



# Guidelines

## Occupational Safety and Health Guidelines for Faecal Sludge Management



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## Demonstration of Pro-poor Market-based Solutions for Faecal Sludge Management in Urban Centres of Southern Bangladesh

Project partners:



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### Disclaimer

The views expressed in this report are those of the authors and do not necessarily reflect the views of SNV Netherlands Development Organisation.



# About this document

Demonstration of Pro-poor Market-based Solutions for Faecal Sludge Management in Urban Areas of Southern Bangladesh is a project implemented by SNV Netherlands Development Organisation in partnership with Khulna City Corporation, Jhenaidah and Kushtia Paurashavas. Improvement of working conditions in sludge emptying and transportation is identified as a major area of action under the project. In line with this commitment, the initiative has been taken to develop a guideline on OHS for workers involved in FSM. This guideline aims to minimise the risks involved in septic tank/pit emptying, transportation and disposal of faecal sludge to the greatest extent possible. This document explores the issues involved in handling sludge, providing guidance for the protection of workers and the environment, and consolidates knowledge and best practice in this area with regard to limiting disease transmission and contamination.

## Objectives

1. To identify health- and environment-friendly FSM practices and procedures;
2. To consider legal and policy directions in OHS practices;
3. To promote a culture of safety amongst FSM stakeholders;
4. To enhance knowledge sharing on OHS-friendly FSM practices;
5. To promote institutional accountability on OHS in FSM;
6. To initiate local- and national-level advocacy to achieve institutionalisation of OHS guidelines for FSM;
7. To influence policy makers to adopt modern technology to enable health- and environment-friendly FSM.

This guideline should be considered a 'living document' and will be updated based on the learning and experience gained through project implementation. Initially this guideline will be shared with local government representatives in the project area (Khulna City Corporation, Jhenaidah and Kushtia Paurashavas), as well as relevant policy makers in order to advocate for safety in FSM nation wide.

# Background

The primary purpose of sanitation is to prevent the transmission of faecal-borne disease and reduce the risk of environmental contamination. Bangladesh has achieved praiseworthy advances in the sanitation sector, shifting from open defecation to fixed-point defecation. These improvements in the nation's sanitation system (mostly via on-site technologies such as septic tanks, pit latrines, etc.) and related behaviours have created a new challenge in Faecal Sludge Management (FSM). In rapidly growing and densely populated cities and towns, proper management of faecal sludge should be an essential component of policy and planning in order to achieve the goal of total sanitation.

The Sanitation Service Chain (Fig. 1) shows how faecal sludge moves through the sanitation system. The predominance of septic tanks and pits means that pit or tank emptying is required at regular intervals. During emptying, transportation and disposal operations, there remains a high risk of contamination of household environments, public areas and transportation routes, as well as risks to workers' health unless these operations are conducted carefully, properly and hygienically. In Bangladesh faecal sludge management is generally provided by individuals or informal private sector operators in an unplanned, unsystematic, unhygienic and poorly regulated way. A few government offices, such as hospitals, police stations, City Corporation offices and Municipalities/Paurashava have permanent emptiers who are responsible for pit/tank emptying, transportation and disposal of faecal sludge. The emptying, transport and disposal steps of the sanitation service chain are generally conducted by informal workers, with this part of the sanitation sector historically dominated by low-caste (primarily Dalit, or 'untouchable') Hindus, commonly known as 'horijon' or 'sweepers'.

**Figure 1: Sanitation Service Chain**



Water supply and sanitation, including FSM, is given highest priority at both national and local levels. The National Drinking Water Supply and Sanitation Policy emphasises that “Sanitation means excreta and sludge disposal, drainage and solid waste management”, and the National Strategy for Water Supply and Sanitation 2014 endorsed by the Government of Bangladesh addresses FSM as a strategic intervention.<sup>1</sup> Despite this recognition, FSM is often neglected by policy makers.

1. 1. Give priority to the management of fecal sludge from septic tanks and pit latrines such that all sludge are collected, transported, treated and disposed safely in an environmental friendly manner.  
2. Develop innovative technologies appropriate to local conditions for collection, treatment and safe disposal of fecal sludge.  
3. Allocate land at suitable locations (by LGIs) for fecal sludge treatment and disposal for all urban areas and upazilla headquarters.  
4. Build fecal sludge management and regulation capacities of LGIs.  
5. Emphasis on action research and demonstration projects for recycling fecal sludge, such as composting for use as fertilizer thus recycling nutrients back to nature, and generation of biogas.”



### Situation analysis: OHS issues related to FSM

There is a clear legal and social obligation to create favorable and healthy environment for workers engaged in FSM. However, despite occupational health and safety (OHS) being a key indicator in the maintenance of labor standards and the Bangladesh Labor Act 2006 specifically citing the responsibility of bodies including government departments and the private sector in ensuring OHS, the health and safety of workers involved in FSM remains broadly ignored and water and sanitation campaigns have failed to sufficiently address OHS for workers in the Sanitation Service Chain from a rights perspective.

Faecal sludge contains infectious organisms contained by human faeces. These organisms can survive outside the human body for a limited period. Pathogenic bacteria die off within a few weeks, while the eggs of parasitic worms can survive years in the environment (high persistence). Fresh faecal sludge from public toilets contains the highest quantity of infectious organisms. However, sludge from septic tanks also contains bacteria from fresh excreta and a large number of viable worm eggs.

Faecal sludge needs to be considered as a very dangerous substance and therefore requires careful handling. The health of emptiers can be affected by direct contact with faeces and associated pathogens, as well as by the gas generated in the septic tank or pit. Despite having some awareness of the dangers associated with their work, the bulk of emptiers in Bangladesh work without personal protective equipment such as gloves, masks or boots and do not take safety precautions while emptying tanks/pits. Most emptiers work at night to avoid objections from neighbors, while many also drink locally produced alcohol while working, both factors which may further enhance the chances of injury and accidents.

### Moral and legal obligations of local government bodies

- a) To take necessary action in line with the Health and Safety Guidelines in the Bangladesh Labor Act 2006, National Occupational Health and Safety Policy 2013 and related international conventions ratified by the Government of Bangladesh;
- b) To identify risks to OHS in FSM;
- c) To organise awareness-raising sessions on OHS in FSM for emptiers in both the formal and informal sector;
- d) To organise training courses on proper technology, environmentally friendly emptying, transportation and disposal procedures and use of appropriate protective equipment;
- e) To ensure the highest safety levels in chemical use and other risk factors related to faecal sludge emptying and transportation;
- f) To keep records of occupational accidents, including number of casualties, status of compensation claims and related legal proceedings;
- g) To develop a pool of experts and trainers on OHS in FSM;
- h) To identify the occupational disease experts in local hospitals and medical colleges and develop institutional linkages with them to ensure access to emergency medical support;
- i) To include OHS Issues in the agenda of local government authorities (City Corporations and Paurashavas).

# Stakeholder roles and responsibilities

## Suggested measures to be taken by local government bodies

- a) To develop a database with the full address and family information of all emptiers both (manually and mechanised);
- b) To issue ID cards to all emptiers living in City Corporation/Paurashava areas;
- c) To organize training sessions on safe emptying and transportation;
- d) To provide free Personal Protection Equipment to emptiers;
- e) To develop short-term, mid-term and long-term plans to mechanise FSM in order to minimize OHS and environmental risks;
- f) To develop mechanisms for establishing service recipients' responsibility for OHS to emptiers. (City Corporations/Paurashavas can mention this condition related to service recipient's responsibility for OHS in a letter in response to requests for emptying);
- g) To publish a handbook on safety guidelines in Bangla for emptiers;
- h) To establish a safety committee in each City Corporation/Paurashava in line with the Bangladesh Labor Act 2006;
- i) To maintain a safety board in the Conservancy Unit of the City Corporation/Paurashava in accordance with the Bangladesh Labor Act 2006;
- j) To develop compensation mechanisms for victims of FSM-related occupational illness or injury in line with national standards as set out in the Bangladesh Labor Act 2006;
- k) To institutionalise scope and opportunity for government-NGO collaboration in effective FSM;
- l) To implement mechanisms under the leadership of the City Corporation/Paurashava Conservancy Unit monitoring use of Personal Protection Equipment and discharge of sludge in approved locations;
- m) To ensure availability of free healthcare service for emptiers and their family members at clinics/hospitals administered by the City Corporation/Paurashava, or to develop partnerships with NGO-run clinics to provide these services;
- n) To introduce awards for best practice in use of Personal Protection Equipment by emptiers in conjunction with World Day of Safety and Health at Work (28 April)<sup>2</sup>;
- o) To introduce insurance policies for emptiers to safeguard against workplace accident, injury or death.

<sup>2</sup>. Observance of World Day of Safety and Health at Work by the Government of Bangladesh is required under the National OHS Policy 2013.



## Role of workers engaged in emptying and transportation

Workers engaged in emptying and transportation should be made aware of personal safety and health issues. Workers should be encouraged to undertake regular health checks and to always use Personal Protection Equipment (PPE). Workers should be aware of the health impacts of alcohol consumption, and especially the role of alcohol in workplace accidents. (A general guideline for safety measures is included in Annexes 1 and 2). Sludge discharge into the local environment should be prohibited and workers made aware of its environmental and health impacts.

### Responsibilities of service recipients

- a) To ensure presence of the head of household or their representative during emptying;
- b) Not to pressure emptiers to enter the bottom part of tanks to collect solid sludge;
- c) To practice the emptying twice a year (every six months) or at least once per year as required by the Bangladesh National Building Code;
- d) To teach family members about proper toilet use, with the key message that solid waste should not be disposed of in the toilet;
- e) To take responsibility to ensure emergency healthcare in the case of any accident during emptying;
- f) To ensure sludge is disposed of in a designated location selected by the City Corporation/ Paurashava.

### Role of NGOs and Civil Society Organisations

- a) NGO initiatives for modernising FSM should be run in partnership with City Corporations/ Paurashavas, so that NGOs/INGOs can play complementary role;
- b) Experience from the Community Development Committee established under the UNDP-supported Urban Partnerships for Poverty Reduction (UPPR) project in Khulna should be considered to ensure sustainability following conclusion of the project; Civil society initiatives involving local community should be promoted to encourage community ownership in FSM;
- c) NGOs/INGOs should identify sustainability options, including OHS options, in consultation with community and local government bodies at the end of relevant projects.

### Roles of Other Government of Bangladesh agencies

- a) The Ministry of Environment and Forests may initiate amendments to relevant laws to include environmental pollution by open dumping of faecal sludge as a violation of environmental laws and introduce appropriate punishments;
- b) The jurisdiction of Mobile Courts administered by an Executive Magistrate should include the open dumping of sludge creating harm to public health as punishable act.

### Ministry of Health and Family Welfare

- a) The Ministry of Health and Family Welfare should take necessary action to have specialised doctors on Occupational Safety and Health in Government hospitals and medical colleges in divisional cities;
- b) A primary healthcare facility, including family planning support, should be established in emptiers' residential areas in divisional cities;
- c) The Occupational Health and Safety Department under the National Institute of Preventive and Social Medicine (NIPSOM) should undertake research work on OHS in FSM. The Ministry can direct NIPSOM on this.

### Ministry of Social Welfare

- a) The Ministry of Social Welfare should ensure the disbursement of money allotted for Dalits and Horijon (including sludge emptiers) under the national budget and initiate income-generating activities in emptiers' residential areas to assist in ensuring livelihood security;
- b) Elderly male emptiers and their wives should be included as beneficiaries of monthly old-age pensions as per Government of Bangladesh regulations.

### Ministry of Housing and Public Works, City Corporations and Paurashavas

- a) The Ministry of Housing and Public Works, City Corporations and Paurashavas should give emptiers legal rights to land and accommodation, removing the threat of eviction by local administrations;
- b) Emptiers' residences provided by government authorities should be repaired and maintained appropriately to ensure a safe living environment;
- c) Low-cost housing for emptiers should be developed.



# Annex 1

## General Guidelines related to OHS for Manual Emptying

- a) Analyze OHS risks during a pre-operation visit to the emptying site;
- b) Wear appropriate clothing, including Personal Protection Equipment;
- c) Examine suitability of equipment to be used for emptying and transportation;
- d) Check the leaking points of pipe, if any;
- e) Ensure sufficient lighting;
- f) Arrange a first aid kit;
- g) Arrange water bottles;
- h) Avoid drinking alcohol;
- i) Ensure the use of Personal Protection Equipment during emptying and transportation;
- j) Locate the on-site sanitation system the sludge is to be removed from;
- k) Determine the accessibility of the system once it is located;
- l) Be careful when opening tank covers or manhole using hands;
- m) Entering the tank should be avoided but if necessary give certain time for the gases to flow out and ladders should be used when needed;
- n) Close and secure the system once sludge removal is completed;
- o) Clean up appropriately on completion to ensure personal hygiene; bathe using soap.

# Annex 2

## General guideline for mechanised emptying and transportation

Vacutugunits for sludge removal are complex mechanical systems that must be operated correctly, both to accomplish sludge removal and protect the equipment and health of the service providers. The following steps are recommended for the operation of vacuum trucks:

- a) Park the truck as close to the system as possible. The maximum distance is determined by the length of hose and elevation rise from the bottom of the pit or septic tank to the vacuum truck tank inlet. This should typically be no more than 25 metres in linear distance and 4 metres in elevation gain.
- b) Further distances or elevation differences may require intermediate pumps.
- c) Inform the occupant of the pending service and note any concerns or issues.
- d) Clearing the area of people and inspect the site for possible hazards, such as a high groundwater table that can cause a tank to 'float' if emptied.
- e) Secure the truck using wheel chocks.
- f) Lay out and connect the hoses from the truck to the tank or pit to be emptied.
- g) Open the tank or pit by removing the access ports or covers over the storage system.
- h) Engage the vacuum equipment by using a power take-off from the truck's transmission.
- i) Increase the vacuum to the proper level with the valve closed by watching the vacuum gauge, then lowering the end of the hose into the storage system, and open the valve sufficiently such that the sludge is drawn out of the tank or pit. Closing the valve periodically re-builds the vacuum to enable the removal of further sludge.
- j) Continue this process until the job is complete.
- k) Break up sludge that has agglomerated into a solid mass, either by making use of a long-handle shovel and adding water when necessary to reduce the viscosity of the sludge, or by reversing the direction of the flow and forcing the contents of the vacuum truck tank back through the hose and into the sanitation system in order to use the high pressure stream to break up the sludge.



## Annex 3

### Direction on OHS under the Bangladesh Labour Act 2006

#### **Mandatory use of personal safety equipment**

- (1) In an applicable case, an employer shall not engage any workers in work without providing and ensuring use of personal safety equipment, and in doing so, a record book shall be maintained as designated by the owner.
- (2) In spite of supply of personal safety equipment if those are not used by workers concerned, they are to be held liable thereof.
- (3) To ensure occupational health and safety for workers in the workplace, each worker shall be made aware of the risks of the work through trainings.

## Occupational Safety and Health Guidelines for Faecal Sludge Management

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