

Terms of Reference (ToR) for Action Research on Suitable PPEs for Emptiers

1.0 Introduction

SNV Netherlands Development Organisation is a non-profit international development organisation working in the sectors of WASH, Agriculture and Renewable Energy through providing advisory services, facilitating knowledge development, networking, strengthening local capacity builders, and carrying out advocacy at national and international levels. For more information, please refer to our website: www.snv.org/project/FSM

SNV has been implementing an Urban Sanitation Programme in 5 Southern cities (Khulna, Jhenaidah, Kushtia, Jashore and Benapole) and Gazipur over the past 6 years, through a multi-stakeholder coordination mechanism under the leadership of Local Government Institutions (City Corporations and Municipalities) to address service delivery challenges in Faecal Sludge Management (FSM). The project aims to facilitate a decisive shift in sector thinking, culture and practice through close alignment with respected sector agencies and working collectively with government and local partners to address underlying systemic sector issues that limit sector development.

Under the Urban Sanitation and Hygiene for Health and Development (USHHD) approach, work consists of 5 major components: 1) Sanitation demand creation and behavioural change communication; 2) Strengthening sanitation supply chain development; 3) Improving WASH Governance and multi-stakeholder sector development; 4) Sustainable Finance and Investment; and 5) Introducing environmentally safe treatment and re-use technologies.

2.0 Background and Rationale of the Assignment

Bangladesh is starting to recognize the unsafe and unhygienic practices commonly used by emptiers for manual sludge collection and is discouraging these activities. In addition, local government institutions are now promoting safe faecal sludge collection by highlighting best practices (mechanical emptying) and imposing restrictions on unsafe practices. Due to the ongoing transition from manual emptying to mechanised emptying the present FSM services will be multiplied at scale throughout the cities.

During the transition from manual to mechanised FSM services, standards setting and professionalization of sludge emptying and transport is of utmost importance. Mainstreaming occupational health and safety (OHS) measures in faecal sludge (FS) collection, transportation, disposal, processing and re-use is the key to minimizing accidents and health threatening practices. OHS mainstreaming controls health and environment related hazards and ensures the health of the emptiers and the community as a whole. Unfortunately, due to the lack of adequate concern, health and safety remain constant threats and as a result emptiers continue to be exposed to occupational risk.

Through the Urban Sanitation programme, among many other interventions, SNV also supports the emptiers and service providers in playing a key role in sludge management. The database already established under the programme contains the profiles of independent emptiers. An 'occupational health and safety (OHS)' guideline and training manual has been developed and in total 375 emptiers and community service providers from five cities/paurashavas are trained on OHS. From this training conclusions on the current situation of using personal protective equipment (PPE) by the emptiers could be drawn.

Current situation of using PPEs by the emptiers

Currently, most of the manual Emptiers use very minimum protective gear. Often, the vacutug operators do not follow the required health standards while conducting desludging services. Although, emptiers are aware of the occupational health and safety risk, and realize the

importance of using PPEs in their workplace, there is probably still not sufficient knowledge on the exact use of, or the reason for, the personal protective equipment. In addition, the emptiers feel uneasy wearing PPEs. Existing PPEs available on the market are not considered to be comfortable nor durable enough to be used by the emptiers, as most PPEs tend to restrict movement. Moreover, the available PPE is not affordable to most emptiers. In summary, the main challenges are motivation, comfort and affordability.

Motivation and Empowerment

The emptiers come from a disadvantaged community in a society where they feel significant social exclusion and internally adopt beliefs of inferiority. Emptiers have rationalized the occupational and health hazards that they are exposed to as a result of their relatively low social position. To improve FSM in an urban context, emptiers need to be empowered to adopt hygienic and clean practices in order to improve their working conditions and minimize the health and safety risk at workplace. Empowerment, motivation and awareness raising can be facilitated in tandem with the PPE design process through the use of appropriate tools and technologies, such as human-centred design, user-centred design, participatory design and/or co-design.

3.0 Objective

The objective of this assignment is to develop and provide user-centered PPE that address the fit, ergonomics and movement, protection and gender/ethnic needs of emptiers in Bangladesh. Furthermore, the PPE must be affordable to emptiers, or schemes devised which are available in the market.

The needs and preferences of the emptiers need to be given extensive attention at each stage of the design process and therefore facilitate empowerment, awareness raising and motivation along the development process. The new designs should be based on in-depth knowledge and understanding of the target users and their work situation. Emptiers need to be involved in establishing insights, concept development and design evaluations and solutions. The prototypes produced are to be field tested by emptiers.

User-centred approaches have been proven to produce successful products and policies that are based upon an explicit understanding of the user's tasks, experiences and environments.

The six principles below of the human-centred design approach as described in ISO 9241-210 can provide a guideline to the consultant.

- 1) The design is based upon an explicit understanding of users, tasks and environments.
- 2) Users are involved through design and development.
- 3) The design is driven and refined by user-centred evaluation.
- 4) The process is iterative.
- 5) The design addresses the whole user experience, and
- 6) The design team includes multi-disciplinary skills and perspectives (ISO, 2010).

Means by which compliance and affordability could be linked in should be explored and recommended.

4.0 Scope of work

4.1 Literature review

A literature review is to be conducted to understand and summarize the minimum PPE requirements taking into account that PPE clothing and equipment should be of safe design, durable, comfortable to use and affordable to the emptiers.

- **Review:** Review existing documents and reports for safe emptying, transportation and disposal of sludge on OHS including guidelines, respective risk analyses and hazard assessments, feasibility for introducing health insurance for

emptiers, manuals and standards for developing most appropriate PPEs for emptiers;

- **Selection Criteria:** Based on the literature review develop criteria for choosing two to three project sites. A key criteria should be to examine views from a range of emptiers with different **income levels**. Other possible criteria are the organisation level of the emptiers, geographical location, and employment status. It is also an option to choose the two emptier associations in Khulna and one other location.
- **NPO Document:** Develop first draft of mapping of user's **needs**, **preferences** and **options** with pricing, further on referred to as the *NPO document*. This document should be a living document and will be revised at each stage of the project. It is the key document of this assignment.

4.2 Field work

- **Field visits** will be undertaken to selected emptier communities to get familiar with the working environments, establish a relationship, and to facilitate the participative selection of the core working groups in each chosen location.
- Two rounds of field tests, **Field Tests A & B**, will need to be conducted. Field test A will test the first prototype(s) developed after workshop 2. A limited number of about 3 PPE kits per location will be tested for about two weeks. Field test B will test the final prototype(s) decided on in workshop 3 for the extended period of two to three months. About 50 PPE kits per location (total 150 PPE kits) will be distributed and tested.
- Schedule, organize and conduct **single day PPE design workshop meetings** for the different design steps with the selected emptiers. Collect qualitative data to be analyzed post workshop. For each workshop a short summary (max 2 pages) needs to be provided. The below proposed sequence can be used as a guideline but is not mandatory.
 - Workshop 1 - Inception (Month 1)
 - Emptiers share information about their experience as emptiers and the general practice of using PPE.
 - Discuss product-specific (aprons, overalls, gloves and boots) experiences, issues with gear and how emptiers would remedy performance issues with new design ideas.
 - Workshop 2 - Prototypes (Month 1,5/2)
 - Check samples and decide on first prototypes.
 - Revise NPO document
 - **Field Test A:** 3 PPE kits per location for two weeks
 - Workshop 3 – Evaluation/Iteration (Month 2,5)
 - Evaluate Field Test A and iterate/adjust design if necessary. Final design for 150 Prototypes.
 - Revise NPO document
 - **Field Test B:** 150 nos. of PPEs (50 per location) for two to three months.
 - The production/procurement and distribution of the 150 PPEs needs to be considered in the time frame and financial plan.
 - Field test B includes two to three **monitoring visits** to each location. For these monitoring visits a **questionnaire and database** should be developed to allow for a short follow-up with those using the PPE and for subsequent evaluations outside the scope and timespan of this consultancy.

- Workshop 4 – Evaluation (Month 6):
 - Evaluate & document experiences with PPE design
 - Finalize NPO document

Depending on the objective of the workshop, the workshops will be conducted separately in each location or at a central location. The consultant should include the workshop cost in the financial proposal.

4.3 Leaflet on use and care of PPEs

A leaflet or short booklet on the use and care of the PPEs based on the documented observations and shared experiences in Workshop 4 is to be developed.

5.0 Expected Output / Deliverables

- I. Inception Report detailing the chosen methodology;
 - II. Mapping of user's **needs, preferences and options** with pricing (*NPO document*) – key document to be further developed over the different steps as more evidence is collected during field trials;
 - III. Based on the final selected prototype PPEs, provide 150 nos. of PPEs for final field testing;
 - IV. Leaflets/Booklets on the use and care of PPEs both in English and Bangla;
 - V. Final Report in English and a synopsis of the final report in Bangla;
- The Final report should include the following:
- Executive Summary (1-2 pages)
 - Report of activities carried out (2-3 pages);
 - Final Draft NPO-Document (5-10 pages);
 - Feedback to suppliers (2 pages) based on field testing with photo document in annex;
 - Recommendations on schemes devised including mapping of distributors/ sellers (2-3 pages);
 - Means by which compliance and affordability could be linked into PPE distribution/awareness raising schemes (1-2 pages);
 - Final iteration of the questionnaire for future use (1-2 pages).

6.0 Timeframe

The total duration of the assignment will be six months (25 weeks) after signing of the contract. It is recommended to use approximately 2.5 months for the development of the 150 PPE to be field tested and 3 months for the field testing of these kits, with two weeks to consolidate reports and feedback at the end of field testing.

7.0 Human resource requirement

The organisation/firm/individual should have experience in conducting similar assignments in country or abroad. Basic knowledge of behaviour change theory is a requirement. The required expertise should cover a range of related disciplines indicated above in the scope of work section. The Consultant must attach the CVs of the key personnel to the proposal.

8.0 Implementation arrangements

The organisation/firm/individual will report to the Team Leader (SNV Urban Sanitation Programme) for each of the deliverables, and will work closely with the Sanitation Business Advisor for day to day reporting. Depending upon the work assigned, the organisation/firm/individual will also work with other UrbanSan team members.

SNV will make payments in compliance with the rules of Bangladesh Government. As per income tax law, Tax will be deducted from the main budget amount by SNV (in general for national consultants 10%). VAT will be added to the main budget and kept at source (15%). Only VAT is required to be included in the total budget.

Payment will be made to the agreed account based on the receipt of invoice after the successful completion of each of the following phases of the assignment:

Milestone	Payment schedule	Estimated date
Upon signing of the contract	10% of the total budget	After signing of the contract
Upon submission of - Literature review document and Draft 1 NPO document approved by SNV	20% of the total budget	Within two weeks after signing of the contract
- After conducting workshop 1 to 3 and submission of respective summary reports, - Finally selected PPEs, and - Submission of Draft 2 of NPO document approved by SNV	40% of the total budget	Within twelve weeks after signing of the contract
Upon submission of - Complete set of booklets on use and care of PPEs both in English and Bangla and - Upon submission of the final report including all documents developed within the assignment period and stipulated under 5.0 Expected Outcomes approved by SNV	30 % of the total budget	Within twenty five weeks after signing of the contract

9.0 Application

Interested organisations/firms/individuals are requested to submit their technical and financial proposals with the details on methodology including activities and milestones, budget details, time frame and CVs of experts. The technical proposal should contain organisation profile demonstrating well-proven capacity and experience in conducting similar assignments, a work plan with time-line, staffing, names and qualifications of allocated experts including CVs and any other resources that the organisations or firms might deploy to execute the assignment and achieve the objective. The Financial Proposal should clearly stipulate the fees and cost associated with the assignment. All fee and costs are to be expressed in Bangladeshi Taka only. SNV will make payments to the agency after deducting applicable TAX and VAT in compliance with the rules of Bangladesh as stated above.

Electronic copy of the proposal duly signed should be submitted to bangladesh@snv.org with the subject line: **Action Research on Suitable PPEs for Emptiers** latest by **01 March 2020**.

Or hard copy can be submitted to:
SNV Netherlands Development Organisation
House 345, Road 2, Sonadanga R/A 2nd phase, Khulna

For any query related to the ToR, please contact Tanvir Chowdhury, Sanitation Business Advisor, SNV. Email: tchowdhury@snv.org