standards also include norms regarding desludging of septic tanks. They provide that ‘half yearly or yearly desludging of septic tank is desirable’. It is to be noted that the word used is ‘desirable’. As a result, the BIS Standards further dilute the norms and state that ‘small domestic tanks, for economic reasons, may be cleaned at least once in 2 years provided the tank is not overloaded due to use by more than the number for which it is designed’. They also discourage very frequent desludging as it may inhibit the anaerobic action in the tank.

The BIS Standards specifically underline the need for mechanisation of the sludge removal process and provide that ‘manual cleaning of sludge should be removed’.

National Urban Sanitation Policy, 2008 (NUSP)

The NUSP was adopted with the objective of making ‘all Indian cities and towns totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women’. It touches upon FSSM, for instance, by emphasising the need for inclusion of proper disposal and treatment of sludge from on-site installations as part of City Sanitation Plans. It also underlines the importance of the use of modern and safe technology, and the provision of adequate safety equipment such as gloves and boots, regular health check-ups, medical and accident insurance cover for sanitation workers. Further, FSSM could be seen as an integral part of the focus of the NUSP where it emphasises the objective of safe disposal of human excreta.

CPHEEO Manual on Sewerage and Sewage Treatment, 2013

The CPHEEO Manual on Sewerage and Sewage Treatment, 2013 provides detailed guidelines on almost all aspects of FSSM. It lays down parameters to be followed for toilet super structures such as squatting pan and trap and foot rests. It also lays down norms regarding location of pits, and the size and design of pits/septic tanks depending on the local topography. Similarly, the Manual prescribes the distance to be maintained between the OSS unit and drinking water sources. It provides that ‘if it cannot be avoided or the pits are to be constructed adjacent to ponds or tanks, then the top of pits should be raised to 0.6 m to 0.8 m above the ground level and earth filling should be done all around the pits up to a distance of 1.5 m right up to the pit top’.

The Manual prescribes that the minimum acceptable design interval between successive manual desludging of each twin leach pit could be one-and-a-half-years. However, to provide a reasonable degree of operational flexibility, it is desirable to provide storage volume for three years in urban areas and two years in rural areas. In the case of septic tanks, it underlines yearly desludging of septic tank as ‘desirable’. In case yearly desludging is not feasible or economical, the Manual provides that septic tanks should be cleaned ‘at least once in two - three years, provided the tank is not overloaded due to use by more than the number of persons for which it is designed’.

Advisory Note—Septage Management in Urban India, 2013

This Advisory Note was issued by the Ministry of Urban Development with the objective of ‘outlining the contents and steps of developing a Septage Management Sub-Plan (SMP) as a part of the city sanitation plans (CSP) being prepared and implemented by cities’. The Advisory Note underlines the need to follow

the relevant guidelines and laws such as the National Building Code, 2016, the CPHEEO Manual on Sewerage and Sewage Treatment, 2013, and Environment (Protection) Act, 1986. In addition, this instrument specifically emphasises certain aspects of FSSM related issues. For instance, on the frequency with which septic tanks and other on-site storage systems are de-sludged, it recommends de-sludging once in every two to three years, or when the tank becomes one-third full. Similarly, it emphatically suggests mechanisation of sewage cleaning services to avoid manual scavenging. The Advisory Note goes on to suggest stringent restrictions on, and punitive measures for, all private parties offering manual septage clearance services.

Insofar as treatment of septage is concerned, the Advisory Note advocates for co-treatment of septage along with domestic sewage at a sewage treatment plant, albeit with adequate precautions to prevent the treatment process being affected by the high concentration of pathogens and other contents in septage when compared to sewage. In other words, a separate facility for septage treatment is to be considered in case sewage treatment plants are not available, or it is not practically feasible to transport septage to the nearest sewage treatment plant.

SBM-Urban Guidelines 2014/2017

SBM-Urban was launched in 2014 with the main objective of elimination of open defecation, elimination of manual scavenging and ensuring a system for modern and scientific management of solid waste. The implementation of SBM-Urban is relevant in the FSSM context because it promotes the construction and use of toilets connected to on-site treatment systems such as twin pits, septic tanks, bio-digesters, or bio-tanks in places where it is difficult or not possible to connect toilets to sewerage systems and sewage treatment plants.

The SBM-Urban Guidelines, 2014/2017 (Annexure II) recommends different technological options for OSS such as twin-pit latrines and septic tanks. It also provides details of technical features and specifications for toilets that cover almost all aspects of FSSM such as design/technology of the superstructure of the OSS, different types of storage systems, and the transportation and treatment of septage.

From a law and policy perspective in the context of FSSM, the SBM-Urban Guidelines provide that the responsibility for operation and maintenance of OSS is with the individual household or the owner of the property. They also prescribe desludging of septic tanks every two to three years. In case of pit latrines, the SBM-Urban Guidelines underline the responsibility of the concerned householder and provide a very vague standard for emptying of pits, that is, the users should ensure emptying of pits at the 'appropriate time'. Insofar as transportation is concerned, the Guidelines underline that the 'municipal utility or private contractors are required for desludging of septic tanks and to ensure safe disposal of septage at a treatment plant'.

National Building Code of India, 2016

The National Building Code of India, 2016 makes it necessary for everyone to obtain permission from the concerned authority to install water borne sanitary or drainage installations (Part 9, 3.2). It further prescribes the design parameters to be followed while constructing sanitary fixtures such as water closets and urinals. For instance, it prescribes that 'water closet compartment shall not be less than 760 mm in width and 1 520 mm in depth for floor mounted closets, and not less than 760 mm in width and 1 420 mm in depth for wall hung water closets' (Part 9, 4.5.1.3). It also lays down a minimum distance of 18 m between septic tanks and wells. The National Building Code of India, 2016 underlines that OSS like septic tanks is a preferred system in rural and peri-urban areas where the underground system may neither be feasible nor economical (part 9, para 4.5.14.5.2). In other words, it seems to advocate for off-site systems in urban areas as a preferred system.

National Policy on Faecal Sludge and Septage Management, 2017

This policy sets out the following issues to be addressed through regulation:

- Design of OSS;
- Frequency of desludging;
- Operating procedures for desludging including safety procedures with an emphasis on the safety, health and dignity of sanitation workers;
- Tariff;
- Penalty clauses for untreated discharge for households as well as desludging agents and unsafe emptying and handling of faecal waste;
- Registration of private service providers

b) State level

i. Laws

Rajasthan Municipalities Act, 2009

Sanitation is one of the core functions of ULBs under the Rajasthan Municipalities Act, 2009. The Act explicitly states that it is a core function of ULBs to ‘make reasonable provision and proper arrangement’ for sanitation in places which are not private properties. In addition, construction of public latrines, privies and urinals is also a responsibility of ULBs. However, ULBs are permitted not to carry out these functions due to reasons related to managerial, technical, financial and organizational capacity, and the actual conditions in the municipal area. This Act also empowers the ULBs with immense powers that are relevant in the context of sanitation. For instance, ULBs have the power to direct land/house owners to make sanitation-related provisions and such directions are binding.

The above-mentioned functions and powers are extremely relevant in the FSSM context as they make ULBs perhaps the most important agency with significant responsibilities and regulatory powers.

ii. Policies

Rajasthan Sewerage and Waste Water Policy, 2016

The major focus of this Policy is sewerage system. This Policy projects off-site sanitation model as the ideal system, which means FSSM is an exception or temporary model in situations where it is not possible or is difficult to introduce the sewerage system or until the sewerage system comes into place. It is to be noted that the FSSM Guidelines, 2018 also follow this approach of identifying off-site sanitation as a policy priority. At the same time, this Policy touches upon FSSM related issues. It emphasises the need to ‘formulate effective policies and action plans for the planning and management of on-site sanitation services’. It calls for compliance with the CPHEEO standards on septic tanks. It also provides parameters for the design of toilet tanks and different options for septage treatment.

Rajasthan model building bye-laws

The National Building Code applies to sewage management. All sewage will be connected to the sewerage system provided by the ULB but where there is no sewerage system, provision will be made for underground septic tank/soak pit (para 9.12).

Rajasthan Faecal Sludge and Septage Management Policy, 2018 [see section V above]

Rajasthan Faecal Sludge and Septage Management Guidelines, 2018 [see section V above]

D. Annexure IV—An overview of the current regulatory framework

Legislation/Constitution		Brief
Environment (Protection) Act, 1986	National	This Act applies in principle to every establishment, agency, or individual discharging any pollutant into the environment. ‘Pollutant’ includes treated or untreated sewage. It provides a framework for the control of effluent, wastewater and septage discharge.
Water (Prevention and Control of Pollution) Act, 1947	National	This Act prohibits dumping of all pollutants beyond the prescribed limit to any stream, well or sewer. It also empowers the Pollution Control Boards at the central and state level to take regulatory measures to prevent and control water pollution.
74th Constitutional Amendment Act, 1992	National	The responsibility for the planning and delivery of urban services, including sanitation, lies with ULBs under local municipal laws.
Municipal Solid Waste (MSW) Rules, 2016	National	The Rules provide for disposal and treatment of faecal sludge and septage, before or after processing, at landfills and for use as compost; and final and safe disposal of post-processed residual faecal sludge and septage to prevent contamination of ground water, surface water and ambient air.
The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993	National	It bans dry latrines, i.e., latrines with no water-seal or flushing mechanism, and the employment of persons for manually carrying human excreta.
Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013	National	Prohibits the practice of manual scavenging which includes manual cleaning of sewers also. It intends to empower “District level survey committee” & “State level survey committee” for the complete abolition of manual scavenging. “Hazardous cleaning” in relation to sewers and septic tanks is banned and manual cleaning of sewers and septic tanks, if necessary, may be carried out only in very controlled situations, with adequate safety precautions, and in accordance with specific rules and protocols for the purpose. The Rules made under this Act prescribes a detailed list of safety gears and devices to be provided to sanitation workers.
Rajasthan Municipalities Act, 2009	State	It includes public health and sanitation as core municipal functions which cover drainage, sewerage, cleaning of public streets and all spaces whether such spaces are vested in the Municipality or not.
Policies, Missions & Guidelines		Brief

National Urban Faecal Sludge Management Policy, MoHUA, GoI, Feb 2017	National	The document mainly outlines the need for FSM, awareness generation, national declaration, central laws and rules, and implementation approach.
National Urban Sanitation Policy, 2008	National	It intends to make all Indian cities and towns totally sanitized, healthy and liveable and ensuring and sustaining good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.
Rajasthan Urban Sanitation Policy, 2009	State	It intends to make all urban centres in the state totally sanitized, healthy and liveable and ensuring and sustaining good public health and environmental outcomes for all their citizens.
Rajasthan Environment Policy, 2010	State	It encourages optimal use and recycling of wastewater and resource recovery from sewage/wastewater/ sludge. The local bodies are responsible for planning and implementing sanitation services for urban areas to reduce water pollution.
Rajasthan Urban Development Policy (Draft), 2015	State	It emphasises achieving a high standard of life, which fulfils the potential of every citizen by achieving unmatched services for health and sanitation.
Rajasthan State Sewerage and Waste Water Policy, 2016	State	It provides information and suggestions on septage collection and treatment, along with treatment of sludge; and further sets the goals for adequate provision of septage management, monitoring and facilities.
Guidelines for Swachh Bharat Mission (Urban), 2014	National	It intends to eliminate open defecation and manual scavenging and to effect behavioural change regarding <u>healthy sanitation practices in urban areas</u> .
National Mission on Sustainable Habitat (NMSH), 2010	National	It is a component of the action plan for climate change with a focus on waste recycling.
Atal Mission for Rejuvenation and Urban Transformation	National	It aims to improve basic services (water supply, sewerage & septage, urban transport) in cities through reforms in urban governance, augmentation of basic infrastructure and establishing a sound institutional framework for effective delivery, through an incremental approach.
Standards, Manuals & Advisories		Brief
National Building Code of India (NBC) 1983 & 2005	National	It governs the design, installation and maintenance of toilets, septic tanks, and sewers. It gives an overview of size of drainage, sewerage including the design of septic tanks, sewers, toilets, and other sanitation devices. It also suggests that use of septic tanks without follow-up treatment is not permitted

Indian Standard – 2470 Code of Practice for Installation of Septic Tanks	National	Prescribes norms and standards to be followed in the construction and maintenance of septic tanks
CPHEEO Manual on Sewerage and Sewage Treatment, 2013	National	It provides guidelines for design and planning, and advice on the selection of technology options for urban sanitation (for on-site, off-site sanitation and both decentralized & centralized treatment options). It also addresses Operation and Maintenance of sanitation systems & resource mobilization; management, administration, project delivery, etc.
Advisory on Septage Management in Indian Cities, MoHUA, 2013	National	It outlines the contents of and steps for developing a septage management sub-plan (SMP) as a part of the city sanitation plans (CSP) being prepared and implemented by cities which supplement the NUSP. Septage here refers not only to faecal sludge from septic tanks but also from pit latrines and on-site toilets.
Primer on Faecal Sludge and Septage Management, MoHUA, 2016	National	It is a supplementary document to the Advisory on Septage Management in Indian Cities, 2013. It stresses the need for State-wide operative guidelines, City level toolkits, operational manual, management/ financing/ operating FSSM, and FSSM plan for the city.

E. Annex V—Key institutions and their roles

INSTITUTION	LEVEL	KEY ROLES
Ministry of Urban Development	National	<ul style="list-style-type: none"> • Technical and planning support to States and ULBs • Training and capacity building of State level officials and those from select ULBs • Funding through specific schemes and plans • National level awareness and behaviour change campaign • Support research and capacity building in the sector • Create enabling environment for participation of the private sector, NGOs and CSOs in provision of FSSM services including to the poor and marginalized households and areas • National level monitoring and evaluation
Ministry of Environment, Forest and Climate Change	National	<ul style="list-style-type: none"> • Enforce compliance of the relevant environmental laws and rules during the collection, transport, treatment and disposal of faecal sludge and septage
Ministry of Social Justice and Empowerment	National	<ul style="list-style-type: none"> • Elimination of manual scavenging and rehabilitation of manual scavengers • Monitor and evaluate progress at the national level • National level awareness campaign
Department of Local Self Government	State	<ul style="list-style-type: none"> • Monitoring and coordination of the work of ULBs
Public Health and Engineering Department (PHED)	State	<ul style="list-style-type: none"> • Water supply and treatment; setting water tariffs; construction of STPs and sewerage system; operations and maintenance of sewer system and STPs
Rajasthan Pollution Control Board (RPCB)	State	<ul style="list-style-type: none"> • Responsible for the monitoring and enforcement of environmental acts and rules enacted by the national and state governments • Regulatory role for environmental protection, most importantly prevention and control of environmental pollution during the FSSM process such as desludging and treatment.
Urban Improvement Trust	State	<ul style="list-style-type: none"> • Formulation of various schemes for development of the city, provision of infrastructure facilities such as water supply and sanitation
Rajasthan Water Supply and Sewerage	State	<ul style="list-style-type: none"> • Rendering necessary water supply and sanitation services and establishing state standards for water supply and sanitation

Management Board		
Safai Karamchhari Commission	State	<ul style="list-style-type: none"> • Protection of rights of sanitation workers
Rajasthan Urban Drinking Water Sewerage & Infrastructure Corporation Limited	State	<ul style="list-style-type: none"> • A Government of Rajasthan undertaking which is the State Level Nodal Agency (SLNA) for Government of India financed projects such as AMRUT and Smart City
ULBs	City level	<ul style="list-style-type: none"> • Responsible to establish bye-laws for FSSM, provisioning of desludging services, operation and maintenance of STPs and FSTPs, ensuring the safety of sanitation workers

SCALING CITY INSTITUTIONS FOR INDIA: SANITATION (SCI-FI: SANITATION)

Sanitation programme at the Centre for Policy Research (CPR) is a multi-disciplinary research, outreach and policy support initiative. The programme seeks to improve the understanding of the reasons for poor sanitation, and to examine how these might be related to technology and service delivery models, institutions, governance and financial issues, and socio-economic dimensions. Based on research findings, it seeks to support national, state and city authorities develop policies and programmes for intervention with the goal of increasing access to inclusive, safe and sustainable sanitation. Initiated in 2013, the programme is primarily funded by the Bill and Melinda Gates Foundation (BMGF).

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