

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

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## I. BACKGROUND

### A. FSSM: The Context

The key focus of sanitation interventions in urban India has been to ensure access to toilets and construction of sanitation infrastructure such as a sewerage network and sewage treatment plants. They do not adequately focus on the issue of faecal sludge and septage management (FSSM) in a safe and sustainable manner [see Box 1 for definitions of faecal sludge and septage]. Toilets have been/are being constructed without adequate awareness and facilities to ensure safe disposal of faecal sludge and septage. This leads to open dumping of untreated faecal sludge and septage in the environment. This is an important issue faced by the urban sanitation sector and it is going to become even more critical in the future as a large number of toilets are being constructed as part of the Swachh Bharat Mission – Urban (SBM-Urban).

#### *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.

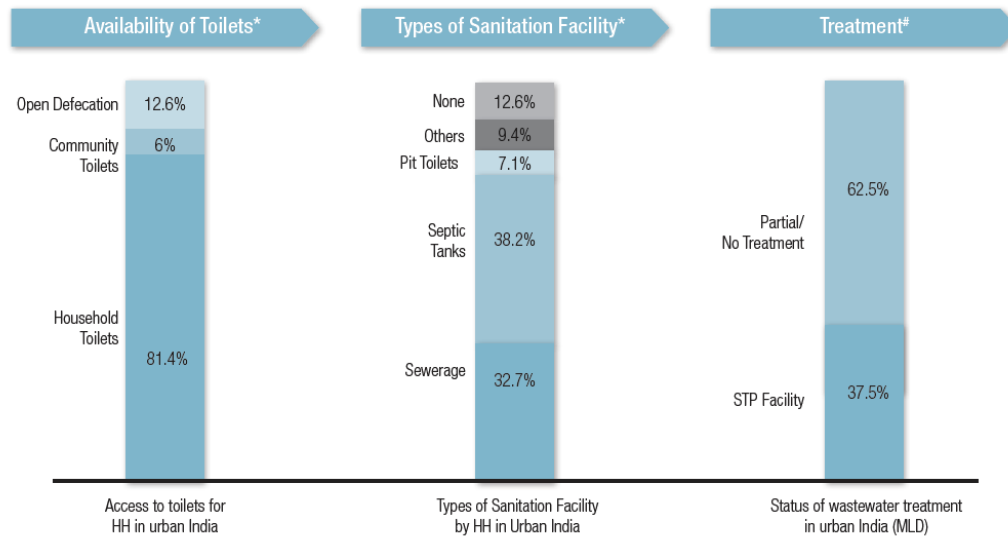
FSSM is essential because of potential implications for public health and the environment. A report highlights that a truck-load of faecal sludge ‘dumped indiscriminately is equivalent to 5000 open defecations’<sup>1</sup>. This is particularly relevant in urban areas in India where about 48 per cent of the households rely on on-site sanitation (OSS) systems such as septic tanks and pits,<sup>2</sup> because of several reasons, the most important one being that the conventional sewerage system is not economically and technically viable in

<sup>1</sup> D Kone et al, ‘Helminth Eggs Inactivation Efficiency by Faecal Sludge Dewatering and Co-composing in Tropical Climates’ (2007) 41(19) Water Research 4397-402.

<sup>2</sup> Ministry of Urban Development, Primer on Faecal Sludge and Septage Management (MoUD 2017).

all urban areas. Therefore, basic sanitation infrastructure in urban areas in India follows a hybrid approach where off-site and on-site sanitation systems co-exist (see Figure 1).

Figure–1: Status of urban sanitation in India<sup>3</sup>.



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 (see Figure 2). A typical FSSM system involves the following steps:

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

Figure 3 depicts the reality of FSSM practice in India.

Safety - of individuals involved in the abovementioned work and of the environment - is an important aspect of FSSM. Thus, manual desludging is completely 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 chemical and physical characteristics. The former has a much higher pollution load and its degradation characteristics are very different from the latter.<sup>4</sup> Thus,

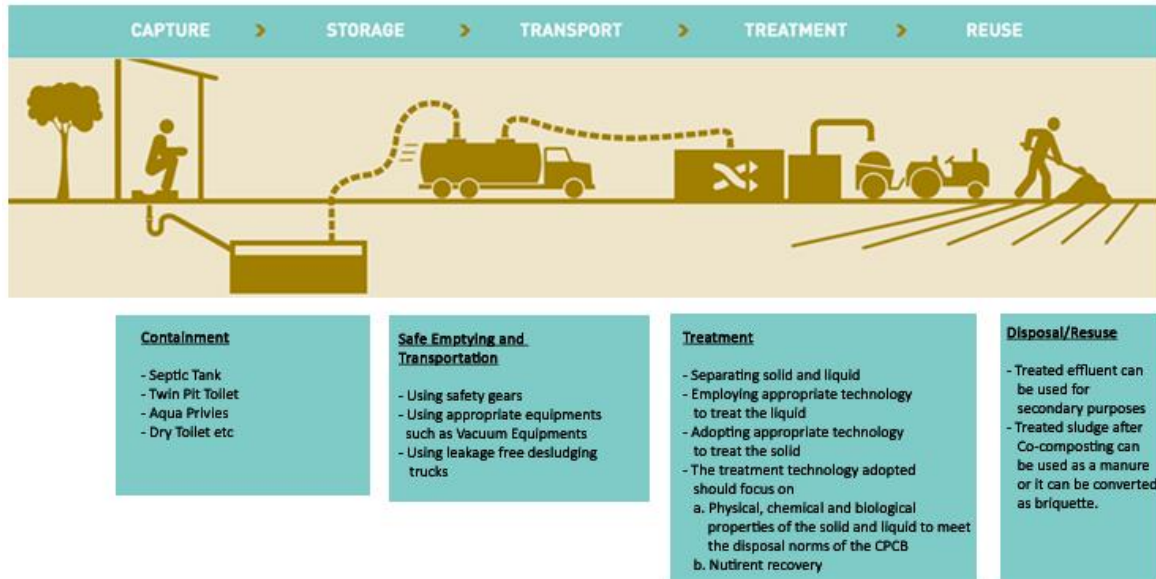
<sup>3</sup> Ministry of Urban Development, National Policy on Faecal Sludge and Septage Management (MoUD 2017)

11.

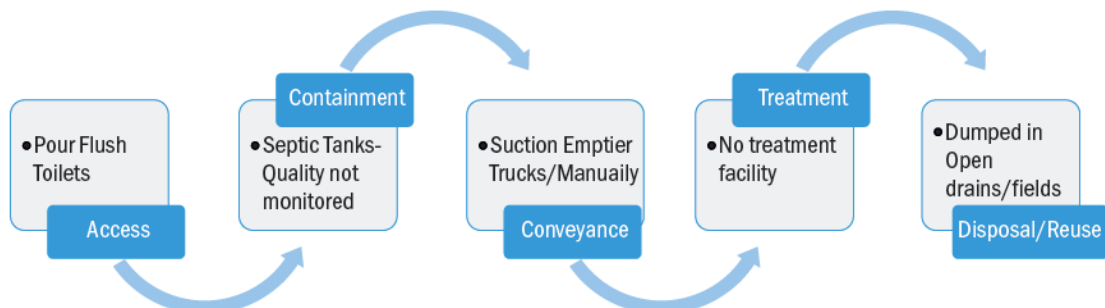
<sup>4</sup> MoUD (2017) (n \*) 5.

co-treatment of faecal sludge and septage in STPs along with sewage may raise technical challenges or issues of feasibility.

Figure–2: FSSM Chain<sup>5</sup>



Figure–3: Current FSM practice in India<sup>6</sup>



## B. Methodology

The key objectives of the research were:

- 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 state/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.
- This research followed a two-stage process to achieve the abovementioned objectives. The first stage involved the mapping of relevant law, policy and institutional frameworks in the context of

<sup>5</sup> MDWS (\*) (n \*) 11.

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

FSSM in Odisha with a special emphasis on three cities/towns (Berhampur, Dhenkanal, and Puri) on the basis of a desk-based review of primary documents and secondary literature.

- (d) The second stage involved the examination of implementation of the regulatory framework through fieldwork in the three cities/towns. The three cities represent different administrative arrangements for different sizes of population: Berhampur is a municipal corporation while Dhenkanal and Puri are municipalities. Further, Berhampur is the second largest city in the State (after the capital, Bhubaneswar), Puri is a coastal town with religious and tourism importance, and Dhenkanal is located close to the State capital. A STP is operational in Puri, the DPR for a STP in Berhampur has been prepared, and no STP is planned for Dhenkanal. Further, Berhampur and Puri are AMRUT (Atal Mission for Rejuvenation and Urban Empowerment) cities whereas Dhenkanal is the focus of a project financed by the Bill and Melinda Gates Foundation (BMGF).
- (e) The fieldwork involved in-depth semi-structured and unstructured interviews with different agencies and stakeholders at the state level (in Bhubaneswar) and local level (in Berhampur, Dhenkanal and Puri). This was supplemented by unstructured or semi-structured interviews with the residents of concerned urban areas (see Annexure I).

## II. FSSM IN ODISHA: GENERAL BACKGROUND TO THE STATE AND THE THREE SELECTED CITIES/TOWNS

Odisha is a coastal state on the eastern side of India comprising 30 districts. It is the tenth largest state in terms of area (155,707 km<sup>2</sup>) and eleventh largest in terms of population size (41.9 million). It accounts for five per cent of the country's geographical area and four per cent of India's population. According to Census 2011, Odisha is the least urbanised state in the country (16.68 per cent). The decadal growth rate of the urban population is 26.69 per cent; it has grown from 37 million to 42 million during the period 2001-2011.

According to Census 2011, there are 223 urban centres in Odisha.<sup>7</sup> Odisha does not have a metropolitan city but there are 112 Urban Local Bodies (ULBs) with a population of 50,000 or more, including five Municipal Corporations, 45 Municipalities and 62 Notified Area Councils (NACs). 99 of the 112 ULBs are in 11 river basins.

64.8 per cent of the 1,517,073 urban households in Odisha have access to individual household latrines (IHHLs). Of the remainder, only two per cent have access to community toilets; the rest resort to open defecation. In fact, Odisha is second in the list of five most critical States with very high open defecation in urban areas.<sup>8</sup> About two-thirds of the total urban population comes under 23 ULBs. According to a report prepared by the Odisha Water Supply and Sewerage Board (OWSSB) in July 2016, out of the 60 lakh urban residents, approximately 31 per cent defecate in the open. Further, an overwhelming 1.7 lakh households (48.33 per cent) or 8.5 lakh people in the slums of Odisha defecate in the open. Table 1 describes the sanitation scenario in the selected cities/towns.

A sewerage system is absent in an overwhelming majority of urban areas. Among the urban households in Odisha with access to IHHL, only 11.76 per cent have access to direct sewerage, and wastewater is

<sup>7</sup> These include 10 Class I cities (population 100,000 or more), 14 Class II towns (population 50,000-99,999), 43 Class III towns (population 20,000-49,999), 49 Class IV towns (population 10,000-19,999), 79 Class V towns (population 5,000-9,999) and 29 Class VI towns (population 4,999 and below).

<sup>8</sup> Government of Odisha, Housing & Urban Development Department, Odisha Urban Sanitation Policy 2017 (H&UDD 2017) 2.

effectively treated for only four per cent thereof. According to the abovementioned OWSSB report, only three municipal corporations have adequate sewerage provisions.

The Odisha Urban Sanitation Policy recognises that the number of STPs in the State is woefully inadequate. Only two STPs are operational: in Cuttack (33 MLD) and Puri (15 MLD). Three STPs are currently under construction with funding from the Japan International Cooperation Agency (JICA): two in Cuttack and one in Bhubaneswar. According to the OWSSB's report, only two per cent of faecal sludge is treated by any formal sewage treatment system.

A majority of urban households rely on septic tanks (49.41 per cent), which are often poorly constructed; six per cent rely on other OSS systems; 2.17 per cent use community/public toilets while the rest (30.65 per cent) engage in open defecation. However, septage is safely collected for less than half of the households that rely on septic tanks (45 per cent). Further, some of the toilets are serviced manually, which confirms the continuing practice of manual scavenging in the State despite its explicit legal prohibition by the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993 (see section III(b) below).

The Odisha Urban Sanitation Policy recognises the problems associated with septage collection, treatment and disposal, which are likely to exacerbate with the construction of more toilets under government programmes and schemes, and the non-availability of land. Desludging and cesspool services provided by the ULB or private service providers for the collection of sludge and septage are in short supply. Another issue is negligible treatment facilities. Further, safe disposal remains a serious concern with direct disposal of septage and sludge into open drains and unsecured pits in designated open areas. According to the Odisha State Pollution Control Board (OSCPB)'s pollution monitoring report, untreated water and sewage from urban centres had polluted the major rivers in the State.<sup>9</sup>

Table 1: Sanitation scenario in the selected cities/towns

	Total no. of households	No. of households having latrine facility within premises	Night soil deposit into open drain (a)	Service latrine – night soil removed by human (b)	(a) + (b)
Berhampur	67,397	57,800	4,231	129	4,360
Dhenkanal	14,353	10,713	4	172	176
Puri	39,607	32,458	275	122	397

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

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

<sup>9</sup> 'River pollution caused by urban waste alarmingly high in Odisha' The Hindu (7 June 2014).



### III. REGULATORY FRAMEWORK

#### A. National level

##### a) 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.

##### b) 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. The **Environment (Protection) Act, 1986** (EPA) and the **Water (Prevention and Control of Pollution) Act, 1974** (WPCPA) provide a framework for the control of domestic effluents. The EPA applies in principle to every establishment, agency, or individual discharging any pollutant into the environment. The term ‘pollutant’ includes treated or untreated sewage. The WPCPA explicitly prohibits dumping of all pollutants beyond the prescribed limit to any stream, well or sewer. It also empowers the Central Pollution Control Board (CPCB) at the central level and the State Pollution Control Board at the state level to take regulatory measures to prevent and control water pollution. Thus, the direct discharge of untreated faecal sludge and septage on land or into water is undoubtedly not permissible under these laws. The violators are liable to be prosecuted and punished under these laws.

These laws also regulate treatment and disposal operations. The setting up of STPs or FSTPs is subject to a consent procedure, which means that their working is subject to the terms and conditions stipulated by the concerned SPCB. These operations are also subject to the effluent discharge standards prescribed under the Environment (Protection) Rules, 1986 (EPR). On 13 October 2017, Schedule I of the EPR was amended to include a new entry (Sl. No. 105), which lays down effluent discharge standards for STPs that are applicable to all modes of disposal. The parameters and their corresponding acceptable concentration is as follows:

- pH - 6.5-9.0
- BOD (mg/l) - 20-30 (depending on particular areas)
- TSS (mg/l) - < 50-<100 (depending on particular areas)
- Fecal Coliform (MPN/100 ml) - <1000

The amendment further provides that reuse/recycling of treated effluent shall be encouraged and in cases where part of the treated effluent is reused and recycled involving possibility of human contact, the abovementioned standards are applicable. Further, the pollution control bodies at the central/state/Union Territory (UT) level are empowered to issue more stringent norms under section 5 of the EPA taking local conditions into account.

These laws give an overarching supervising power to the CPCB and the Central Government to step in to take necessary actions if required.

Further, the Solid Waste Management Rules, 2016, which are enacted by the Central Government in the exercise of its statutory power under the EPA, apply to the final and safe disposal of post-processed residual faecal sludge and septage to prevent contamination of ground water, surface water and ambient air.

### **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. According to the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993, the employment of manual scavengers is a criminal offence. This law bans dry latrines, that is, latrines with no water-seal or flushing mechanism and provides for their conversion into pour/flush latrines.

This law is complemented by the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (2013 Act), which is broader in scope and application. The 2013 Act specifically includes the acts of manual cleaning of septic tanks and sewers under the definition of ‘manual scavenging’. It bans ‘hazardous cleaning’ in relation to sewers and septic tanks. 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. 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 (2013 Rules) provide details of measures to ensure the safety of the workers engaged in cleaning of OSS 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 sanitation workers to hazardous substances and gases while cleaning septic tanks. The list, which includes 44 protective gear and safety devices, is illustrative and it is not meant to be exhaustive. It also includes an illustrative list of 14 cleaning devices that are 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. The implementation of these provisions is essential during the collection and transportation of faecal sludge and septage from households.

#### **c) 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 (Code) prescribes norms and standards to be followed in the construction and maintenance of septic tanks. It is mandatory to have septic tanks in areas that are not connected to sewer networks. The Code 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 that they should be accessible for cleaning.

The Code also include norms regarding desludging of septic tanks. It provides that ‘half yearly or yearly desludging of septic tank is desirable’ (emphasis added). The Code further dilutes the 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’. The Code also discourages very frequent desludging as it may inhibit the anaerobic action in the tank. At the same time, it specifically underlines the need for mechanisation of the sludge removal process and provides that ‘manual cleaning of sludge should be removed’.

### **National Urban Sanitation Policy, 2008 (NUSP)**

The National Urban Sanitation Policy (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 (CSPs). 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 can be viewed as an integral part of the focus of the NUSP where the latter emphasises the objective of safe disposal of human excreta.

### **Advisory Note—Septage Management in Urban India, 2013**

The Ministry of Urban Development (MoUD) (now Ministry of Housing and Urban Affairs (MoHUA)) issued the Advisory Note 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. Septage here refers not only to faecal sludge from septic tanks but also from pit latrines and on-site toilets. The Advisory Note underlines the need to follow the relevant guidelines and laws such as the National Building Code, the CPHEEO Manual, and the EPA.

In addition, this instrument specifically emphasises certain aspects of FSSM related issues. For instance, on the frequency with which septic tanks and other OSS 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 cleaning services.

Insofar as treatment of septage is concerned, the Advisory Note advocates co-treatment of septage along with domestic sewage at a STP, 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 STPs are not available, or it is not practically feasible to transport septage to the nearest STP.

### **CPHEEO Manual on Sewerage and Sewage Treatment, 2013**

The Central Public Health and Environmental Engineering Organisation (CPHEEO) in the MoUD (now MoHUA) prepared this Manual. It provides detailed guidelines on almost all aspects of FSSM. It lays down parameters for toilet superstructures 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 CPHEEO Manual prescribes the minimum distance 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 CPHEEO 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 CPHEEO 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’.

### **SBM-Urban Guidelines 2014/2017**

The MoUD (now MoUA) launched SBM-Urban 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 recommend different technological options for OSS such as twin-pit latrines and septic tanks. They also provide 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 individual household or owner of the property is responsible for the operation and maintenance of OSS. It also prescribes 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’.

### **Atal Mission for Rejuvenation and Urban Transformation 2015 (AMRUT)**

AMRUT, which was launched by the MoUD (now MoHUA) in June 2015, 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. The AMRUT guidelines prioritise universal coverage of urban households with water supply and sewerage connections and ensuring water availability @ 135 liters per capita per day, followed by provision of storm water drains, urban transport and parks and green spaces. But AMRUT is restricted to Class-I cities, and it monitors ULBs’ performance based on their sewerage coverage. There is no mention of septage in Service Level Benchmarks in the State Annual Action Plan (SAAP).

### **National Building Code of India, 2016**

The National Building Code of India, 2016 governs the design, installation and maintenance of toilets, septic tanks, and sewers. Everyone is required to obtain permission from the concerned authority to install waterborne sanitary or drainage installations (Part 9, para 3.2). It further prescribes the design parameters to be followed while constructing sanitary fixtures such as water closets and urinals. 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, para 4.5.1.3). It also lays down a minimum distance of 18 metres between septic tanks and wells. The Code underlines that OSS like septic tanks is a preferred system in rural and peri-urban areas where the underground system may be neither feasible nor economical (Part 9, para 4.5.14.5.2). It also suggests that use of septic tanks without follow-up treatment is not permitted. The Code is prepared by the BIS and therefore, ‘information contained in various Indian Standards is woven into a pattern of continuity and cogency with the interdependent requirements of Parts/Sections’ (p.v).

### **Model Building Bye Laws 2016**

The Model Building Bye Laws, which are prepared by the MoUD (now MoHUA), provide that the location, design and construction of a septic tank shall conform to requirements of the National Building Code (para 4.15). They go on to lay down some requirements *inter alia* for the location of the septic tanks and subsurface absorption systems. Appendix ‘H’, which provides details in respect of the ‘Regulations for Resettlement and Slum In-situ Upgradation’ *inter alia* states:

A septic tank shall be provided with capacity 141.6 liters (five cubic feet) per capita, where the municipal services are likely to be available within four or five years or so, pour flush water seal latrines (NEERI type) shall be permitted, where the municipal sewage system is not available and the water table in the area is not high.

### **Primer on Faecal Sludge and Septage Management, 2016**

The MoUD (now MoUA)’s Primer is a supplementary document to the Advisory Note of 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.

### **National Policy on Faecal Sludge and Septage Management, 2017**

This policy, which was issued by the MoUD (now MoUA), 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; and
- Registration of private service providers.

## B. State level

### a) Laws

There are no specific laws on sanitation generally or on faecal sludge and septage specifically in the State of Odisha. And the laws governing urban areas do not explicitly refer to the terms ‘septage’ and ‘sludge’. Nevertheless both the Odisha Municipalities Act, 1950 and the Odisha Municipal Corporation Act, 2003 include some relevant provisions, which are highlighted in this section.

#### Odisha Municipal Act, 1950

The Odisha Municipal Act (OMA) lays down the structure and management of the municipalities and NACs in the State, and it is applicable to Dhenkanal and Puri. Several provisions concern latrines, urinals and cesspools, sewage and filth, public and private drains, and drainage and sewerage (see Box 2 for some important definitions). Schedule IV read with s 383 imposes certain ordinary penalties in case of violation of some of these provisions.

*Box 2: Some important definitions (s 2)*

- *Conservancy means the removal and disposal of sewage and rubbish*
- *Drain includes any device for carrying of sewage*
- *Filth includes sewage, night soil*
- *Latrine includes privy, water closet and urinal*

The municipality controls all house-drains, private latrines and cesspools within the municipal area but it is the responsibility of the owner of the premises to which they belong or for whose use they are constructed to alter, repair, clean and keep them in proper order in conformity with by-laws and regulations framed by the municipality (s 211). [penalty: Rs 50]

Chapter XV deals with Conservancy and includes several relevant provisions.

The municipality is required to provide covered vehicles or vessels for the removal, and depots for the deposit, of filth, and to make adequate arrangements for the conversion of sewerage and filth to compost manure in the prescribed manner (s 221).

The owner or occupier of any premises is prohibited from

- keeping filth on such premises for more than 24 hours, or failing to comply with a requisition of the Health Officer as to the construction, repair, paving or cleaning of any latrine (s 224) [penalty: Rs 20]; or
- allowing the water from any drain or latrine to flow out to any portion of a road except a drain or a cesspool, or in such a manner as to cause an avoidable nuisance by its soakage into the walls or ground at the side of a drain forming a portion of a road (s 225) [penalty: Rs 10].

The Act prohibits any person from

- improperly depositing filth (s 223) [penalty: Rs 10];

- removing filth using any cart<sup>10</sup> receptacle without a proper cover to prevent the escape of the contents or stench, or intentionally or negligently spilling it, or omitting carefully to sweep and clean every place in which it has spilled, or placing or setting it down in any public place whether in a closed or open vessel (s 226) [penalty: Rs 20];
- putting any filth into any public drain not intended for the same or into any drain communicating with it (s 227) [penalty: Rs 20].

The municipality is required to provide and maintain public latrines and urinals and cause the same to be daily cleaned and kept in proper order (s 228).

The municipality's permission is required to construct latrine or urinal with a door or trap door opening on to any road or drain, or to construct or keep any latrine, urinal, cesspools, house drain or receptacle for sewerage or other offensive matter within 50 feet of any tank or watercourse or a tank or watercourse which is used by the inhabitants of any locality (s 229) [penalty: Rs 500].

The Health Officer may issue a notice to the owner or occupier of any building to provide a latrine or alter or remove an existing latrine from an unsuitable place to a suitable one and to keep it clean and in proper order (s 230) [penalty: Rs 100].

The municipality is responsible for cleaning private and public latrines, urinals and cesspools and the provision and maintenance of public latrines and urinals, and for making, extending or maintaining the drainage or sewerage system (s 120(1)). The municipality is empowered to impose latrine and drainage taxes (s 131).

### **Odisha Municipal Corporation Act, 2003**

The Odisha Municipal Corporation Act (OMCA) lays down the structure and management of municipal corporations, and it is relevant in the context of Berhampur. Box 3 identifies some of the relevant definitions.

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<sup>10</sup> The term 'cart' means a vehicle ordinarily drawn by animals and not ordinarily used for conveyance of human beings. See OMA, section 2(4). The term does not include any wheeled vehicle which is propelled by any mechanical power or its trailer. See OMCA, section 2(14).

*Box 3: Some important definitions (s 2)*

- *Cesspool means a settlement tank or other tank for the reception or disposal of foul matter from buildings*
- *Drain means a sewer and includes devices (including flush tank and septic tank) for carrying out of or treating sewage, polluted water, sullage, waste water, rain water or sub-soil water, or fitting connected therewith and any special machinery or apparatus for raising, collecting, expelling or removing sewage from any place*
- *Filth means night soil or other contents of latrines, cesspools and drains*
- *Offensive matter means filth, sewage*
- *Privy means a place set apart for defecating or urinating or both together with a structure comprising such place, the receptacle therein for human excreta and the fittings and apparatus if any connected therewith and includes a closet of the dry type, an aqua privy, a latrine and an urinal*
- *Sewage means night soil and other contents of water closets, latrines, privies, urinals, cesspools or drains*

It is the obligatory duty of the municipal corporation to make adequate provisions for collection, removal, treatment and disposal of solid wastes and sewage and to prepare compost manure from it, construction, maintenance and cleaning of drains and drainage and public latrines, water closets, urinals and similar public conveniences, and prevention of the spread of infectious diseases (s 24). Subject to the availability of resources, it is a discretionary function of the municipal corporation to provide for the establishment and maintenance of farms or factory for sewage disposal, from time to time, either wholly or partly (s 25). The general powers and functions of the municipal corporation provide room to consider new issues (s 26).

The corporation has the power to levy user charges for the provision of water supply, drainage and sewerage, as well as solid waste management (s 193).

Chapter XV deals with drains and drainage works. The Commissioner's permission is required before passing any excrementitious matters into any cesspool or a drain communicating with it (s 303) [penalty: Rs 200]. No person shall construct a cesspool beneath any part of any building or within 20 feet of any lake, tank, reservoir, stream, spring or well; or upon any site or in any position which has not been approved in writing by the Commissioner (s 309) [penalty: Rs 400].

The Commissioner may cause sewage disposal at any place and in any manner, which he may deem suitable (s 314). For the purpose of sewage disposal (receiving, storing, disinfecting, distributing etc.), the Corporation may authorize the Commissioner to construct any work, purchase or take on lease any land, building, engine, material or apparatus, and enter into arrangement with any person for any period not exceeding 20 years, for the removal or disposal of sewage, within or outside the city (s 315). The Commissioner is required to provide and maintain water-closets, latrines, privies and urinals for the public in proper and convenient situations (s 325).

Some of the provisions require the construction of a water-closet or privy after obtaining the written permission of the Commissioner and complying with the specified terms (ss 316-320) [penalty: Rs 300 and Rs 100]. The owner or occupier of the premises is required to follow some requirements in respect of privies and water closets, including the distance from a water source (ss 321-323) [penalty: Rs 100 and Rs 400].



No person shall injure or foul any water closet, privy or urinal or any fittings or appliances in connection therewith which have been provided for the use in common of the inhabitants of one or more buildings. All the persons using them shall be liable if any of the above are in such a state as to be a nuisance or a source of annoyance for want of proper cleaning thereof (s 326).

All cesspools, water closets, privies, latrines and urinals shall be open to inspection and examination by the Commissioner who may then require the owner of the premises to undertake certain actions (ss 327-331).

Certain other acts that contravene the provisions of this chapter are prohibited (s 332).

Chapter XVI deals with solid wastes. The Corporation is responsible for implementation of the Municipal Solid Waste (Management & Handling) Rules (now Solid Waste Management Rules 2016) (s 336). The Corporation shall levy a charge to cover the costs on account of management and handling of solid wastes and development of infrastructure etc. With the prior approval of the Standing Committee, the Commissioner may entrust development of infrastructure, the management and handling of solid wastes and the building and collection of charges to any agency (s 337). The Corporation shall appoint places for disposal and final disposal of solid wastes (s 338).

The municipalities and municipal corporations are empowered to make bye-laws and regulations for the construction of cesspools, septic tank filters and drains, and for the cleaning of latrines, closets and cesspools (s 657; see also s 388, OMA).

As is shown above, the penalties for violation of the provisions of these two laws governing ULBs by ‘any person’ or the owner of the premises are specified but they are meagre. They may not be enforced and even if they are enforced, they may not have the desired deterrent effect. There are no consequences in case the authorities fail to comply with their statutory mandate. There is no regulation and licensing of private service providers.

### **Odisha Town Planning and Improvement Trust Act, 1956**

The aim of this Act is to provide for ‘the development, improvement and expansion of towns in the State of Orissa so as to secure to their present and future inhabitants sanitary conditions, amenity and convenience’. The objectives of the Master Plan, which is to be prepared by the Planning authority for this purpose, include provision of an integrated drainage and sewerage system (s 30). Within the framework of the Master Plan, the Planning authority is responsible for the preparation of a well-defined improvement scheme, which may inter alia be a drainage and sewerage disposal scheme (s 34(1)(ix)). The improvement scheme may inter alia provide for laying or altering of drainage and sewerage (s 34(2)(ix)).

### **Odisha Development Authorities Act, 1982**

The Act, which provides for the development of urban and rural areas in the State according to plan, includes references to drainage and sewerage. The development authorities responsible for each of the three selected cities/towns have exercised their statutory power to frame Development Authority (Planning and Building Standards) Regulations for carrying out the purposes of the Act (s 124).

In 2017, drafts of new regulations for each of the three development authorities were in circulation.<sup>11</sup> They define a ‘latrine-unconnected’ to mean a latrine not connected to the municipal sewer system but it may be connected to a septic tank or suitable treatment or disposal system. They prohibit STPs and disposal sites in Residential Use Zone, Retail commercial and Business Use Zone, and Special Heritage Zone, but permitted them in environmentally sensitive zones on the recommendation of DP&BP Committee (regulation 22).

The regulations also discuss wastewater conveyance/treatment and prevention of contamination in Annexure II, which lays out ‘Standards for segregated sanitation facility for visitors’. It states:

Since sewers may not be available in many cities, in most cases the toilet blocks will have on-site sanitation, which would require periodic cleaning of tanks / pits. Location on site should allow easy and hygienic emptying of the pits / tanks and ensure that ground water table is not contaminated by wastewater percolation.

While discussing waste management in the context of environmental conditions for buildings and constructions, Annexure III provides as follows:

Sewage: In areas where there is no municipal sewage network, onsite treatment systems should be installed. Natural treatment systems which integrate with the landscape shall be promoted. As far as possible treated effluent should be reused. The excess treated effluent shall be discharged following the CPCB norms.

Sludge from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.

### **Model Faecal Sludge & Septage Management (FSSM) Regulations, 2018**

The State Government has formulated the Model Regulations for adoption by all the ULBs. Section 388(8) read with sections 390 and 392 of the OMA empower municipalities and NACs, and sections 657-659 of the OMCA empower municipal corporations, to make regulations. The State Government also set out the timeline:

- (a) in the case of municipalities and NACs, for approval of Council/Administrator and notification of the draft regulations, their publication in Gazette inviting objections and suggestions from the public, approval of Council/Administrator and notification of the final regulations, and their submission for approval of State Government for publication in Gazette; and
- (b) in the case of municipal corporations, for approval of draft and final regulations by Council/Administrator and the submission of final regulations for approval and confirmation by State Government for publication in Gazette.

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<sup>11</sup> See Talcher-Angul-Meramandali Development Authority Draft (Planning and Building Standards) Regulations, 2017; Brahmapur Development Authority (Planning and Building Standards) Regulations, 2017; Puri-Konark Development Authority (Planning and Building Standards) Regulations, 2017.

The specific provisions in respect of containment, desludging, transportation, treatment, disposal and reuse, as well as the responsibilities, and the powers of the ULB are as follows:

*Containment unit:* Design, construction and installation shall be in accordance with the Odisha Urban Septage Management Guidelines 2016 (2016 guidelines) *or* any other accepted sound engineering practice issued by the ULB (with prior approval of the State Government) or the State Government or the Central Government (reg 4(1))

Responsibilities of owner of premises where the sewer is connected to septic tank

- upkeep, maintenance and safe disposal of sludge (reg 4(2)) [there is no reference to septage here];
- desludging of septic tank (three years) or pit latrine (five years) (reg 5(2) read with Schedule I) on payment of user fee determined by the ULB, which shall be acknowledged by a receipt (reg 4(3)); only hire registered STVs (reg 5(1)) [the State Government may specify shorter period (reg 5(2))];
- ensuring that no pollution is caused to the environment due to direct discharge of sludge into open areas or into the drain due to malfunctioning or faulty construction of the containment unit [there is no reference to septage here and only one possibility for discharge into the drain is envisaged (reg 4(4))];
- ensuring mechanical cleaning of septic tanks with adequate safety measures – no manual cleaning (reg 4(5)).

*Registration:* Any person (including the ULB) having cesspool emptying vehicle *shall* apply to the ULB for registration as septage transport vehicle (STV) after fixing GPS with tracking facility and sharing the tracking link with the ULB (reg 6(1)-(3)). The ULB shall inspect the STV annually for proper functioning of all equipment and compliance with the Motor Vehicles Act, 1988 (reg 6(4)). The STV shall be registered with the ULB and possess a valid inspection certificate (reg 8). The effectiveness of the requirement for the ULB to apply to itself for registration is unclear.

The registration may be temporarily suspended if the STV does not have the inspection certificate or if it is unfit or if its operation will have negative environmental and health impacts in the opinion of the competent authority (reg 9(1)). The meaning of the term ‘unfit’ is not clarified. The determination of negative impacts is left to the discretion of the competent authority but the regulations do not specify who is the competent authority. The registration may be cancelled if the owner violates these regulations or terms and conditions of registration or the STV is not found to be fit to put into service (reg 9(2)).

*License:* A license from the ULB is required for the operation and management of STV or septage treatment facility or both (reg 10).

*Desludging:* Safe and appropriate technology, equipment, protective gear and sound operating practices, which are in compliance with the relevant law *or* as per the 2016 guidelines, shall be used (reg 12(1)). Here, the relevant law is the 2013 Act, which cannot be bypassed by the 2016 guidelines.

It is the responsibility of the operator to ensure that all workers are trained to use the protective gear and on hygiene practices, all the safety equipment is operational and in good condition for use and first aid kit, gas detection lamp, fire extinguisher and sufficient disinfectant are kept in the vehicle before proceeding to a collection site, and sanitary workers do not enter a septic tank under any circumstances (reg 12(2)).

*Transportation:* The STV operator is responsible for safe transportation to the designated site, ensuring that the STV is not used for transportation of any other materials or liquids till the registration is in force, maintaining records relating to collection, transportation and disposal of faecal sludge, and taking necessary steps for safety and welfare including insurance of sanitary workers (reg 11). In respect of the first responsibility, perhaps, the use of ‘any other materials or liquids’ is an inadvertent error; it ought to read ‘faecal sludge and septage’. Further, the second responsibility ought to extend to maintenance of records relating to septage as well.

*Accidental spillage of sludge or septage:* The STV operator shall immediately take action to prevent further spillage, minimize the environmental impact and take-up clean-up action, and disinfect the area of spillage by appropriate method (reg 13(1)). The regulations do not provide any guidance as to the nature of the ‘action’, or the ‘appropriate method’ that ought to be taken by the STV operator.

*Treatment:* The ULB has the discretion to approve and notify the manner of processing and treatment of septage in the treatment facilities in accordance with relevant laws, notifications, *or* as provided in the 2016 guidelines *or* any good engineering practices (reg 14(1)). After this notification, septage or sludge shall not be treated or disposed in any other manner in the ULB (reg 14(2)). Again, the relevant law here is the EPA and the WPCPA and the rules made thereunder, and neither the 2016 guidelines nor good engineering practices can digress from the provisions of these laws.

It is the responsibility of the operator of the treatment facility to ensure adequate safety measures to protect the workers and neighbourhood, proper sanitation facilities in the premises, and disposal of treated septage in compliance with standards laid down by the Odisha State Pollution Control Board (OSPCB) (reg 15)

*Disposal of treated sewage:* at a specified location authorized and notified by the ULB in compliance with the EPA and the WPCPA and the rules framed thereunder (reg 16(1)). The location shall be finalized by the ULB in consultation with the OSPCB and the district administration (reg 16(2)).

*Reuse:* The treated septage *may* be reused in accordance with applicable rules and safety standards (reg 16(3)). However, the regulations do not specify these ‘rules and safety standards’.

*Powers of ULB:* The ULB is empowered to levy user charges for providing services in respect of containment, conveyance or treatment (reg 17(2)), inspect any premises, STV and septage treatment plant/facility at any time (reg 18), and to issue directives to remove difficulties in operation of the regulations (reg 22).

*Penalties and fines for violations:* In the first instance, a notice for compliance will be issued to the violator. In case of non-compliance, a fine of Rs 50 in case of first and second instance of breach, and seizure of property/STV, as the case may be, and a fine of Rs 15 per day in case of third and subsequent instance of breach (Schedule II) shall be imposed on the following persons for the following violations:

- owner of property - unscientific design and construction of containment unit; direct discharge of sewage into drain or road or open area
- owner of STV – plying of STV without registration/valid certification; failure to attend to accidental spillage
- owner of treatment plant - discharge of untreated septage

For other violations of the regulations, a fine of Rs 50 in the first instance and Rs 15 per day in case of continuing contravention shall be imposed. There is no mention of a penalty here. In any event, the deterrent effect of this amount of fine is questionable.

## b) Policies

### **Odisha Urban Sanitation Strategy 2011**

The State of Odisha has adopted the approach advocated in the NUSP and the SBM (Urban). It responded to the National Urban Sanitation Policy 2008 by formulating the *Odisha Urban Sanitation Strategy 2011* (OUSS 2011). The goal of the OUSS was to transform urban areas in Odisha into community-driven, totally sanitised, healthy and liveable cities and towns, and outcomes in line with the NUSP, the National Water Policy 2002, the National Environmental Policy 2006 and the State Water Policy 2007. All the ULBs were required to prepare CSP with main thrust on safe disposal of sewage.

### **Odisha Urban Septage Management Guidelines 2016 For Urban Local Bodies in Odisha**

The 2016 Guidelines were framed mainly after the recognition of faecal contamination of drinking water as the cause of jaundice in several parts of the state.<sup>12</sup> They formalise and provide for safe handling of septage into the entire sanitation delivery chain and aim to achieve the goals of OUSS 2011. These guidelines conform to the advisory note on septage management and the guidelines by the BIS and the CPHEEO; they are also intended to strengthen the implementation of the 2013 Act.

The 2016 Guidelines specify measures for septage management in order to stop its dumping in open drains. These relate to the construction of septic tanks and on-site treatment facility as well as its collection and transportation in cesspool emptier vehicles to treatment facilities. These measures are organised under the following headings together with annexures that provide further guidance in respect of certain matters:

1. Design of septic tanks
  - Annexure I – specifications for septic tank design and construction (in accordance with the provisions of the NBC 2005, BIS Code of Practice, the CPHEEO Manual, SBM (Urban) Guidelines 2014 and all relevant laws or directions)
  - Annexure II A – septic tank for 5 to 20 users
  - Annexure II B – septic tank for two compartments for population over 50
2. Desludging of septic tanks
  - Annexure III – permit for septage transporter
  - Annexure IV – checklist of tools and equipments to be kept with the septage transport vehicle
  - Annexure V – indicative monitoring mechanism for septage management activities
3. Transportation
4. Treatment and disposal
5. Administration and enforcement
  - Annexure V – monitoring framework for septage management activities
6. Information, education and communication
7. Public Private Partnership

<sup>12</sup> Sandeep Mishra, 'Civic body mum on septage rules flout' The Telegraph (26 July 2017); Sandeep Mishra, 'Manage septic slush or pay up' The Telegraph (7 May 2016).

The 2016 Guidelines take into account some environmental considerations. For instance, they provide that the entire contents of a tank should never be emptied at locations of high ground water. They also support reuse of treated sludge as an organic fertiliser for application to agricultural fields, forests and plantation areas in accordance with the WHO Guidelines on the Reuse of Human Excreta, Wastewater and Grey Water 2006.

[The OWSSB is responsible for the preparation of Standard Operating Procedures (SOPs) during all stages of septage management, and regulations to levy penalty for open defecation, discharge of raw sewage into drains and discharge of septage at places other than the treatment facility or designated place.]

Every household in the city is required to ensure safe discharge of waste or sludge into the municipal drains. The owner of the premises should ensure regular check of the tanks and ensure that the septage or slush accumulated in septic tanks is not discharged into the drains.<sup>13</sup>

*What amounts to a violation of the 2016 Guidelines?*

- failure to comply with any provision
- refusal to comply with any notice served on violation
- obstruction, hindrance or interference with an official enforcing the rules
- resort to manual cleaning of septic tanks

*When does the private septage transporter violate the 2016 Guidelines?*

- engages in unauthorised operation of equipment used in septage management
- transports septage without valid registration
- discharges untreated septage into corporation drains

Table 2: Offences and penalties under the 2016 Guidelines

Nature of offence	Penalty amount (in Rs)
Violation of rules – eg failure to undertake proper management of septic tanks	1000
Ignoring notice and continuing to violate rules	500 per day from second inspection
Residential buildings without septic tanks	5000
Commercial buildings without septic tanks	15000
Manual cleaning of septic tanks	5000
Unauthorised operation of equipment	5000
Transportation of human waste without registration	5000
Improper disposal or untreated discharge of waste	5000
Improper discharge at treatment plant	15000

<sup>13</sup> Sandeep Mishra, ‘Civic body mum on septage rules flout’ The Telegraph (26 July 2017).

## **Odisha Urban Sanitation Policy 2017 (OUSP) & Odisha Urban Sanitation Strategy 2017 (OUSS 2017)**

A number of national and international developments prompted the State Government to revise the OUSS 2011 and to prepare the OUSP. The vision and goal of the OUSP is to make all cities and towns in the state totally clean, sanitised (safe), healthy and liveable, ensuring and sustaining good public health and environmental outcomes for all citizens, in line with the NUSP, and managed by ULBs with active citizen and stakeholder participation. The Housing & Urban Development Department (H&UDD) developed OUSS 2017 to implement the OUSP, along with the necessary institutional framework, provisions and guidance for planning, monitoring, evaluation, capacity building and funding.

Most of the six outcomes of the OUSP, and the measures for their implementation, as identified in the OUSS 2017, are relevant for FSSM. These include:

### **1. Urban areas are Open-defecation (ODF) and open discharge free (ODF+/++)**

This is the key outcome of the OUSP and it requires infrastructure provision and behaviour change at different levels. The term ‘open discharge free’ is understood to mean an environment free from human waste. This shall be determined in terms of (i) no open discharge of faecal and liquid waste, or raw sewage into the open drains or environment; and (ii) safe containment, collection, transportation, treatment, and disposal of sewage, septage, and waste water.

According to the OUSS, all the ULBs shall ensure that:

1. All households have adequate household or community sanitation infrastructure, that is, a toilet connected to an individual or community septic tank/sanitary OSS, or to a sewerage system as per the norms laid out by the State Government.
2. Safe technology is used in the construction, maintenance and management of sanitation infrastructure such that there is no contamination of surface soil, ground water or surface water; excreta are inaccessible to vectors of contamination and disease; no handling of fresh excreta; and the technology is culturally suitable/acceptable.
3. All sanitation infrastructure is functional and does not result in open discharge of waste into the environment.

In addition, the ULB shall generate increased awareness about sanitation, public health and hygiene, and environmental pollution and protection, in conjunction with NGOs and civil society groups.

Further, in light of the current situation, funding available under various programs, and the time that will be needed to construct and operationalize the treatment infrastructure, the State will look at a three-stage achievement as follows:

Stage I – Basic ODF

Stage II – ODF+ No undesignated discharge of septage

Stage III – ODF++ No open discharge of human faecal and liquid waste, and safe containment, transport, treatment and disposal of all human faecal waste

Accordingly, the OUSS 2017 developed a ten-year time frame to reach ODF++ status.

## **2. Sewage, septage/faecal sludge and liquid waste is safely managed, treated, and disposed**

The third outcome of the OUSP is to ensure that wherever faecal waste is generated in the urban environment, it is safely confined, regularly collected, safely transported, and disposed after adequate treatment; with due care being taken of persons, machinery, materials and surroundings involved in the process. Regarding the focus on septage/faecal sludge management (FSM), it states that in large cities with population of 100,000 or more, the State Government may, based on context and demand, bring out a separate action plan for sewerage systems in the city. The State Government will strive to create opportunities and provide necessary support through which all the citizens can have access to septage management services; while enjoining the household to be responsible for maintain sanitation facilities and ensuring safety as declared by the ULBs.

According to the OUSS, CSPs will include septage management/FSM plans. These CSPs will include elements of the sewerage and septage management guidelines for cities that will be drafted and released by the State Government, and will cover both households and non-household institutions within the city [1]. These guidelines will cover the following:

- safety standards for septic tanks and other OSS conforming to standards issued by the Central Government and State Government
- safe transportation of sludge including checklist of tools and equipment to be kept with the transportation vehicle
- setting standards and norms for safely treated septage/sewage and effluent, and safety and public health including environmental standards (not already set by the Central Government) for discharge/disposal of effluent and sludge, post-treatment, and into water bodies and land, norms for site selection of treatment facilities, and safety standards for workers involved in safe sanitary disposal and management
- service delivery standards for city-level septage management
- information and education campaign (IEC) and BCC at the level of the general public (eg the need for proper construction of on-site systems and public health effects of poor sanitation), septic tank masons (sensitisation on environmental norms and training in guidelines – wherever feasible, the ULBs may consider ground-verification and spot checks on constructed infrastructure), and septage transporters and other private operators (to ensure safe handling)
- the State will sensitise ULB staff and elected representatives.

The state through the ULBs will ensure the provision of these services to both household and non-household facilities.

The district administration will ensure the provision of land for the development of sanitation infrastructure for ULBs, identify land based on technological and environmental considerations specified under law, which shall be approved by the competent authority identified by the State, and monitoring and evaluation for septage management of all ULBs.

ULBs will ensure the nomination of a nodal officer for septage management in the city [5]

## **3. Safety standards and guidelines are followed in the physical handling and management of waste**



The OUSP highlighted the definition of hazardous cleaning from the 2013 Act (see section III(b) above). According to the OUSS, the State Government will ensure that guidelines for sanitation infrastructure at the household and non-household institutional levels covers the construction of sanitary and ecologically safe toilets (and sub-structures) that do not require hazardous cleaning [6].

#### **4. Cities/towns do not discharge untreated waste (water and faecal waste) into the water bodies of Odisha**

The sixth outcome of the OUSP is to eliminate urban pollutants – septage/faecal sludge, and municipal solid waste – into the rivers and river basins of Odisha from urban and peri-urban areas thus ensure their protection, conservation, restoration, regeneration and integrated development. The OUSP focuses on a combination of strengthening the constructed drainage systems, strong FSM/septage management, and/or underground sewerage networks where relevant (including treatment plants), and interception, diversion, and treatment of septage and waste water flowing through natural drains.

According to the OUSS, the ULBs will ensure that household, community, public and institutional toilets with OSS will be provided with and follow safe standards of FSM/septage management, and that all constructed drains are repaired at vulnerable points to prevent leakages into the environment [2&3]. Eventually waste management must be such that no solid and/or liquid waste is disposed of into the water bodies. Such waste is scientifically processed, and only treated effluent that meets environmental discharge norms may be released into water bodies. The State Government will bring out technical guidance notes from time-to-time to specify standards, processes and technologies that may be used for this purpose within the context of Odisha. ULBs and the State Government will take necessary steps – regulatory or legal – to ensure enforcement of these norms [7].

*Box 4: Institutions for sanitation management*

**State level**

*High Powered Committee (HPC) – Chair: Chief Secretary, Odisha; Member-Convener: Secretary-cum-Commissioner, H&UDD*

*For management of urban sanitation initiatives in the State and collaboration across departments*

*State Mission Directorate (SMD) – Mission Director supported by Project Management Unit (PMU), reporting to Commissioner-cum-Secretary, H&UDD*

*For day-to-day activities of urban sanitation initiatives in the State*

**District level**

*District-level Review & Monitoring Committee (DLMRC) – chaired by Member of Parliament*

*To ensure satisfactory monitoring of sanitation projects*

*District Urban Sanitation Committee (DUSC) – chaired by District Collector; supported by Programme Implementation Unit (PIU)*

*To monitor and oversee sanitation projects in the State*

**City level**

*City Sanitation Task Force (CSTF) – headed by Commissioner/Executive Officer i/c*

*To design and monitor sanitation programmes in the ULB*

*City Mission Directorate (CMD) – headed by Commissioner/Executive Officer i/c; supported by PIU*

*To design, monitor and implement urban sanitation projects in the ULB*

**Other relevant measures**

Urban Odisha has benefited from a number of missions and schemes promoted by the Central Government. These include JNNURM and UIDSSMT. Since 2015, AMRUT is being implemented in three municipal corporations of Bhubaneswar, Cuttack and Berhampur and in six towns: Rourkela, Puri, Sambalpur, Balasore, Baripada and Bhadrak. On 1 July 2015, the H&UDD notified a State Level High Powered Steering Committee to steer the Smart City Mission in Odisha in its entirety. Based on the evaluation of city performance through pre-defined objective criteria during the intra-state city selection process, five cities, including Berhampur and Puri, were selected in August 2015.

In addition, the H&UDD has prepared the Model Bye-law on Solid Waste Management 2017. Recently, the State Government has decided to include a chapter on water and wastewater management at the secondary level from the 2018 academic session to raise awareness about the different aspects of sanitation and hygiene practices, which can prevent the outbreak of water-borne diseases that have been attributed to faecal contamination of drinking water in the past.<sup>14</sup>

**c) Judicial interventions**

The higher judiciary (the Supreme Court of India and the High Court of Odisha) as well as the National Green Tribunal (NGT) have responded to concerns relating to the management of human waste.

<sup>14</sup> Sandeep Mishra, 'Waste management in school curriculum' The Telegraph (14 May 2018).

The Supreme Court directed the State Government to set up a sewerage system in Puri town.<sup>15</sup> The High Court has taken cognizance of a number of cases relating to pollution of the river Mahanadi due to the discharge of untreated or partly treated sewage, and directed the ULBs as well as the OSPCB to undertake necessary measures to prevent or control water pollution.<sup>16</sup> Notwithstanding these directions, river pollution continues unabated. In a case before the NGT, a residents' welfare association was concerned about groundwater pollution due to over-flowing of sewage from the manholes, as the sewerage line had not been connected to the STP, which was not constructed yet. The NGT adopted a 'balanced and pragmatic approach' and directed the authorities to complete the construction of the STP within the projected period, and to continue to undertake the temporary short term and mid-term measures for the benefit of the general public.<sup>17</sup>

The High Court has also heard cases challenging the acquisition of land for the purpose of construction of sewage treatment plants. More recently, the High Court was required to decide a challenge to the construction of a Faecal Sludge Treatment Plant for Angul municipality.<sup>18</sup> This case illustrates some of the challenges that are likely to be faced by other similar government interventions for FSSM, including the difference between septage and sludge, which also speaks to the feasibility of their co-treatment (as in Puri), as well as the standards required for treatment of septage, which are currently absent from the environmental laws. The other issues relate to the similarities between sludge and solid waste, which has implications for the inclusion of sludge in the Solid Waste Management Rules, the siting of treatment facilities, and more broadly the potential adverse public health and environmental impacts of measures undertaken to address certain public health and environmental problems.

### C. Institutional framework—national, state and city level

The institutional framework related to FSSM is complex because of the presence of a number of institutions (statutory and administrative) from the national level to the ULB. 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.

#### a) National level

Table 3: Key institutions at the national level and their roles

15 Supreme Court of India, Order of \* 1996.

16 See, for example, MC Mehta v State of Orissa and Others AIR \* Orissa \*.

17 Kalinga Nagar (K-8) Residents' Welfare Association v Secretary, Ministry of Urban Development & Housing, Govt of Odisha & Ors OA No. 60 of 2015, Order of 24 August 2017 (NGT – Eastern Zone Bench, Kolkata).

18 Supriti Mohanty v State of Odisha and Others WP (Civil) No. 2164 of 2018 (High Court of Odisha, Judgment of 18 June 2018).

INSTITUTION	KEY ROLES
Ministry of Urban Development (now Ministry of Housing and Urban Affairs)	<ul style="list-style-type: none"> <li>• Technical and planning support to States and ULBs</li> <li>• Training and capacity building of State level officials and those from select ULBs</li> <li>• Funding through specific schemes and plans</li> <li>• National level awareness and behaviour change campaign</li> <li>• Support research and capacity building in the sector</li> <li>• 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</li> <li>• National level monitoring and evaluation</li> </ul>
Ministry of Environment, Forest and Climate Change	<ul style="list-style-type: none"> <li>• Enforce compliance of the relevant environmental laws and rules during the collection, transport, treatment and disposal of faecal sludge and septage</li> </ul>
Ministry of Social Justice and Empowerment	<ul style="list-style-type: none"> <li>• Elimination of manual scavenging and rehabilitation of manual scavengers</li> <li>• Monitor and evaluate progress at the national level</li> <li>• National level awareness campaign</li> </ul>

## b) State level

Under the Chairmanship of the Chief Minister, there is a High-Powered Committee for SBM (Urban) and a State Level High Power Committee for AMRUT.

The **Housing and Urban Development Department (H&UDD)** is the nodal department for ensuring proper and planned growth of cities and towns with adequate infrastructure, amenities and services provided to the citizens through ULBs and parastatal agencies. It serves as the State level Mission Directorate for SBM (Urban) with a senior functionary as the Mission Director. In addition, the Commissioner-cum-Secretary of the H&UDD is the Chairman of the State Level Technical Committee for the implementation of AMRUT.

The H&UDD is responsible for the implementation of the Odisha Urban Sanitation Strategy and it hosts the State Sanitation Directorate. The H&UDD provides finance, human resources and technical support to the ULBs along with assistance of its subsidiary organisations like the State Urban Development Agency (SUDA), Development Authorities, the PHEO, the OWSSB and the Odisha State Housing Board (OSHB).

The H&UD functions through three Directorates:

- (i) Directorate of Municipal Administration (attached to the Department),
- (ii) Directorate of Town Planning, and
- (iii) Chief Engineer, PHEO (Urban).

In addition, there are five Public Health, SE Circles, 19 Public Health Divisions, 56 Public Health Sub-

divisions, 20 District Town Planning Units, 110 Urban Local Bodies including (five Municipal Corporations, 45 Municipalities and 60 Notified Area Councils), nine Development Authorities, seven Regional Improvement Trusts, 36 Special Planning Authorities, OSHB, OWSSB, Odisha Rural Housing Development Corporation (ORHDC), Valuation Organization, NIHM, SUDA and OUIDF.

The H&UDD has decided to decentralise and strengthen septage management by creating a separate **Septage Management Division (SMD)** for it. Currently handled by OWSSB, the SMD would implement projects and schemes pertaining to the system in the various ULBs across the State. A total of Rs 213.75 crore has been earmarked for the purpose out of which Rs 59.65 crore has been sanctioned in 2016. The funding will continue up to 2020 when the project is expected to be completed. The OWSSB will fund infrastructure for the programme and an institutional framework for the proposed SMD. The ULBs will levy user fees for septage transport, treatment and disposal once the new division comes up.<sup>19</sup>

The **OWSSB** was established for the rapid development and proper regulation of water supply and sewerage services in the State. The OWSSB executes sewerage projects and after completion, hands them over to the PHEO for operation and maintenance (O&M). It is also the State Level Nodal Agency for the implementation of projects related to urban sanitation (including AMRUT, SBM (Urban)) in the State. Further, the OWSSB functions as the State Sanitation Nodal Agency (SSNA) for the successful implementation of the OUSS. The SSNA is supported by the SBM Project Management Unit (PMU) Cell comprising of qualified professionals and support staff to provide technical, managerial, strategic and professional assistance. It was responsible for consolidating all the CSPs in order to make a State level plan for facilitating implementation of the OUSS.

TABLE 4: KEY INSTITUTIONS AT THE STATE LEVEL AND THEIR ROLES

<p><b>Odisha Water Supply and Sewerage Board (OWSSB)</b></p>	<p>Member Secretary (in the rank of Chief Engineer, Public Health)                      one Chief Engineer                      Project Directors (in the rank of Superintendent Engineer, Public Health) of four Project Management Circles                      Nine Project Engineers (in the rank of Executive Engineer, Public Health) of Project Management Units</p>	<p>Implementation of the sewerage projects in the urban areas of the State                      [As of March 2016, OWSSB had taken up sewerage projects in six ULBs and completed, commissioned and put into operation one in Puri.]                      Execution of pollution abatement schemes under the National River Conservation Plan, which consist of Interception &amp; Diversion, STP, Low Cost Sanitation etc.</p>
<p><b>Public Health Engineering</b></p>	<p>Headed by the Engineer-in-Chief</p>	<p>Inspection and monitoring of water supply and sewerage system</p>

<sup>19</sup> ‘Separate division for septage management soon’ The New Indian Express (22 August 2016).

<b>Organisation (PHEO)</b>	Comprises four PH Circles (including Berhampur) PHEO (Puri division) falls under PH Circle Bhubaneswar PHEO (Angul subdivision) is responsible for Dhenkanal municipality.	of all the ULBs and Census towns in the State O&M of sewerage projects as well as pollution abatement schemes executed by the OWSSB Collection of water and sewerage charges (user charges) from consumers
<b>Development authorities</b>	Berhampur; Puri Konark; Talcher-Angul-Meramandali	Implementation of the Orissa Development Authorities Act, 1982
<b>Odisha State Pollution Control Board (OSPCB)</b>	One Head Office and 12 Regional Offices (RO)  The OSPCB has a regional office in Berhampur. Puri falls within the jurisdiction of the RO in Bhubaneswar, and Dhenkanal falls within the jurisdiction of the RO in Angul.	Monitoring and enforcement of environmental laws enacted by the central and state governments Prevention and control of environmental pollution during the FSSM process such as desludging, treatment and disposal
<b>Directorate of Municipal Administration (DMA)</b>		Coordination of various activities of the ULBs in the field of municipal tax administration, financial management, infrastructure development, town planning, urban health and sanitation, environment management and programmes for the urban poor etc.
<b>Directorate of Town Planning</b>		Preparation of master plans, monitoring of programmes, provision of technical assistance, and regulation of the work of development authorities
<b>Orissa Urban Infrastructure Development Fund (OUIDF)</b>		Development and financing of infrastructure projects undertaken by the ULBs, statutory bodies, public sector undertakings and private investors.

<p><b>Odisha State Commission for Safai Karamcharis</b></p>		<p>Protection of the rights of sanitation workers in the state</p>
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The external funders of the sewerage projects of the State Government include foreign governments, such as JICA (the Odisha Integrated Sanitation Improvement Project for Bhubaneswar & Cuttack) and the KfW (the German government), the World Bank (the Odisha Disaster Recovery Project in Berhampur), as well as philanthropic organisations such as the Bill and Melinda Gates Foundation (BMGF) and the Arghyam Trust (Project Nirmal in Dhenkanal).

### c) Local level

The ULBs are responsible for the implementation of SBM (Urban) and AMRUT at the city level. They are also responsible for the provisioning of desludging services, operation and maintenance of sewage treatment plants, and ensuring the safety of sanitation workers employed by the local government, as well as for O&M of pollution abatement schemes under the National River Conservation Plan.

The Berhampur Municipal Corporation comprises the Mayor, Deputy Mayor, Commissioner, Deputy Commissioner, Assistant Commissioner, Secretary-cum-ODS to Mayor, Deputy Secretary, City Engineer and Executive Engineer and Health Officer. Nine sanitary inspectors assist the Health Officer, and a number of sweepers and sanitary workers support the sanitary inspectors. There are nine Standing Committees including one on Public Health, Electric Supply, Water Supply, Drainage & Environment.

The Chairperson and Councillors spearhead Dhenkanal and Puri municipalities, and Steering Committees support them. There is also an Executive Officer with his team of officials and assistants, as well as regular employees including a Municipal Engineer, a Junior Engineer, a Sanitary Inspector, supervisors, a Community Organiser, and private contractors with a large team of sweepers and sanitation workers. Non-governmental agencies namely Practical Action, Bhubaneswar and the Centre for Policy Research, New Delhi are also involved in the implementation of a FSSM project - Project Nirmal - in Dhenkanal municipality.

## IV. ISSUES, CONCERNS AND CHALLENGES: LESSONS FROM THE FIELD

Overall, the State of Odisha has acknowledged the need for FSSM and its response – the mainstreaming of FSSM in the policy agenda - has been more proactive than several other states in the country. The internal push was the occurrence of water-borne diseases within the State while the Central Government and non-governmental agencies such as the BMGF provided the external impetus.

### A. Ensuring sustainable FSSM

The H&UDD and the OWSSB have taken the lead in the development of the regulatory and institutional frameworks as well as infrastructure for FSSM at the State level. E&Y is supporting the State Government in the development of regulatory and institutional capacity. The State has adopted Guidelines for FSSM, and a model law is on the anvil.

The Central Government is providing funding (under AMRUT) to develop the necessary FSSM infrastructure in selected cities including Berhampur and Puri. Non-governmental agencies such as the BMGF are participating in the development of capacity at the ULB level as well as the construction and initial operation and maintenance of FSSM infrastructure. A co-treatment plant for sewage and septage is operational in Puri, and a separate FSTP is under construction in Berhampur (under AMRUT) and in Dhenkanal (under Project Nirmal). Recently, the Chief Minister formally inaugurated six septage treatment plants in the State, including in Puri.

At the ULB level, the need for FSSM has trickled down from the State level and/or through the initiative of non-governmental agencies. Political will and interest of champions at the ULB level has facilitated the adoption of the regulatory framework and the process of grant of approvals for land acquisition from the Revenue Department, and consents to establish and operate the treatment plants from the OSCPB.

At the same time, the question of sustainability of these developments arises. What will be the future of FSSM sans the interventions of external/non-governmental expert agencies? How far can a proactive State Government carry the FSSM agenda without the support of local leadership? How will the State ensure FSSM in cities and towns and villages that do not fall under the purview of Central Government schemes and programmes (such as AMRUT) but where the construction and use of toilets under the two flagship programmes of the Central Government - SBM-Urban and SBM-Rural – is going to create a need/ demand for FSSM?

## **B. Non-regulation of septic tanks & septage**

There is a lack of awareness or clarity about the guidance on the specifications for the design of septic tanks among the concerned government officials. The design of septic tanks for toilets in individual households, community/public places and commercial establishments are also largely unregulated. There is no requirement to provide these details along with the application seeking approval for the building plan. As a result, owners of premises or masons follow their own understanding and perceptions while constructing septic tanks. Further, very large septic tanks are constructed even for community/public toilets and institutions such as government colleges.

Desludging of septic tanks is not carried out according to the time period specified in the guidance issued by the government. The construction of very large septic tanks means that they do not require emptying until after several years. The number of trips depends on the size of the tank/pit.

There are different mechanisms for the disposal of septage. It may be transported to the nearest sewage treatment plant, or disposed in deep-row trenches at the ULB's solid waste management plant. Alternatively, it may be dumped into the sewer or on land or in a forest, or discharged into a drain or a water body. No instances of sale to farmers were shared with the research team. The installation and monitoring of vehicle tracking devices can address some of these illegal practices and deter potential violators of the regulatory mandate as proposed in the guidelines and the model law.

## **C. Septage collection: co-existence of multiple service providers and payment structures**

There are mainly four kinds of service providers in the FSSM sector who empty OSS systems and transport the septage and faecal sludge to treatment/disposal sites. First, sanitation workers who are permanent employees of the ULB carry out the work, using cesspool emptier vehicles owned by the ULB. Second, in



many places, the ULB outsources sanitation work such as septic tank emptying and sewage cleaning to private operators who use cesspool emptier vehicles owned by the ULB. In both cases, coverage is confined to areas where vehicles can gain access to the OSS systems, which means that desludging services cannot be provided to areas with narrow streets. Third, the owners or occupiers of premises with toilets may directly contact private operators to carry out the work. Fourth, in some cases, households simply call members of scheduled castes from the Harijan basti 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 Odisha. The operations of the informal service providers in the abovementioned third and fourth categories remain largely unregulated.

It is important to underline the difficulty in tracing private service providers. This can be attributed to several reasons. First, the private service providers may carry out this work under the cover of darkness. Second, individuals undertake desludging of septic tanks as additional work as and when a private operator engages them. Otherwise, they may be engaged in other work, which may or may not be sanitation-related. Caste is the third key factor that renders these service providers invisible. While households call Harijans to carry out desludging of septic tanks, 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 on the outskirts of the city or in Harijan bastis.

The cesspool emptier vehicles owned by the ULB were found to be non-existent or non-functional in some cases. The response time of functional ULB vehicles may also be longer. The absence of small vehicles further limits coverage. This state-of-affairs compels consumers to resort to private operators who may charge higher rates particularly in the absence of competition. Even if the ULB procures the required number of vehicles, the existence of a limited number of operators affects their availability to operate these vehicles. This is evident from the outcome of bids for operation of ULB-owned cesspool emptier vehicles, which sometimes compels the ULB to continue to rely on an unreliable operator. This issue of adequacy of service providers is likely to become more salient with growing awareness of the need for FSSM and the proper implementation of regulations mandating the construction of septic tanks in accordance with specifications and their periodic desludging.

The cost-effectiveness of every transaction from the perspectives of the operators and the consumers is another relevant consideration. At present, different service providers follow different systems. ULBs charge individual households and commercial establishments at different rates for the service of emptying of septic tanks/pits. Government institutions are provided this service *gratis*. The ULB and the private operators charge different rates for emptying a septic tank.

#### **D. Sanitation policy: FSSM as a stopgap arrangement**

Although FSSM forms a part of the law and policy agenda in Odisha, there appears to be an order of priority between on-site and off-site sanitation systems with the latter taking priority over the former. The primary focus of sanitation policy, in respect of treatment and disposal of human waste, is the construction of the sewerage network and STPs. A STP has been constructed in Puri with funding from the Central Government under AMRUT, and it is operational. The DPR has been prepared for the construction of a STP in Berhampur.

Some government officials view FSSM as a short- to medium-term solution, while off-site sanitation systems are regarded as the ideal, long-term solution. Some others highlight the practical and financial limitations of achieving 100 per cent sewerage coverage in the State, and therefore argue for the adoption of both on-site and off-site sanitation systems based on the prevailing local conditions. For instance, Puri is a religious centre where on-site sanitation systems are likely to persist given the fact that the prevailing practice of households is to construct toilets towards the back of the house rather than the front, which prevents connection to the sewerage network.

FSSM is included in sanitation projects for major cities (eg AMRUT cities) or cities where projects are funded by non-governmental agencies such as the BMGF, as in the case of Dhenkanal which benefits from its proximity to the State capital. However, other cities as well as a vast number of small towns that lack sewer networks and STPs require more FSSM facilities due to existing OSS systems and the possible increase in toilets as a result of the implementation of SBM-Urban.

According to some government authorities, there is room for the treatment of septage generated in some of these small towns at the existing or proposed septage treatment plants. But this will depend on their proximity to the treatment plants and the willingness of the vehicle operators to collect and transport septage. This will also depend on the load of septage collected for treatment in the cities/towns themselves, which is likely to increase with growing awareness of and access to these septage treatment plants. A respondent proposed another potential alternative, that is, equipping panchayats with cesspool emptiers and the establishment of a septage treatment plant for a cluster of villages.

#### **E. Institutions: lack of co-ordination and narrow understanding**

Several government agencies are involved in FSSM in Odisha, directly or indirectly.

TABLE 5: State/local level agencies involved in FSSM regulation

Actual work	ULBs, private companies or contractors engaged by ULBs, informal service providers
Monitoring	ULBs, 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	OSPCB
Policy making	State Government, E&Y, BMGF, CPR
Project design	State or ULB level

The fragmentation of the institutional mechanism related to FSSM in Odisha is inevitable given 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 OSPCB understands its role seems problematic. For instance, the officials of the OSPCB believe that their role is limited to the cases of industrial pollution or to monitoring of river water quality. They view FSSM as being the responsibility of ULBs. Institutional capacity is also an issue as the OSPCB lacks adequate staff to monitor illegal dumping of septage/sludge on land or its discharge into drains or water

bodies. The OSPCB must also play an important role in the development of the process and standards for recycling/reuse of the treated septage and sludge, an issue that has received very little attention so far and merits much greater emphasis assuming that the regulatory, institutional and infrastructural framework for FSSM will be implemented across the State.

#### **F. The plight of sanitation workers: need for awareness, compliance and enforcement**

There is a widely held (and unquestioned) belief that sanitation work is caste-based work, which is to be carried out predominantly by members of certain scheduled castes. The practice of government or private contractors, of employing members of certain scheduled castes to sweep streets, clean community/public toilets and sewers, and to empty septic tanks supports this view. Members of certain scheduled castes are also employed/contracted by households, government institutions and commercial establishments to clean toilets and to empty septic tanks. The owners of cesspool emptier vehicles employ members of scheduled castes to carry out the desludging of septic tanks. The representatives of two organisations working with sanitation workers also confirmed that a majority of the sanitation workers belong to scheduled castes.

The belief that sanitation work is caste-based work also appears to underpin measures purportedly being undertaken for FSSM while also supporting the implementation of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013. For instance, where the responsibility of operation and maintenance of community/public toilets in some wards in Berhampur is handed over to Self-Help Groups (SHGs) in order to empower them, SHGs comprising of members of scheduled castes are also expected to clean these toilets. Similarly, in Cuttack, there is a proposal to ‘rehabilitate’ manual scavengers by providing them with a cesspool emptier vehicle. While these measures appear to be well meaning, they perpetuate the link between caste and sanitation work instead of delinking the two.

Cases of deaths of sanitation workers while cleaning septic tanks have been reported. There are conflicting narratives about safety-related issues. Some of the local government officials claim that they comply with the legal requirements by providing protective gear and devices, but the sanitation workers are not ‘comfortable’ using them. Private operators of cesspool emptier vehicles do not provide protective gear and devices to the sanitation workers, although they may provide alcohol. As a result, sanitation workers simply wrap a ‘gamcha’ (a traditional thin cotton towel) over their face and nose. They also use a long wooden stick to stir the semi-solid matter in the septic tank without covering their hands with gloves, and they may even physically enter the chamber in some cases just wearing underwear.

The non-recognition or lack of regulation of informal service providers also means that issues related to health, environment and exploitation of the workers remain unaddressed. Further, the reduction in the number of appointments as permanent government employees and the growing practice of contracting out the provision of government services such as sweeping, solid waste management, and cleaning of septic tanks, etc. to private operators adversely affects the ability of members of scheduled castes who work as sanitation workers to meet ends meet. They are forced to work in unsafe environments and they are unable to raise their voice against blatant violations of the provisions of laws that are designed to protect their rights and interests.

## **G. Capacity building of ULBs to provide and monitor FSSM**

The State Government is responsible for the development of the regulatory and institutional framework. But ultimately, the ULBs must adopt the regulations through a Council resolution in order for it to become binding and enforceable within its jurisdiction, and they must implement them by monitoring compliance and punishing violations. Therefore, the buy-in of the political leadership at the local level is critical for the effective implementation of FSSM. Concerns relating to the institutional, financial and human resource capacity of ULBs to provide and monitor FSSM are being addressed through support provided by E&Y and the Central Government (through the AMRUT scheme) in Berhampur and Puri, and through Project Nirmal in Dhenkanal. As previously discussed, an important question remains concerning the sustainability of FSSM.

## **V. REGULATORY OPPORTUNITIES**

While there are a number of issues, concerns and challenges in the urban sanitation sector generally and in the FSSM sector in particular, the existing framework also presents a few significant opportunities to tackle or address them at least partially.

First, sanitation programmes such as SBM-Urban are a useful opportunity for FSSM. It is important to ensure that all the toilets that have been constructed and are being used, as well as the toilets that are under construction and will be used in the near future, meet the norms and standards relating to FSSM. SBM-Urban is also an important opportunity to ensure that OSS systems in the State are built in accordance with the existing norms and standards related to FSSM. This is very important in a context where the erstwhile and ongoing sanitation programmes have focused almost exclusively on the elimination of open defecation.

Second, the new FSSM guidelines, the model law, as well as existing building regulations present an important opportunity for FSSM. Similarly, the existing building regulations (eg the National Building Code, 2016) include a number of norms and standards to ensure proper OSS systems as described in section III above. The key issue here is to what extent these norms are effectively enforced.

Third, the FSSM guidelines and the model law represent an opportunity to ensure the effective implementation of the Prohibition of Manual Scavenging and their Rehabilitation Act, 2013 and the rules framed thereunder, and the protection of the rights of sanitation workers who are involved in desludging of septic tanks, as well as the treatment and disposal of septage and sludge.

Fourth, the existing environmental laws and their proper implementation by the OSPCB can contribute significantly to the enforcement of appropriate practices regarding FSSM, such as the regulation of construction of household toilets, service providers, and treatment plants. However, the OSPCB must not understand its role narrowly. Further, the institutional capacity of the SPCB needs to be enhanced significantly in order to carry out these tasks effectively.

## **VI. ANNEXURE: 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 Odisha have adequate service providers for desludging and transportation of faecal sludge and septage?
- (c) If there are private service providers, how they are regulated?
- (d) What are the existing mechanisms 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 Odisha?
- (c) Whether and to what extent the treated faecal sludge and septage are recycled/reused?
- (d) In case of recycling and reuse of treated faecal sludge and septage, what are the purposes for which it is used and which agency monitors the safety aspect?
- (e) Whether the Odisha State Pollution Control Board has taken any action to prevent direct dumping of untreated faecal sludge and septage?

## **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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