**Terms of References**

**for**

**Improved Cookstove (ICS) nexus Un/Under Used Biomass & Faecal Sludge mixed Briquette (FSmB)[[1]](#footnote-1) Market Study in Khulna, Jhenaidah, Satkhira, Rangpur and Faridpur Districts in Bangladesh**

1. **Background**

Practical Action Bangladesh country office with support from EnDev conducted an action research from August to December 2018 to explore small-scale mechanical briquetting technology for conversion of under-utilized dried faecal sludge, resulting from the emptying and containment of such sludge at faecal sludge treatment plants, and other agriculture biomass to briquette and promote the market as clean cooking fuel. Practical Action worked with four small-scale entrepreneurs in Satkhira and Rangpur and helped them to set up briquette production system to serve people in low income communities, slum dwellers and street and other informal food vendors in urban and peri urban areas who cannot afford LPG and other clean cooking fuels. Surveys show that a four members family on average spends around Taka 1200/month for LPG whereas it can be Taka 800 (33% reduction) if they use briquettes (subject to seasonal variations). Displacing LPG with renewable biomass (briquettes) will reduce carbon emissions, which will contribute to mitigating climate change.

SNV Netherlands in Bangladesh is currently implementing urban sanitation projects in Khulna city corporation and Jhenaidah municipality and have assisted those cities to set up Faecal Sludge Treatment Plants – FSTPs. Dried sludge are coming out at the end of the treatment. They have done extensive action research for exploring opportunity to promote the market for dried f sludge as compost for agricultural uses but still yet to influence certification system for commercial marketing.

Practical Action and SNV has decided for mutual collaboration and initiated a project supported by EnDev for the demonstration of the nexus of sanitation and energy to increase the access for clean cooking solutions (fuel and improved cook stoves) by rural and urban poor people.

The overall objective of the project is to develop and strengthen local market system of briquettes (from dried sludge and un/under used agriculture biomass) and linking with improved stoves programmes of different national ICS stakeholders for increasing access to clean cooking solutions (fuel and stoves) by 1800 low income rural and urban households and 200 commercial customers. The specific objectives are:

* Strengthen capacity of 7 small and medium entrepreneurs for production and quality control of Briquette (from un/under used biomass i.e. dried faecal sludge, broken green jute sticks, poultry litter, and leaves, etc.) to achieve the target (500 kg/day/entrepreneurs).
* Strengthen the business capacity of 20 ICS manufacturers to promote the market of 2000 improved cook stoves (tier 2 and above) including 1800 households and 200 commercial stoves.

SNV and Practical Action are attempting to address the market development for Faecal Sludge and un/under used biomass mixed Briquettes (FSmB) with a long-term vision and with a wide and varying range of building blocks that can be adapted to popularise the technology at the local level. The proposed study to assess the market of FSmB in the five districts of Khulna, Jhenaidah, Satkhira, Rangpur and Faridpur is an initial step to this direction.

1. **Study Rationale**

The technical potential of FSmB, depends largely on the availability and accessibility of raw materials such as dry sludge, rice husk, saw dust, poultry litter and agricultural wastes. However, the effective potential could be far less than technical potential as the actual quantity of briquette which could be sold to customers depends upon several other factors such as willingness to pay and affordability of the people to invest in FSmB, affordable finance, opportunities to optimise the use of briquette, cost of ICS and briquette, cost of alternative cooking solutions such as LPG and electricity, cultural and religious reluctance/taboos, awareness of people on cost and benefits of ICS and briquette, and opportunities for livelihood improvements.

The key question for the development of a large-scale sustainable briquette programme is therefore, whether the households are willing to switch to briquettes and are able to invest on it. Effective market of FSmB, therefore needs to be assessed based upon the primary as well as secondary data and information collected from the field on various technical, economic, social and institutional factors that affect the market of FSmB. Among these factors, some are inhibiting, some others are factors that could be mitigated or minimised if special attention is paid during the programme implementation phase. It is proposed to undertake a specific market study to assess technical and effective potential of FSmB and estimate the size of market in Khulna, Jhenaidah, Satkhira, Rangpur and Faridpur districts. The outcome of market study is expected to provide input for the design of appropriate production facility to produce FSmB and formulate effective marketing strategy to popularise FSmB and higher tier ICS in these districts. Before launching FSmB, it is important to identify potential problems and determine suitable solutions.

Additional expected outcomes of the study:

Understanding about the socio-economic condition, affordability & willingness of the users

Know about types of cooking fuels including availability of alternatives such as LPG and electricity, monthly fuel cost, available biomass resources,

Household expenses on treatment of diseases caused by Indoor air pollution (IAP)

Mapping Potential briquette entrepreneur, retailer, ICS & briquette user and available resource (raw materials, suitable place of production centre and briquette display centre, influential local leader for awareness raising and potential source of financing of Briquette entrepreneur, etc.)

1. **Objective, Scope and Activities**

The objective of ICS nexus FSmB Market study is to assess the level of awareness, willingness and affordability of households to use FSmB to complement the existing and expected future fuel sources, which are mainly firewood, charcoal and dung cakes. The key question of the study is, therefore, ‘can FSmB be ‘sold’ in the project areas and if yes, to how many households and at what cost’?

The focus of this market study will be on the following areas related to dissemination of FSmB technology:

Demand side: What are the main requirements & gadget demands of households in terms of domestic energy, improving health and switching to FSmB? What are the needs of potential customers and why they would choose ICS & FSmB over other fuel sources? What is the level of awareness of people on ICS & FSmB? What are the types of biomass available (throughout whole year/seasonality) that households use for cooking? Are there any social taboos/reluctances to use FSmB and if yes, can they be mitigated? Are there any inhibiting factors to disseminate ICS & FSmB technology? What level of behavioural change communication is needed to convince people to use ICS & FSmB? Who are the primary customers of ICS nexus FSmB? For example, are there household and commercial users, i.e brick line, tea stall, rice parboiling plant, local hotel etc. & Institutional (Madrasha, School, Government office canteen) users? Monthly how much Briquette will be needed and what is the current market price and what should be the convenient price demand by users? What are the potential applications of FSmB? What types of traditional and improved cookstove (specify tier) are most popular in these specific areas and what is their purchase cost? Time required for cooking & processing fuel? Regular health problems caused by Indoor air pollution (IAP) and monthly cost for this reason? Who are the main users of electric cooking & LPG Stove? Level of penetration, monthly cost and popular types of cooking gadgets?

Supply side: How can the existing infrastructure (soft and hardware components) assist in dissemination of ICS nexus FSmB? Are there local entrepreneurs capable of production and marketing of ICS & FSmB? Are there services available for manufacturing, installation and after sales support for sustainable operation of technologies? What are the capacity building needs to enhance capacity of supply side actors? Who are the current ICS and briquette promoters in these areas, production cost, raw materials transportation cost and collection mechanism, marketing & promotional activities? Monthly Fuel (Litre)/Electricity (KWh) consumption, running time & cost of briquette machines, heating technology? Who are the potential customers of raw material suppliers? Who are the potential briquette and ICS retailers (excluding briquette entrepreneurs), and what are their financial capabilities and marketing knowledge? What types & how much Un/Under Used Biomass are available in these areas throughout the year? Who are the key suppliers of Electric & LPG cookstoves, selling price, level of selling per months, popular selling stoves/ electrical cooking gadgets, supply and marketing mechanism, etc?

Intervention: Who are the niche customers and which are the geographical areas that have critical masses to disseminate FSmB technology in the project areas?

The following activities will be conducted during the course of the study.

* Collection and/or review of relevant secondary (statistical) data on population, energy consumption pattern, use of improved cooking stoves (ICS), LPG and electricity for cooking; price of different models of ICS and briquettes from main market players (IDCOL, BBF, Luxur etc.); efficiency and emission data (BCSIR, BUET, IoE of DU) of ICS.
* Preparation of a questionnaire and Logical data sampling method (valid formula of data sampling with reference).

Collect data (Questionnaire survey, FGD & KII) from households, commercial and institutional users, suppliers, key informant aiming to determine a realistic picture of the ICS & FSmB market in the targeted areas.

* Share progress report including initial survey data & findings during the mid of the study with SNV/PA;
* Submission of a complete draft report for comments and suggestions;
* Share draft report with project partners, national experts, stakeholders and policy makers in the market before mapping workshop.
* Prepare and present PPT in national level market mapping workshop arranged with Household Energy Platform (HEP), SREDA, and
* Submission of high standard final report incorporating all comments will arise in the market mapping workshop.
1. **Expected Results**

The Market Study is expected not only to help in identifying FSmB business opportunities, but also to assist in designing marketing campaigns that will directly target the interest of potential ICS nexus FSmB consumers and help in increasing sales. It will provide valuable information about the potential of a particular market segment, during a specific time, and within a particular application. The main deliverable of this market study is a final report that includes:

* Description of socio-economic characteristics of the sampled households (demography, family size, income and expenditure, expenses on cooking-fuels etc.)
* Description of the technical and socio-economic feasibility of ICS nexus FSmB approach at micro level.
* Description of the suitability of FSmB in the local context and fit of FSmB in the local practices.
* Description on the realistic market of ICS & FSmB in the targeted districts analysing the opportunities and problem areas.
* Comparative advantages/disadvantages of FSmB against the conventional and other apparent alternative fuel sources being used.
* Factors supporting and inhibiting the use of FSmB at the local level.
* Recommendations to popularise ICS nexus FSmB in the selected districts by suggesting well-informed market decisions about ICS nexus FSmB and developing effective marketing strategies.
1. **Methodology**

The Market study will be conducted in accordance with the objectives set out in the ToR. The study will avail itself of both secondary and primary sources, through desk research and field surveys as applicable, and will provide SNV/PA with detailed, updated, relevant and reliable quantitative data and qualitative information. This means that reliable and comparable quantitative data will be collected during the course of the study, and will not only rely on qualitative or anecdotal information. Particular attention will be paid to objectively verifiable indicators depending on the level of factual, quantitative and statistical information available, and the degree to which it was possible to quantify and extrapolate conclusions from field investigations and observation.

The main survey methods used will be consultations with stakeholders, cluster meetings/group discussions, household survey and commodity-market assessment. The main instruments of the study will be structured questionnaire and open-ended unstructured interview checklists with respondents from the selected households under study. Additional investigation methods will include observations, especially of household kitchen and conventional fuel sources being used in the sampled households, using checklists, and informal discussions with people in the survey clusters. The structured questionnaire will be finalised after field-testing and fine-tuning.

During the field survey process, the study team will adopt an interactive approach to collect information rather than a ‘question and answer session’ with the respondents to enhance the quality of data and information collected. The interactions with respondents will focus on issues/questions for which answers are elicited.

1. **Expected deliverables and timeframe**
2. **The required outputs of this consultancy will be as follows:**
3. An inception report (How the consultant will implement the study) including methodology details (Study area selection, sampling, data collection methods, data quality assurance, data processing & analysis, etc), data calculation methods, reporting outline and time table shall be submitted within four (04) days after the signature of the contract for review and approval by SNV.
4. Data/information collection tools shall be submitted within three (03) days after approval inception report for review and approval by SNV.
5. A draft study report and presentation including key findings and recommendations for comments;
6. Practical Action will provide written comments and feedback on the draft report within 5 working days after submission of draft report.
7. Final report should be submitted within 5 working days after receiving comments from SNV.
8. After completion of the final report have to present the study findings in the market study findings workshop will be held in SREDA and incorporate the expert comments in the final report.
9. **Consultancy duration**

The entire period of this consultancy including final reporting will be for six (6) weeks.

1. **Indicative time frame**

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| --- | --- |
| Activity | Time frame |
| Initial meeting, document review and inception report  | 4 days |
| Develop data/information collection tools | 3 days |
| Organize training for data enumerators  | 2 days |
| Field visit to project locations for data collection  | 18 days |
| Data processing and analysis  | 3 days |
| Drafting reports & PPT preparation  | 3 days |
| Feedback incorporation and Reports finalization | 3 days |
| Total | 36 days |

1. ***Confidentiality of information*:** All documents and data collected will be treated as confidential and used solely to facilitate analysis. Interviewees will not be quoted in the reports without their permission.
2. **Guideline of proposal submission**

Technical proposal should comprise with the following sections and given page limit along with sample write up of maximum 2 pages and copy of any similar work.

|  |  |
| --- | --- |
| **Topic** | **Maximum Page Limit** |
| **Technical Proposal** |
| Cover Page  | 01 Page |
| Table of Content | 01 Page |
| Understanding of the study- Background, Objectives, scope and key question etc. (Not just copy and paste from the ToR) | 02 Pages |
| Proposed Methodology  | 02 Pages |
| Data calculation methods  | 01 page |
| Study plan/work schedule (gantt chart) | 01 page |
| Experience in leading similar evaluation work (Provide at least 2 examples of similar work, agency and time of conduction) with 02 references | 01 page |
| Team composition along with its rationale (CV in annexes) | 02 pages |
| Any other relevant information (if required only)  | 01 page |
| **Financial Proposal** |
| * Detailed Budget
* Consultancy days and fees (days should be mentioned for key member of the team) Travel and accommodation
* Any other expenditure (please mention nature of expenditure) 15% VAT and 10% Tax (please calculate the total budget with VAT and Tax)
* Total amount
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1. **Qualifications**

The assignment will be executed by a small team consisting of a marketing/business development expert, an energy efficiency/renewable energy expert and a sociologist being the team members. Field enumerators will support in information and data collection

The Consultant should have at least the following qualification:

* The applicant must be an individual or an institution holding necessary legal status to work in Bangladesh;
* Ph.D / Master’s degree in Engineering/Renewable Energy/ Energy Efficiency/ Business study/ economics/ sociology/ statistic or applied statistic/ anthropology/ Environmental Sciences or equivalent fields having at least 10 years’ experience in the related field;
* Strong technical background in Briquette & Improved Cookstove (ICS) technology;
* Minimum 7 years working experience, particularly in research, bassline study, market study, impact assessment and evaluation.
* Experience and excellent understanding both quantitative and qualitative study
* Good understanding of development results and Results Based Management Concepts
* Good communication skills and analytical ability;
1. **Evaluation process**

The selection committee will evaluate both the technical and financial proposal of the consultants/ firms based on set evaluation criteria as follows. A cumulative weighted-scoring method will be applied to evaluate the proposal. The award of the contract will be made to the consultant/ consulting firm whose offer has been evaluated and determined as responsive/ compliant/ acceptable with reference to this TOR.

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| --- | --- |
| **Evaluation Criteria** | **Weight** |
| **Technical** | **80** |
| 1. Expertise of the consultants/ consulting firm/ organization | 20 |
| 2. Understanding of the TOR | 10 |
| 3. Strong skill and expertise on carrying out similar assignment (based on provided evidence) | 10 |
| 4. Appropriateness of methodology in response of the indicators | 20 |
| 5. Management structure and qualifications of key personnel and team composition | 20 |
| **Financial** | **20** |
| **Total** | **100** |

1. **How to apply**

The individual/ firm must submit the following documents along with Technical & Financial Proposal (including VAT and TAX) separately:

1. **For Consultancy Firm**
* Maximum 2-page Firm profile highlighting related assignment completed with client name, contract person and contact number
* Lead Consultant’s (who will lead the assignment) Maximum 2-page CV highlighting related assignment completed, role in the completed assignment
* Other Team members (who will be involved in the assignment) one paragraph short CV highlighting related assignment completed and role
* Firm’s Certificate, TIN and VAT registration
1. **For Individual Consultant**
* Maximum 2-page profile highlighting related assignment completed with client name, contract person and contact number along with detailed CV
* TIN certificate and any other relevant document (if necessary)
1. **The General Terms and Conditions:**
* All soft and hard copy of the assignment will be treated as the property of SNV
* In any circumstances consultant shall have no opportunity to alter the timeline and planning of data collection and submission of first draft and final report.
* The consultant/consulting organization must maintain the standard quality in data collection, processing and reporting
* The consultant shall have the responsibility to rewrite the report, modification of sections until the satisfaction of quality required by SNV.
* In case of any deviation, SNV shall have the right to terminate the agreement at any point of the project.
* Consultant/consulting organization shall be bound to pay back the full money to SNV given as advance of payment in case of any deviation, dissatisfaction of quality and other point mentioned in the agreement.
* SNV will deduct withholding tax from the consultancy fees which will be in conformity with the prevailing government rates and SNV policy.
1. **Time schedule**

The assignment will be executed in March - April 2020.

**13. Application**

Interested organisations or consulting firms or individual consultants are requested to submit their technical and financial proposals separately with the details organisational profiles/individual relevant experience, methodology (mentioned in ToR, might be revise based on both party consent) including activities and milestones, budget details, time frame and CVs of experts.

Electronic copy of the proposal duly signed should be submitted to **bangladesh@snv.org** with the subject line: **Improved Cookstove (ICS) nexus Un/Under Used Biomass & Faecal Sludge mixed Briquette (FSmB)[[2]](#footnote-2) Market Study in Khulna, Jhenaidah, Satkhira, Rangpur and Faridpur Districts in Bangladesh** latest by 08 March 2020.

For further information if require, please send your query to Md. Arifur Rahman Talukder through email to atalukder@snv.org

1. For the purposes of this market study, FSmB is to be considered as briquettes consisting of dried faecal sludge combined with un/under used agriculture biomass (broken green jute sticks, maise, poultry litter and agricultural residue). [↑](#footnote-ref-1)
2. For the purposes of this market study, FSmB is to be considered as briquettes consisting of dried faecal sludge combined with un/under used agriculture biomass (broken green jute sticks, maise, poultry litter and agricultural residue). [↑](#footnote-ref-2)