



Draft

# **Institutional and Regulatory Framework for Fecal Sludge Management (FSM):**

## **Rural Areas**

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## Abbreviations and Acronyms

AIT	Asian Institute of Technology
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BUET	Bangladesh University of Engineering and Technology
CBO	Community Based Organization
CTO	Collection and Transportation Operator
DAE	Department of Agriculture Extension
DoE	Department of Environment
DPHE	Department of Public Health Engineering
FSM	Fecal Sludge Management
GoB	Government of Bangladesh
ICDDR	International Centre for Diarrhoeal Disease and Research, Bangladesh
IEDCR	Institute of Epidemiology, Disease Control and Research
I/NGO	International and National NGO
ITN	International Training Network Center
IWMI	International Water Management Institute
JMP	Joint Monitoring Program
LGD	Local Government Division
LGED	Local Government Engineering Department
MoA	Ministry of Agriculture
MoEF	Ministry of Environment and Forest
MoHA	Ministry of Home Affairs
MoLGRDC	Ministry of Local Government Rural Development and Cooperatives
NFWSS	National Forum for Water Supply and Sanitation
NGO	Non-Government Organization
RAJUK	Rajdhani Unnayan Kartripakkha
SAAO	Sub Assistant Agriculture Officer
TFO	Treatment Facilities Operator
UP	Union Parishad
WASH	Water Supply Sanitation and Hygiene
WATSAN	Water Supply and Sanitation
WEDC	Water, Engineering and Development Centre, Loughborough University

## Terms and Definitions

**Fecal sludge:** Sludge removed from all kinds of on-site sanitation systems such as septic tanks, aqua privies, pit latrines, community multiple pit system, etc.

**Septage:** Fecal sludge (settled solids, scum and liquid) that accumulates in septic tanks.

**Sewage Sludge:** Sludge generated at the sewage treatment plants as a result of sewage digestion process is termed as sewage sludge. Sewage sludge is often more problematic than fecal sludge from household toilet facilities because it contains contaminants from industrial wastewaters.

**Septic Tank:** A watertight, multi-compartment, usually sub-surface receptacle that receives sewage from houses or other buildings and is designed to separate and store the solids and partially digest the organic matter in the sewage.

**Onsite Sanitation System:** Sanitation infrastructures that are designed to collect, store and dispose of human excreta at the household premises and include septic tank system and various types of pit latrines.

**Desludging:** This refers to the process of cleaning or removing the accumulated sludge/ septage from a septic tank, pit latrine or wastewater treatment facility.

**Domestic Sewage:** Wastewater composed of untreated human waste coming from residential and commercial sources. Domestic sewage does not include industrial and/or hazardous wastes.

**Sewerage system:** A system of sewers that collects and conveys wastewater to a treatment plant for treatment prior to disposal point. It includes all infrastructures for collecting, transporting, and pumping sewage.

**Fecal Sludge Management:** Also known as septage management, FSM includes the various technologies and mechanisms for collection, transportation, treatment and disposal of sludge produced by septic tanks, pit latrines, and wastewater treatment plants.

**Biosolids:** This usually refers to treated fecal sludge or byproduct of the treatment of domestic sewage in a sewage treatment plant. Biosolids consist primarily of digested organic matter and dead microbes and can be used as organic fertilizer or soil conditioner.

# Institutional and Regulatory Framework for Fecal Sludge Management (FSM): Rural Areas

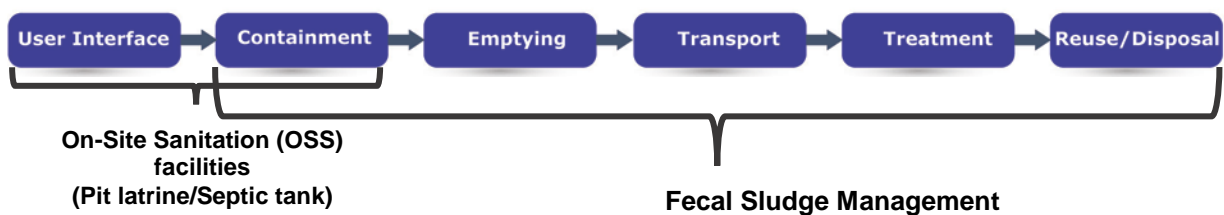
## Chapter 1

### Context

Except for a small portion of Dhaka city, all urban and rural areas of Bangladesh are served by onsite sanitation facilities, and the huge quantity of fecal sludge generated in pits (of pit/pour-flush latrines) and septic tanks are inaptly managed. In rural areas, single-pit (both direct and offset pit) pour flush latrine is the predominant sanitation option; in some areas, twin-pit latrines are being promoted by LGIs and I/NGOs. In water-scarce areas, pit latrines (i.e., direct pit latrines without water seal pans) are used; septic tank system is seldom used in rural areas.

When pits of single pit-toilets or septic tanks become full, these are emptied manually; mechanical desludging using mud pumps is practiced in few areas. The unhygienic traditional emptying practice is a major health and safety concern, particularly for the pit emptier community. The emptied fecal sludge is often disposed in nearby water bodies and low-lying areas, causing environmental pollution and endangering public health; burying of emptied sludge (by digging a hole in the ground) is also practiced. On the other hand, desludging of raw fecal matter is not needed for a properly designed twin-pit latrines; when one pit becomes full, it is covered with soil and its contents are left to digest (preferably for at least 1.5 to 2 years) and the second pit is used. By the time the second pit becomes full, the contents of the first pit could be emptied without safety concern, and used as a resource (soil conditioner); thus the two pits could be used alternately.

In the present context of typical rural areas, the most immediate needs are: (a) promoting safe emptying practices (e.g., use of safety gear by emptiers and use of mechanical means, such as pumps); (b) promoting safe disposal (e.g., burying) of emptied fecal sludge; and (c) promoting technologies (e.g., twin pit toilets and other emerging options) that could eliminate/ reduce the need of unsafe pit emptying. While it may take some time to introduce FSM services (including organized collection, transportation and treatment of fecal sludge; as described in Fig. 1) in most rural areas, certain components of FSM services including safe emptying and disposal is urgently needed.



**Figure 1:** Components of fecal sludge management (FSM) system

There is lack of awareness among concerned stakeholders regarding the adverse impacts of unsafe pit emptying practices, indiscriminate disposal of emptied fecal sludge, and

availability of technological options (e.g., twin pit latrines) that could eliminate/reduce problems associated with fecal sludge. Union Parishads (UPs) have limited capacity, both in terms of resources and trained manpower, for creating awareness about fecal sludge management and supporting/ promoting safe emptying and disposal of fecal sludge. Nevertheless, as a continuation of their leading roles in achieving ODF status, Union Parishads together with NGOs and other stakeholders could play key role in ensuring proper management of fecal sludge in rural areas.

## Chapter 2

### Objectives and Scope of FSM Framework

The primary objective of this FSM framework is to facilitate proper fecal sludge management (FSM) in rural areas, and set the stage for implementation of entire FSM service chain in the future. Specifically, this framework:

- (a) Identifies ways and means of safe management of fecal sludge; and
- (b) Defines specific roles and responsibilities of various institutions and stakeholders, particularly the Union Parishads and Upazila Parishads, for effective management of fecal sludge.

The institutional roles and responsibilities specified in this framework are based primarily on the provisions of the Local Government (Union Parishad) Act 2009 and Upazila Parishad Act 1998 (amended in 2009 and 2011), which guide and regulate the roles and responsibilities of all Union Parishads and Upazilas. In addition, Government Circular on formation of Upazila/ Union/ Ward WATSAN Committees and their activities have also been considered in the development of this framework. Only on-site sanitation facilities and areas served by such facilities would fall under the purview of the FSM framework.

## Chapter 3

### Participating Institutions

An appropriate institutional arrangement is a prerequisite for effective fecal sludge management. It is important that institutions are identified for specific roles and responsibilities depending on existing local conditions, skill, strength and commitment of institutions for effective, safe and sustainable fecal sludge management.

The following institutions have been identified for playing effective roles in the overall planning, development, implementation, practice, and monitoring and evaluation of fecal sludge management (FSM) in rural areas.

- (a) Ministries** – to endorse this FSM framework; secure funding; technical support through respective line agencies (in this case DPHE and LGED); ensure enforcement of laws, policies, strategies and guidelines; and monitoring through the National Forum for Water Supply and Sanitation (NFWSS).

- Local Government Division (LGD), Ministry of Local Government, Rural Development and Cooperatives (MoLGRDC): **Lead Ministry**
- Ministry of Environment and Forest (MoEF)
- Ministry of Health and Family Planning (MHFP)
- Ministry of Agriculture (MoA)
- Ministry of Fisheries and Livestock
- Ministry of Housing and Works (MoHW)
- Ministry of Water Resources (MoWR)
- Ministry of Education
- Ministry of Information
- Ministry of Energy and Mineral Resources
- Ministry of Industries
- Ministry of Land
- Ministry of Home Affairs
- Ministry of Law, Justice and Parliamentary Affairs

**(b) Local Government Institutions and Line Agencies** – to implement the entire FSM system.

- Union Parishad – **main responsibility of FSM**
- Upazila Parishad – supporting role
- DPHE – supporting (technical) role
- LGED – supporting (technical) role

**(c) Institutions participating in capacity building** – to provide research support to fill the knowledge gaps, technical assistance, training, quality assurance of process and products (e.g., compost) in the FSM service chain.

- Ministries and relevant line agencies
- ITN-BUET, relevant universities, research organizations
- BARI, BRRI, BARC, IEDCR, ICDDRB
- International research/ training organizations (e.g., Sandec, EAWAG, WEDC, AIT, IHE, IWMI)
- Development partners
- I/NGOs
- Private Sector

**(d) Institutions participating in awareness building** – to support awareness campaign, promote private sector participation, demonstration of FSM business models, performance monitoring, technical assistance, R&D support and funding.

- Ministries and relevant line agencies
- Development partners
- I/NGOs
- Civil Society Organizations, CBOs
- Research organizations/universities
- Print, electronic and social media
- Private sector

## Chapter 4

### Distribution of Institutional Roles and Responsibilities

#### Section 4.1: Overview of Existing Rules and Regulations

According to existing rules, regulations and GoB circulars, Upazila Parishads, Union Parishads (UPs), and Ward Committees of UPs have been given important responsibilities with regard to water supply and sanitation. According to Sub-section (1) of Section 47 of the Local Government (Union Parishad) Act, 2009 (amended in 2010) (hereinafter referred to as “UP Act 2009”), Union Parishads are responsible for implementation of services for public welfare. According to Schedule 2 of UP Act 2009 (which describes activities of Union Parishads), Union Parishads are responsible for taking actions for improvement and preservation of the environment. According to Section 45 of the UP Act, Union Parishads shall form a number of Standing Committees including one on “Sanitation, Water Supply and Drainage”, to effectively perform its responsibilities. Besides, Union-level WATSAN Committees (formed through a GoB Circular in 2007) has been given the responsibility of performing a range of activities in the WASH (water supply, sanitation and hygiene) sector, including participating as well as supporting DPHE in raising awareness on WASH; coordinating the activities of Union Parishad, Ward Committees, NGOs and others; implementing water supply and sanitation related components of projects being implemented under LGD; and formulation and implementation of water supply and sanitation related projects.

According to Sub-section (1) of Section 6 of UP Act 2009, the Ward Committees of Union Parishads are responsible for supporting officials and employees involved with sanitation programs, and creating awareness regarding environmental preservation and cleanliness. Besides, Ward-level WATSAN Committees (formed through a GoB Circular in 2007) has been given the responsibility of performing a range of activities in the WASH sector, including supporting surveys related to water supply and sanitation; participating in awareness raising activities on safe water supply, sanitation and hygiene practices; supporting implementation of water supply and sanitation related components of projects being implemented under LGD; identifying problems related to water supply and sanitation, prepare recommendations for remediation, and assist in the related project formulation and implementation.

Upazila-level WATSAN Committees are responsible for reviewing activities of Union-level WATSAN Committees and providing them advice and support; supporting DPHE in collecting WASH related data and information; and undertaking and executing water supply and sanitation projects.

Thus, although the term “fecal sludge” is not specifically mentioned in the UP Act 2009, it is clear that the responsibility of overall management of sanitation system including “fecal sludge” generated in sanitation facilities lies with the UPs and its Ward Committees, Upazila Parishads, and the respective WATSAN Committees.



## **Section 4.2: Institutional Roles and Responsibilities**

### ***Sub-section 4.2.1: Overall responsibility of Fecal Sludge Management (FSM)***

- (1) The Union Parishad (UP), with support from its Ward Committees, shall be responsible for management of fecal sludge generated in households and institutions (e.g., schools, offices, mosques, markets) in areas within its jurisdiction; while the Upazila Parishad shall be responsible for planning, coordination and review of related activities. The UP shall collaborate with the Department of Public Health Engineering (DPHE), the private sector/ non-government sector in planning and implementation of activities related to fecal sludge management.
- (2) The UP shall form a Standing Committee on “Sanitation, Water Supply and Drainage” (if it has not been formed already) in accordance to Sub-section (1) of Section 45 of the UP Act 2009. This Standing Committee shall, among others, oversee the activities related to fecal sludge management (FSM). The Committee shall also interact with NGOs working in the area on sanitation/FSM for proper coordination of FSM related activities. Depending on need and availability, the Committee would co-opt a relevant expert in the Committee [in accordance with Sub-section (4) of Section 45 or the UP Act 2009].
- (3) When an UP introduces entire FSM service chain (including collection, transportation and treatment of fecal sludge), it may form “joint committee” with a nearby Paurashava(s) where such services are in place [in accordance to Section 87 of UP Ordinance], in order to facilitate planning and implementation of FSM services based on the experience of the Paurashava(s).
- (4) The UP shall initiate inclusive FSM planning and implementation modality among the government agencies, I/NGOs, community groups and the private sector

### ***Subsection 4.2.2: Sanitation Facilities and Disposal of Fecal Sludge/ Sewage***

#### **Sanitation Facilities:**

- (1) Under the leadership of the UP, the Ward Committees, and UP- and Ward-level WATSAN Committees shall carry out public awareness campaigns on availability of different sanitation options (e.g., twin pit latrines and other emerging technologies that reduce/ eliminate handling of fecal sludge). With support from Upazila Parishad, the UP shall collaborate with DPHE (primarily for technical assistance, e.g., involving the Upazila tubewell mechanics), I/NGOs and the private sector in taking up awareness campaigns.
- (2) Where conditions (e.g., availability of adequate land) permit, the UP and Ward Committees shall encourage use of twin off-set pit pour-flush toilets (or other technologies) that provide a long-term solution to the fecal sludge management problem (in line with its responsibility of “controlling construction and re-construction of houses”, as stated in Schedule 2 of UP Act 2009).
- (3) With support from Upazila Parishad, the UP shall collaborate with DPHE (for technical assistance, e.g., involving the Upazila tubewell mechanics), I/NGOs and the private sector for organizing training of local masons on design and construction of toilets.

### **Disposal of Fecal Sludge/Sewage:**

- (4) The UP, with support from Ward Committees and WATSAN Committees and Upazila Sanitary Inspector (under Ministry of Health and Family Welfare), shall carry out inspection and make sure that fecal matter/ urine/ domestic sewage are not stored (or allowed to flow) on street or open place, and are not discharged in drain/ canal/ sewer; these activities are treated as punishable offence according to the provisions of Schedule 5 (Sections 6, 19) of UP Act 2009.
- (5) The UP, with support from Ward Committees and WATSAN Committees and Upazila Sanitary Inspector (under Ministry of Health and Family Welfare), shall carry out inspection and make sure that fecal matter emptied from sanitation facilities are properly disposed (e.g., buried in soil) so that these do not pollute environment and endanger public health; failure to do so could be treated as a punishable offence according to the provisions of Schedule 5 (Sections 14, 15) of UP Act 2009. In the absence of fecal sludge treatment facility, fecal sludge emptied from onsite sanitation facilities shall be disposed by burying it in soil within household premises or in a land/area designated by the UP.
- (6) The UP shall execute punishment for such offences (as stated above in accordance to Schedule 5) according to Sections 89, 90, and 91 of the UP Act 2009.
- (7) The UP may engage the private sector/non-government sector for monitoring of pit emptying and fecal sludge disposal practices.

### ***Sub-section 4.2.3: Fecal Sludge Collection and Transport***

- (1) Under the leadership of the UP and support from Upazila Sanitary Inspector (under Ministry of Health and Family Welfare), the Ward Committees, and UP- and Ward-level WATSAN Committees shall carry out public awareness campaigns (particularly targeting pit emptying community) on **individual responsibility** for proper management of sanitation facilities, adverse impacts of unhygienic manual pit emptying practices, and availability of options (e.g., safety gear, pumps) for safe emptying of sanitation facilities. With support from Upazila Parishad, the UP may collaborate with DPHE (primarily for technical assistance), I/NGOs and the private sector in taking up such awareness campaigns.
- (2) The UP shall encourage and promote use of safety/protective gear (personal protective equipment, PPE) and mechanical emptying (e.g., using pumps) of fecal sludge from sanitation facilities for ensuring health and safety of emptiers, and protection of the public health and environment. The UP shall collect and disseminate appropriate health and safety guidelines for emptying services.
- (3) The UP shall make sure that the manual emptier (traditional pit emptier/cleaner) communities are integrated into mechanical emptying and other FSM services through proper training and support, without adversely affecting their income.
- (4) The UP shall facilitate availability of safety gear/PPE (e.g., boots, masks) and equipment (e.g., suitable pumps) for safe emptying of pits/septic tanks.
- (5) The UP, in consultation with Upazila Parishad, DPHE/LGED, and relevant stakeholders, may fix fees/charges for pit emptying, transportation, and disposal, as appropriate.

- (6) The UP shall encourage and facilitate participation of private entrepreneurs in mechanical pit emptying services, while making sure that the manual emptier (traditional pit emptier/cleaner) community is integrated in the mechanical emptying services.
- (7) The UP, through its Ward and WATSAN Committees, shall make sure that if emptied fecal sludge is to be transported for disposal/ burying, the transportation is carried out in close containers, and that the emptied fecal sludge is never disposed in open space or water bodies or storm drains or sewers (which is a punishable offence according to the UP Act 2009).
- (8) In order to ensure proper and timely emptying of onsite sanitation facilities, the UP through its Ward/WATSAN Committees shall gradually develop a database of all sanitation facilities within areas of its jurisdiction, along with probable emptying frequency of these facilities. This database could be used to facilitate efficient and timely emptying of sanitation facilities. At the same time, these Committees shall keep records of households/ institutions availing/ practicing safe emptying and disposal of fecal sludge.

***Sub-section 4.2.4: Fecal Sludge Treatment, Disposal and End-use***

- (1) Under the leadership of the UP and support from Upazila Sanitary Inspector (under Ministry of Health and Family Welfare), the Ward Committees, and UP- and Ward-level WATSAN Committees shall carry out public awareness campaigns on resource recovery potentials (e.g., compost, biogas) of fecal sludge and possible resource recovery options/protocols. With support from Upazila Parishad, the UP may collaborate with DPHE (primarily for technical assistance), I/NGOs and the private sector in taking up such awareness campaigns.
- (2) In the absence of fecal sludge treatment facility, fecal sludge emptied from onsite sanitation facilities shall be disposed by burying it in soil within household premises or in a land/area designated by the UP for production of “compost”; emptied fecal sludge may also be transported to the nearest treatment facility (e.g., in Paurashava/ City Corporation) if such facilities are available and such transport is feasible, or utilized in other resource recovery facilities (e.g., biogas plants). The UP shall seek assistance of Sub Assistant Agriculture Officer (SAAO) of the Department of Agriculture Extension (DAE) on proper production of compost/ organic fertilizer from fecal sludge.
- (3) When an UP introduces entire FSM service chain (including collection, transportation and treatment of fecal sludge), it may seek assistance from DPHE, I/NGOs, and nearby Paurashava(s) (where FSM services are in place, e.g., through formation of “joint committee”) for establishment of fecal sludge treatment facility and other FSM infrastructure.
- (4) Considering scarcity of land, the Upazila Parishads, with support from UPs, shall take immediate steps for securing land for establishing fecal sludge treatment and related facilities in the future.
- (5) The UP, with support from Upazila Parishad, shall seek assistance of the Institute of Epidemiology, Disease and Research (IEDCR) (or any competent/ accredited national/ international institution) in ensuring quality/ safety of compost from fecal sludge.

- (6) The UP, with support from Upazila Parishad, shall seek assistance of the Department of Agriculture Extension (DAE) under the Ministry of Agriculture with regard to simplifying the procedure for securing license for using/ marketing of compost/ organic fertilizer produced (if any) at fecal sludge treatment facilities.
- (7) With support from Sub Assistant Agriculture Officer (SAAO) of DAE, the UP shall promote proper and safe use of compost/ organic fertilizer produced from fecal sludge.

### **4.3 Capacity Building, Training and Research**

- (1) The institutions identified in Section 3.0 (as participating institutions for capacity building) would provide support to fill the knowledge gaps, technical assistance, training, quality assurance of process and products (e.g., compost) related to fecal sludge management.
- (2) The MoLGRDC would take steps for setting up **Unit for FSM** in the Union Parishads for effective delivery of FSM related services.
- (3) The Ministries (listed in Chapter 3) and line organizations, research and training institutions, development partners, and I/NGOs would provide support to develop/ enhance skills of personnel of UP, Upazila Parishad, and other stakeholders, and to fill the knowledge gaps with regard to FSM.
- (4) National level research and training organizations (e.g., ITN-BUET, technical and agricultural universities/ institutes /centers) would collaborate with relevant international research/ training organizations/ institutions/ universities, I/NGOs and the private sector in capacity building, training and research on FSM. The Ministries of the GoB and the development partners shall support such initiatives.
- (5) The LGD of the MoLGRDC shall coordinate, and develop guidelines for capacity building, research and training initiatives on FSM, and facilitate sharing and dissemination of knowledge/ information on FSM among UPs.

### **4.4 Awareness Building**

- (1) The institutions identified in Section 3.0 (as participating institutions for awareness building) to support awareness campaign, promote private sector participation, demonstration of FSM business. The relevant Ministries (listed in Chapter 3) and line organizations would support awareness building campaigns on FSM.
- (2) National and international NGOs/CBOs, with support from the Government Ministries (e.g., MLGRD&C, Ministry of Health and Family Planning, Ministry of Environment and Forests), research organizations and development partners (e.g., WB, ADB, JICA, BMGF, and others), shall play the key role in raising public awareness on FSM and facilitating partnership among key stakeholders including the private sector.
- (3) The civil society organizations would also work with I/NGOs and research organizations (for support on technical issues) in sensitizing the public on FSM through use of print, electronic and social media.

#### **4.5 Technical Assistance and Funding Support**

- (1) The GoB will increase funding support and provide other assistance for FSM related activities including procurement of safety gear/PPE, raising awareness and capacity building at UPs.
- (2) Development partners, multilateral or bilateral, may provide technical assistance and funding support to the UPs for FSM related activities through the MoLGRDC.
- (3) The MoLGRDC through its line organization (DPHE) shall provide technical support in planning and implementation of FSM related activities.
- (4) The LGD shall take initiative to develop standards/guidelines for emptying, transportation, and treatment of fecal sludge; operation and maintenance (O&M) of fecal sludge treatment plant; disposal of effluent from fecal sludge treatment facilities; quality control/ standardization of treated products/by-products; and protocol for securing license for using/ marketing of compost/ organic fertilizer.