INSTITUTIONAL AND REGULATORY FRAMEWORK

for

FAECAL SLUDGE MANAGEMENT (FSM)

PAURASHAVAS

OCTOBER 2017

Institutional and Regulatory Framework for Faecal Sludge Management (IRF-FSM)

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PAURASHAVAS

Minister
Ministry of Local Government,
Rural Development and Co-operatives
Government of the People's Republic of Bangladesh

Message

I am delighted that the Policy Support Unit (PSU) of the Local Government Division (LGD) has prepared the Institutional and Regulatory Framework for Faecal Sludge Management (IRF-FSM) for the Water and Sanitation sector in Bangladesh.

The Local Government Division has the mission objective of improving the standard of living of the people by strengthening local government institutions and implementing activities for social, economic and infrastructure development. The Institutional and Regulatory Framework (IRF-FSM) will be supportive for local government institutions to implement FSM services for the benefit of our people.

I believe the IRF-FSM is closely aligned with our objectives of promoting public health and social progress, as well as creating the scope for economic opportunities. Alongside, the development of this framework is a significant and tangible step in Bangladesh's journey towards Sustainable Development Goal (SDG 6) focussing on safely managed sanitation systems.

While we have made successful interventions in the past few decades—eliminating open defecation and greatly expanding access to improved sanitation—it is time that we move forward to the next step of the sanitation ladder. The IRF-FSM will be instrumental in guiding us for the upcoming phases. I urge local government institutions to work for its timely and effective implementation.

I thank all those involved in the development of this framework for their hard work. I particularly appreciate them on the comprehensiveness of this framework, which addresses the roles and responsibilities of local government institutions.

It is our responsibility to fulfil our honourable Prime Minister's vision of showcasing Bangladesh as a champion of Global Goal 6 (Six). I hope our local government institutions, development partners, civil society and citizens will all work together towards the objectives of the IRF-FSM, and support Bangladesh on its journey towards safely managed sanitation for all. I look forward to the successful implementation of this valued IRF-FSM.

Khandker Mosharraf Hossain, MP

Secretary
Local Government Division
Ministry of Local Government,
Rural Development and Co-operatives
Government of the People's Republic of Bangladesh

Message

Bangladesh is truly a land of marvels. Despite our challenges as a developing country, we have made great progress on many social and economic fronts. We have been globally recognised for our success in improving health and education, reducing poverty, and building a vibrant economy. We have recently attained the status of a lower middle-income country, a testament to our nation's resourcefulness and our government. All this has been possible because of a strong combination of visionary leadership and grassroots participation in national development.

This is most evident in our national success on tackling the sanitation crisis. Whereas in 1990, at least 34% of the country's population were defecating in the open, this figure now stands at less than 1%. This remarkable turnaround was possible because of the joint efforts of government, development partners and our people.

I believe the time has come again for such a united effort. We have almost ended open defecation in our country, but we now face the possibility of losing all our gains from unsafe dumping of faecal waste into the environment. This Institutional and Regulatory Framework for Faecal Sludge Management (IRF-FSM) represents a timely and very necessary step by the Local Government Division of the Ministry of Local Government, Rural Development and Co-operatives, to guide our Department of Public Health Engineering (DPHE), Water and Sewerage Authorities (WASAs), local government institutions and city authorities to ensure proper treatment and disposal of waste.

We have already taken steps to attain the Sustainable Development Goals (SDGs) for Goal 6 - ensuring water and sanitation for all. The government's Vision 2021 also promises universal access to sanitation. I believe the IRF-FSM will play a pivotal role in achieving these milestones, and establish Bangladesh as a pioneer and leader in the area of faecal sludge management. This regulatory framework will be of utmost benefit to the local government institutions.

I thank my colleagues of the Local Government Division (LGD), especially the Additional Secretary (Water Supply) for their proactive roles and continued support. I also thank my colleagues working with the Policy Support Unit (PSU) for their relentless efforts at managing the uphill task of IRF preparation and presenting it to the nation. Project Director, Policy Support Unit (PSU) has demonstrated his valuable contribution and dedication in IRF preparation and its dissemination.

Finally, I take the privilege of introducing the IRF to all stakeholders, hoping that all our endeavours will succeed in effective implementation of the Framework.

Abdul Malek
Secretary

Additional Secretary (WS)
Local Government Division
Ministry of Local Government
Rural Development and Co-operatives
Government of the People's Republic of Bangladesh

FOREWORD

It gives me immense pleasure to know that the Institutional and Regulatory Framework for Faecal Sludge Management (IRF-FSM) is being published by the Local Government Division (LGD) under the Ministry of Local Government, Rural Development and Co-operatives. Recent achievement of Bangladesh attaining almost open defecation-free status came in the context of coordinated drives by the Government of Bangladesh, local government institutes, development partners and communities. However, as the Sustainable Development Goal (SDG) 6.2 captures, we are no longer in a world where sanitation is a matter of providing access to toilets only. It is imperative that we go beyond.

Faecal Sludge Management (FSM) is often highlighted as an affordable, sustainable and viable technical solution for safe and proper management of excreta. In meeting the global sanitation challenge, particularly the SDG 6.2 targets, safely managed excreta will emerge as a key area of work for us.

This Institutional and Regulatory Framework covers on-site sanitation facilities and areas served by such facilities, as well as areas to be served by sewer networks and FSM services jointly. The framework has four distinct parts: Mega-city Dhaka, City Corporations, Paurashavas and Rural areas. In each part, the framework identifies the functional ways and means of implementing FSM services, and the related roles and responsibilities specified in this framework are aligned with existing acts and policies of the country, and therefore provides relevant authorities with clear guidance on how to address FSM as part of their ongoing work.

I would like to express my gratitude to the stakeholders of the sector, including the national and international NGOs, DPHE, WASAs, UNICEF and other development partners, who have rendered valuable inputs and support in the process of the regulatory framework for Faecal Sludge Management. I also thank my colleagues in the Local Government Division for making important contributions. I also extend my thanks to ITN-BUET for contributing their knowledge and expertise, and to UNICEF for their support in its publication.

Finally, I greatly appreciate the tremendous efforts of the Policy Support Unit (PSU) of LGD for their enthusiasm in finalising this Institutional and Regulatory Framework for Faecal Sludge Management. I am very optimistic that the IRF-FSM will drive our progress on FSM and play a dynamic role in achieving SDG 6.2.

Nasreen Akhter

ACKNOWLEDGMENTS

The National Forum for Water Supply and Sanitation in its 16th Meeting took the decision to develop the Institutional and Regulatory Framework for Faecal Sludge Management (IRF-FSM) in Bangladesh, under the leadership of ITN-BUET with necessary policy level support from the Policy Support Unit (PSU) (renamed as Policy Support Branch) of Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Co-operatives (MLGRDC). Subsequently, a Working Committee was formed by the LGD, MLGRDC comprising members of all relevant stakeholders to support development of the IRF-FSM. Since then, ITN-BUET has engaged with all the relevant actors and stakeholders in the country's sanitation sector to incorporate knowledge, expert opinions and to identify functional ways of providing FSM services to people.

The Institutional and Regulatory Framework has been developed with the central notion of ensuring safe sanitation practice in our country, aligned with Global Goal 6.2. The IRF-FSM has been developed separately for city corporations, municipalities, rural areas, and the mega-city of Dhaka – laying out the institutional roles and responsibilities to implement FSM services in these different contexts. This endeavour would not have been completed without the initiative of the Policy Support Unit (PSU) of LGD. We are thankful to Mr. Md. Mohsin, Project Director and Md. Abdur Rauf, Assistant Project Director, Policy Support Unit, LGD for their heartfelt enthusiasm and support. ITN-BUET gratefully acknowledges the contribution and deep engagement of Dr. Md. Mujibur Rahman, Professor of Civil Engineering of Bangladesh University of Engineering and Technology (BUET) and Co-chair (Focal Person) of the Working Committee, in developing this framework. ITN-BUET also acknowledges the contribution of Wing Chief, WS Wing, Local Government Division who served as Chairperson of the Working Committee. We are also indebted to Mr Abdul Malek, Secretary of Local Government, Rural Development and Co-operatives, for his benevolent and keen interest on this subject matter, and his strategic guidance from the very beginning. A special thanks also goes to Ms Nasreen Akhter, Additional Secretary of LGD, for her kind support.

We are obliged to the representatives of development partners, academic and research institutions, UNICEF, national and international NGOs including Water Aid Bangladesh, private entrepreneurs and individual experts who have contributed immensely through their precious time, expertise, wisdom and insights in developing this framework. We are also grateful to the mayors and chairmen from various cities and Paurashavas who joined in many meetings from remote areas of the country to share their experiences. We are also beholden to all who supported us to translate the framework into Bengali.

Finally, we would like to extend our wholehearted thanks to the sanitation workers who shared their practical knowledge and experiences with us, which have been invaluable in finalising this framework.

It is our sincere hope that this framework contributes to improving Bangladesh's sanitation scenario, and establishing our country as a leader in faecal sludge management in our region.

Dr. Muhammad Ashraf Ali
Professor of Civil Engineering, and
Director, ITN-BUET

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Abbreviations and Acronyms

AIT	Asian Institute of Technology
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BNBC	Bangladesh National Building Code
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	Faecal Sludge Management
GoB	Government of Bangladesh
ICDDRB	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 Co-operatives
NFWSS	National Forum for Water Supply and Sanitation
NGO	Non-Government Organization
RAJUK	Rajdhani Unnayan Kartripakkha
TFO	Treatment Facilities Operator
WEDC	Water, Engineering and Development Centre, Loughborough University

Terms and Definitions

Faecal 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: Faecal 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 faecal 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.

Faecal 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 faecal 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.

Chapter 1

Context

Paurashavas

In Bangladesh, absence of faecal sludge management (FSM) services is causing severe environmental pollution, particularly in urban areas, affecting both public health and economy. On-site sanitation is prevalent throughout the country, except for a small portion in Dhaka city, and the huge quantity of faecal sludge generated in septic tanks and pits (of pit/pour-flush latrines) is inaptly managed.

The components of FSM system include the on-site sanitation facilities, and the FSM service chain (from emptying to treatment-disposal), as shown in Fig. 1. In Paurashavas, septic tank system and different form of pit latrines are predominant sanitation systems. However, in the absence of effective FSM services and lack of monitoring, direct discharge of toilet wastewater into storms drains/sewers/open areas is common in most Paurashavas. The onsite sanitation systems in Paurashavas are often poorly designed, constructed and maintained. Often, septic tanks are designed/ constructed (typically by masons) without considering the number of toilet users, and no desludging frequency is assigned with the design. Proper inlet and outlet devices (i.e., Ts) are not provided in septic tanks. In many cases, soakage pits for disposal of septic tank effluent are absent. Although properly designed twin off-set pit pour-flush toilets are very convenient with respect of faecal sludge management, this technology is not widely used due to lack of awareness.

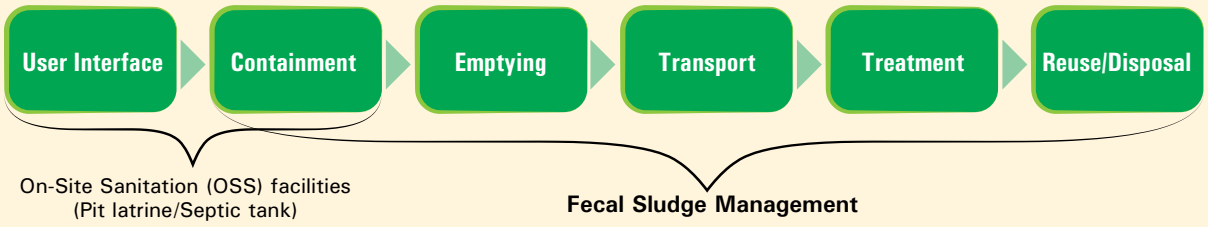

Figure 1: Components of fecal sludge management system

There is no scheduled desludging of pit/septic tanks. Pits and septic tanks are typically desludged/ emptied when they begin to overflow. Manual desludging is common, although limited mechanical desludging facilities are available in some Paurashavas. The existing desludging processes (both manual and mechanical) have limitations with regard to effective/ complete cleaning of pits/septic tanks; the location and design of septic tanks and pits often make it difficult to access and desludge these facilities. Occupational health and safety of manual emptiers is a major concern. The emptied faecal sludge is often disposed in nearby drains, sewers, or water bodies. This is often true even for the Paurashavas with faecal sludge treatment facilities, primarily because of high transportation cost and absence of monitoring. Only a few Paurashavas have faecal sludge treatment facilities, and many of these are suffering from O&M difficulties. The Paurashavas find it difficult to construct and maintain faecal sludge treatment facilities, because of high cost or unavailability of land, high cost involved with construction and O&M, and lack of capacity.

There is lack of awareness across the spectrum regarding FSM and its importance in the protection of public health and the environment. The Paurashavas do not have capacity, both in terms of resources and trained manpower, for delivery of FSM services; there is no separate unit/division in Paurashava organogram for FSM. The delivery of FSM services by Paurashavas also suffer from lack of effective business model. In most Paurashavas, the basic infrastructure for FSM (e.g., treatment plants, mechanical desludging equipment) are yet to be in place, making it difficult for them to initiate and sustain FSM services. While Paurashavas are responsible for FSM services [according to the Local Government (Paurashava) Act 2009], involvement and support of all stakeholders (including the government, non-government organizations, development partners, research organizations, civil society and the media) are needed for raising awareness, development of FSM infrastructure, and effective delivery of FSM services.

Chapter 2

Objectives and Scope of FSM Framework

The primary objective of this FSM framework is to facilitate implementation of FSM services in Paurashavas. Specifically, this framework:

(a) Identifies of ways and means of implementing FSM services in Paurashavas; and

(b) Defines specific roles and responsibilities of various institutions and stakeholders, particularly the Paurashavas, for effective implementation of FSM.

The institutional roles and responsibilities specified in this framework are based primarily on the provisions of the Local Government (Paurashava) Act 2009 (amended in 2010), which guides and regulates the roles and responsibilities of all Paurashavas. However, LGD/Paurashavas may formulate necessary rules/regulations/by-laws (within the framework of the Paurashava Act 2009), if needed, for carrying out the specific roles and responsibilities outlined in this framework.

Only on-site sanitation facilities and areas served by such facilities would fall under the purview of the FSM framework. If network or conventional sewerage system (including treatment plants) of wastewater/sewage management is introduced in the Paurashava or in parts of the Paurashava, this framework would not apply to those parts of the Paurashava. However, if "small bore sewerage (SBS)" system (a system with septic tank as a component) is introduced in the Paurashava, areas under the SBS system would continue to be within the purview of this framework.

Chapter 3

Participating Institutions

An appropriate institutional arrangement is a prerequisite for effective Faecal 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 an effective, safe and sustainable FSM system. Since the entire FSM service chain is interlinked, it is important that the roles and responsibilities of institutions are clearly defined, integrated and are coordinated.

In view of the above, the following institutions have been identified for playing effective roles in the overall planning, development, implementation, practice, and monitoring and evaluation of Faecal Sludge Management (FSM) in Paurashavas.

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

- Local Government Division, Ministry of Local Government, Rural Development and Co-operatives : **Lead Ministry**
- Ministry of Environment and Forest
- Ministry of Health and Family Planning
- Ministry of Agriculture
- Ministry of Fisheries and Livestock
- Ministry of Housing and Works
- Ministry of Water Resources
- Ministry of Education
- Ministry of Information
- Ministry of Energy and Mineral Resources
- Ministry of Industries
- Ministry of Shipping
- Ministry of Railways
- Ministry of Railways
- 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.

- Paurashavas– **primary responsibility of FSM**
- DPHE– supporting role
- LGED– supporting 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, SDRI, IEDCR, ICDDR,B
- International research/ training organizations (e.g., Sandec, EAWAG, WEDC, AIT, IHE, IWMI)
- DPHE, LGED
- 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
- Bangladesh Urban Forum
- 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 Sub-clause (2) of Clause 50 of the Local Government (Paurashava) Act, 2009 (amended in 2010) (hereinafter referred to as "Paurashava Act 2009"), Paurashava shall be responsible for, among others, (a) Water supply for residential, industrial and commercial use; (b) Water and sanitation; and (c) Waste management, in areas within its jurisdiction.

According to Schedule 2 of Paurashava Act 2009, which describes the detail functions of the Paurashava, "*A Paurashava shall make adequate arrangements for the removal of refuse from all public streets, public latrines, urinals, drains, and all buildings and land vested in the municipality and for the collection and proper disposal of such refuse*". A Municipality is also responsible for public toilets and according to Schedule 2 of the Paurashava Act 2009, "*A municipality shall provide and maintain, in sufficient number and in proper condition, public latrines and urinals for both male and female users, and shall make arrangements for proper maintenance of these facilities and keep them clean*".

Thus, although the term "faecal sludge" is not specifically mentioned in the Paurashava Act 2009 (primarily because this term was not widely used at that time), it is clear that the responsibility of management of "faecal sludge" [referred to in the Paurashava Act as "refuse" accumulated in "public toilets, urinals, drains and all buildings and land"] lies with the Municipality.

It is also clear that the Municipality shall perform these responsibilities in accordance with the provisions of the Paurashava Act 2009. However, for proper management of faecal sludge, if the Municipality deems it necessary, it could formulate necessary "rules", "regulations" and "by-laws" according to the provisions described in Schedule 6, Schedule 7, and Schedule 8, respectively, of the Act 2009.

For example, according to Schedule 8 of the Paurashava Act 2009, sub-act could be formulated, among others, "*For the purpose of health system management, inspection of lands and households; cleaning and disposal of waste by house owner; installation of public and private toilets and urinals, maintenance and visit; responsibility of the public regarding health system, and providing license to the sweeper*".

Section 4.2: Institutional Roles and Responsibilities

Sub-section 4.2.1: Overall responsibility of Faecal Sludge Management (FSM)

(1) In accordance to the provisions of the Paurashava Act 2009, the "Paurashava" shall be responsible for faecal sludge management (FSM) in areas within its jurisdiction, including planning for and implementation of FSM services (including financial/business model for service delivery). The Paurashava may collaborate with the Department of Public Health Engineering (DPHE), the Local Government Engineering Department (LGED), the private sector/ non-government organization in planning and implementation of FSM infrastructure and services (e.g., outsourcing) in accordance with Clauses 95 and 96 of Paurashava Act 2009. The institutional set up for FSM in Paurashava is outlined in Figure 2.

(2) The Paurashava shall take steps to include within its "master plan" (prepared or being prepared in accordance with the provision of Schedule 2 of Paurashava Act 2009) the provisions of the infrastructure (i.e., treatment facility) for implementation of FSM services.

(3) The Paurashava shall from a Standing Committee on "health, water and sanitation" (if it has not been formed already) in accordance to Sub-clausse (2) of Clause 55 of the Paurashava

Act 2009. This Standing Committee shall oversee the activities related to planning and implementation of FSM services. Depending on need and availability, the committee would co-opt a sanitation expert in the committee [in accordance with Sub-clause (9) of Clause 55 or the Paurashava Act 2009].

(4) The Paurashava shall initiate inclusive FSM planning and implementation modality among the government agencies, I/NGOs, community groups and the private sector.

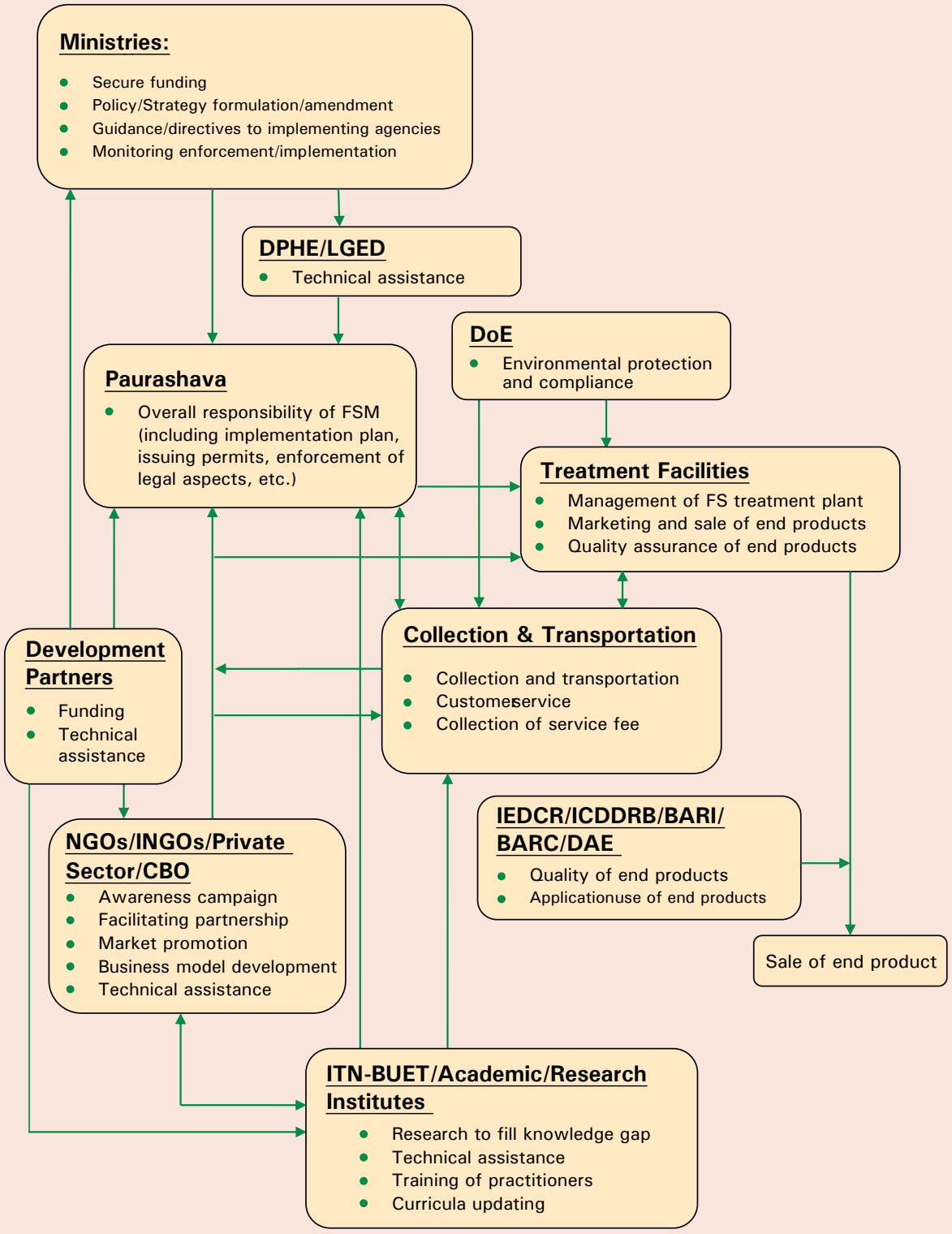

Figure 2: Institutional set up for fecal sludge management (FSM) in Paurashavas

Sub-section 4.2.2: Proper Design and Construction of Sanitation Facilities and Disposal of Sewage/Wastewater/Garbage

New Construction:

(1) While approving design of buildings, the Paurashava shall check the design of the sanitation facilities (e.g., septic tank, pit latrine), as well as its location/layout (to make sure that it is accessible for manual/mechanical desludging) [in accordance with provisions in Schedule 2 of Paurashava Act 2009].

(2) The provisions of Bangladesh National Building Code shall be followed for checking design of septic tank system (i.e., septic tank and soakage pit). For pit latrines, where conditions (e.g., availability of adequate land) permit, the Paurashava shall promote use of twin off-set pit pour-flush toilets (or other technologies) that provide a long-term solution to the faecal sludge management problem.

(3) LGD/ Paurashava shall formulate necessary rules/regulations/by-laws for preventing misuse of the provision related to "automatic approval of building application" (after expiry of 60 days from the date of registration of approval), as stated in Schedule 2 (Clause 35) of the Paurashava Act 2009.

(4) In accordance with Clauses 95 and 96 of Paurashava Act 2009, the Paurashava may engage the private sector/non-government sector (e.g., outsourcing) in carrying out activity (1) above (i.e., checking design, layout of sanitation facilities).

Existing/Completed Buildings:

(1) While inspecting a building during or after completion of its construction/reconstruction [in accordance with provisions in Schedule 2 of Paurashava Act 2009], the Paurashava shall check that the sanitation facilities have been sited and constructed according to the approved design. In case of non-compliance, the Paurashava shall instruct the owner to re-construct the sanitation facilities following the approved design.

(2) In accordance with the provisions in Schedule 2 (Clause 4) of Paurashava Act 2009, the Paurashava shall serve notice to owners of premises where there is no sanitation facility, or inadequate sanitation facility, or sanitation facility in inappropriate locations to arrange proper sanitation facilities or remove inappropriate sanitation facilities.

(3) In accordance with Clauses 95 and 96 of Paurashava Act 2009, the Paurashava may engage the private sector/non-government sector (e.g., outsourcing) in carrying out inspection of existing/completed buildings for assessment of sanitation facilities.

Disposal of Sewage/Wastewater/Garbage:

(1) The Paurashava shall carry out inspection and make sure that domestic sewage/ wastewater, and discharge from house-drain are not connected to storm sewer/drain or irrigation canal, and that "refuse" (which included faecal sludge) is not thrown/disposed or stored on street or open place (not designated for disposal of "refuse"); these activities are treated as punishable offence according to the provisions of Schedule 4 (Clauses 10, 11, 12, 13) of Paurashava Act 2009.

(2) The Paurashava shall execute punishment for such offences (as stated above in accordance to Schedule 4) according to Clauses 108, 109, 110 and 111 of the Paurashava Act 2009. The Paurashava shall ask owners of buildings/premises, that are in such violation, to discharge domestic sewage/ wastewater into a septic tank system (consisting of adequately designed septic tank and soakage pit); the effluent from septic tank system (i.e., overflow, if any) may be discharged into storm drains/sewers. Until treatment facility for faecal sludge are built, emptied faecal sludge shall be disposed in a land/area designated by the Paurashava by digging pits/trenches in the ground, and covering the pits/trenches with soil after it is filled with sludge.

(3) In accordance with Clauses 95 and 96 of Paurashava Act 2009, the Paurashava may engage the private sector/non-government organization (e.g., outsourcing) in carrying out inspection/ survey for identifying illegal practices (according to Schedule 4) of sewage/wastewater/ garbage disposal, as service procurement.

(4) The LGD/Paurashava shall work with the Ministry of Railways and the Ministry of Shipping to device appropriate plans/programs to make sure that faecal matters/sludge from trains and water vessels are not discharged directly into the environment.

Sub-section 4.2.3: Faecal Sludge Collection and Transport

(1) The Paurashava shall be responsible for proper execution of the entire FSM service chain, including collection (emptying) and transportation. The Paurashava shall carry out and/or oversee the collection (emptying) and transportation, making sure that these operations are carried out in a hygienic manner without adversely affecting health and safety of emptiers, the public and the environment.

(2) The pit emptying service shall include "transportation of the collected faecal sludge to the designated site for treatment and disposal". The Paurashava shall make sure that the collected faecal sludge is transported to the designated site(s) for treatment and disposal, and that the collected faecal sludge is never disposed in open space or water bodies or storm drains or sewers (which is a punishable offence according to the Paurashava Act 2009).

(3) The Paurashava shall execute punishment for unauthorized disposal of collected faecal sludge (e.g., in open space, water bodies, storm sewers/drains) according to Clauses 108, 109, 110 and 111 of the Paurashava Act 2009.

(4) In accordance with Clauses 95 and 96 of Paurashava Act 2009, the Paurashava may engage the private sector/non-government organization (e.g., outsourcing) for collection and transportation of faecal sludge from onsite sanitation facilities.

(5) The Paurashava shall introduce and promote mechanical pit emptying (desludging) services for ensuring health and safety of emptiers and protection of the public health and environment. The Paurashava shall make sure that the manual emptier (traditional pit emptier/cleaner) communities are integrated into the modern FSM services through proper training and support, without adversely affecting their income.

(6) The process of pit emptying involves significant hazard, and the Paurashava shall follow/ enforce appropriate health and safety guidelines for emptying services. Until such a health and safety guideline is prepared and approved (by the LGD), the Paurashava shall follow available guidelines being practiced/promoted in some Paurashava.

(7) In accordance with Clauses 98 and Schedule 3 of the Paurashava Act 2009, the Paurashava may fix fees/charges for collection and transportation of faecal sludge from sanitation facilities. If faecal sludge treatment facilities are operational in the Paurashava and the collected faecal sludge is transported to such facilities for treatment, the Paurashava may consider the entire service chain (i.e., from collection to treatment) while fixing such fees/charges. The Standing Committees on "Tax and Levy" and "Health, Water and Sanitation" shall facilitate fixation of fees/charges for FSM services.

(8) In order to ensure proper and timely emptying of onsite sanitation facilities, the Paurashava shall gradually develop a database of all sanitation facilities within areas of its jurisdiction, along with probable emptying frequency of these facilities. Once the entire FSM service chain (i.e., from collection to treatment/disposal) is in place, this database would be used for efficient and timely emptying of all on-site sanitation facilities. The Paurashava shall also develop a database of households/ institutions availing the FSM (e.g., emptying) services.

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

(1) The Paurashava shall be responsible for proper execution of the entire FSM service chain, including faecal sludge treatment, disposal and end-use. The Paurashava shall carry out and/or oversee these operations, making sure that these are carried out in compliance with existing rules and regulations (e.g., with regard to disposal of liquid effluent, and quality of end products such as compost), and without adversely affecting public health and the environment.

(2) Until treatment facility for faecal sludge are built, faecal sludge (e.g., those desludged from onsite sanitation facilities) shall be disposed in a land/area designated by the Paurashava by digging pits/trenches in the ground, and burying the pits/trenches with soil after it is filled with sludge.

(3) The Paurashava may collaborate with the Department of Public Health Engineering (DPHE) and the Local Government Engineering Department (LGED) in development and O&M of faecal sludge treatment facilities.

(4) In accordance with Clauses 95 and 96 of Paurashava Act 2009, the Paurashava may engage the private sector/non-government organization (e.g., outsourcing) for treatment and disposal of faecal sludge, and use/marketing of end-products, as service procurement.

(5) The Paurashava may fix fees/charges for treatment of faecal sludge separately, or together with the collection and transportation fees/charges as outlined in Article (7) of Section 4.2.3 of this Framework.

(6) The Paurashava shall seek assistance of the Department of Environment (DoE), and the Institute of Epidemiology, Disease and Research (IEDCR) (or any competent/accredited national/international institution) in fulfilling compliance with the existing rules and regulations with regard to installation and operation of faecal sludge treatment facilities.

(7) The Paurashava 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 faecal sludge treatment facilities.

(8) The Paurashava shall work with the Ministry of Agriculture to ensure safe use of treatment end products (compost/organic fertilizer) in agriculture, landscaping and other purposes.

Section 4.3: "Environmental Police" for Field Compliance

1. The Ministry of Environment and Forest (MoEF) through the Department of Environment (DoE) shall ensure that all relevant environmental laws, regulations and principles are strictly followed by all concerned throughout the FSM service chain.

2. The MoLGRDC and MoEF, in consultation with all stakeholders shall initiate development of standards/ guidelines for enduse or disposal of treated sludge.

3. The MoLGRDC in consultation with MoEF, MoHA, Ministry of Law, Justice and Parliamentary Affairs, and other concerned stakeholders shall take initiative to make a legal provision to develop well-trained, skilled contingents of environmental force styled as "Environmental Police" for ensuring field compliance of laws, regulations, safety standards and policy guidelines with provisions of instant penalties to be decided by the ministries concerned.

Section 4.4: 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) in the FSM service chain.
2. The Ministry of LGRD&C would take steps for setting up **Unit/Division for FSM** in the Paurashavas organogram, for effective delivery of FSM 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 Paurashava 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 MoLGRD&C 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 Paurashavas.

Section 4.5: 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. Local, national and international NGOs/CBOs, with support from the Government Ministries, research organizations and development partners 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.

Section 4.6: Technical Assistance and Funding Support

1. The GoB will increase funding support and provide other assistance (e.g., secring land for construction of treatment facility) for development of FSM infrastructure in the Paurashavas.
2. Development partners, multilateral or bilateral, may provide technical assistance and funding support to the Paurashavas for establishing FSM services through the MoLGRD&C.
3. The MoLGRDC through its line organizations (DPHE and LGED) would provide technical and other relevant support directly or on project-basis in planning and implementation of FSM service infrastructure (e.g., faecal sludge treatment plant).
4. The LGD shall take initiative to develop standards/guidelines for emptying, transportation, and treatment of faecal sludge; operation and maintenance (O&M) of faecal sludge treatment plant; disposal of effluent from faecal sludge treatment facilities, quality control/ standardization of treated products/by-products; and protocol for securing license for using/marketing of compost/ organic fertilizer produced (if any) at faecal sludge treatment facilities.

Chapter 5

Financial Aspects of FSM Service Chain

Section 5.1: Cost of FSM Services

Faecal sludge management system involves different activities e.g. emptying, transport, treatment, and disposal and/or enduse and therefore there is cost involvement at each step of activities. Some FSM infrastructure, such as treatment plant and vacutugs require considerable investment; therefore support from the Government would be required for these facilities. Other expenses, including emptying and transportation of faecal sludge, and regular operation and maintenance should be supported from fees/charges from service recipients. Paurashavas shall collaborate with the LGD for establishment of major FSM infrastructure (e.g., treatment plant, vacutugs), and develop appropriate "business models" for delivery of FSM services with contribution/fees/charges from service recipients in due course.

Section 5.2: A Proposition of Fund Flow for FSM Services

Flow of funds from one step to another has to be considered carefully so that the FSM services are sustained. Considering the existing situation of faecal sludge management in Paurashava, and the level of awareness among different stakeholders of the importance of FSM, a financial flow approach for the FSM service chain can be considered as suggested below (Figure 3).

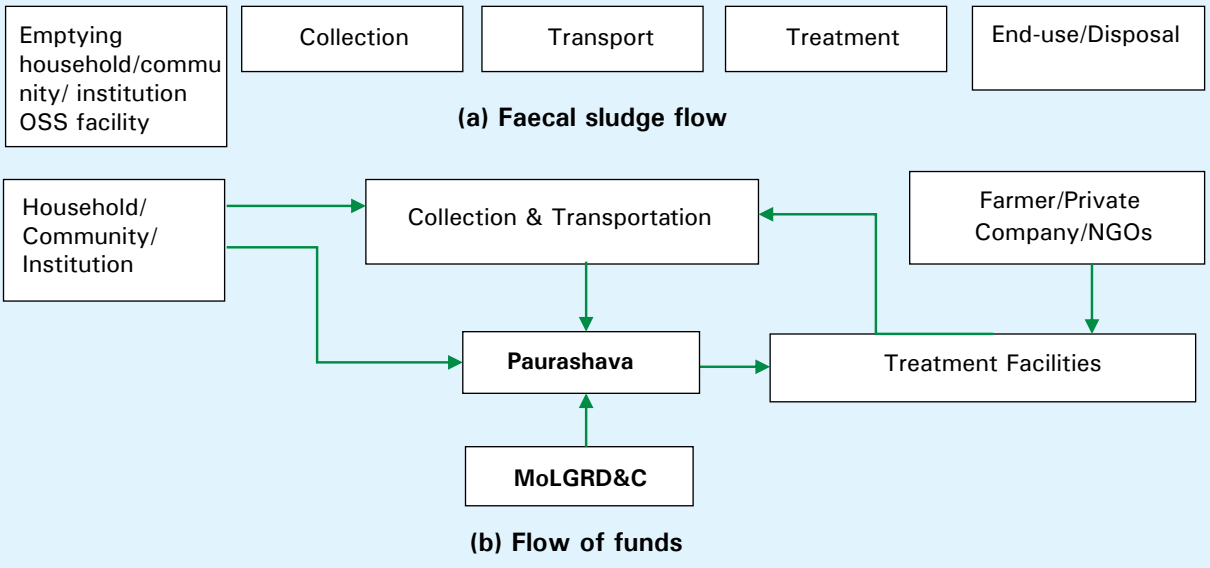

Figure 3: (a) Direction of sludge flow from HH to end-use/disposal of treated sludge; (b) Direction showing flow of money from different stakeholders for FSM service chain

In the above approach the fund flow starts from HH/Community/Institution (both public and private), the collection points of faecal sludge. Payment by HH/Community/Institution is divided into two channels – to collection and transportation service provider as septic tank/pit emptying fee, and to the Paurashava as sanitation tax/charge along with holding tax to cover all other expenses including FS treatment. The emptying fee will be determined based on volumetric pumping rate, and other considerations as may be determined by the Paurashava; sanitation tax/charge can be determined based on water use or more conveniently on flat rate proportionate to holding tax and should be worked out through consultation by the Paurashava, MoLGRD&C

and concerned stakeholders. This two-channel payment mode will help support the low income people in slums, as in most cases sanitation tax/charge will be subsidized or fully waived and will be covered by government funds to Paurashava to cover FS treatment and other expenses.

An important feature of the above fund flow approach is the direction of the fund transfer to the treatment facilities. Treatment facilities will pay the collection and transportation service provider a discharge incentive to dump collected sludge at the FS treatment plant. The financial incentive here is used to encourage socially desirable behavior i.e., to encourage sludge collection and discharge at the treatment plant and reduce illegal discharge. With this approach the collection and transportation service provider would only have to recover a portion of the total operating costs from the emptying fee and the remaining portion would be made up by the discharge incentive from the treatment facility. As a result, the collection service would be more affordable for poorer households, more sludge would be collected, less sludge would be discharged to the environment and the community as a whole would benefit.

Treatment facilities will receive funds from the Paurashava, part of the sanitation taxes/charges collected, to cover treatment plant operation and management expenses. The Paurashava will charge fee for permits/ licenses for collection and transportation. Treatment facilities may also receive price of end products from private enterprises or NGOs engaged in marketing and selling of the end product.

However, substantial government support will be needed to fill the budget gaps of the Paurashava, particularly to cover some of the major capital expenditures. This financial flow approach is based on present FSM status and expected to have positive changes in the future with the gaps minimized and FSM services turned out as a viable business.

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Ministry of Local Government, Rural Development and Co-operatives
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