Model RfP for Design, Construction, and Operation and Maintenance (O&M) of a Fecal Sludge Treatment Plant (FSTP)

at

Location..... India

Issued on: Date....

iihs™
INDIAN INSTITUTE FOR HUMAN SETTLEMENTS

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SECTION A: INVITATION TO SUBMIT PROPOSALS

Date:

Reference:

Dear Sir/Madam,

Re: Request for Proposals - for Design, Construction, Operation and Maintenance (O&M) of a Fecal Sludge Treatment Plant (FSTP) in …., India.

Proposals are hereby invited by the ……. (hereinafter referred to as the ''Client''), from selected agencies…:

1. The RFP documents consist of Invitation to Submit Proposals, Guidelines for Submissions, Scope of Work, Evaluation Criteria, with supplementary information in Annexes.

2. Bidders will submit their Bids following the attached GUIDELINES FOR SUBMISSION OF BIDS, to be received no later than …. hours on … date.

3. No consideration will be given to the Proposals received after the stipulated time and no extension of time will be allowed for submission of the proposals. The Client is not responsible for any postal or other delays in transmission of bids.

4. The Bidder will submit the proposal after carefully examining the whole of the Request for Proposal (RFP) documents and the conditions of RFP. The Bidder will have to quote for all the sections following the Outlines for Technical and Financial Bids herein. No section should be left blank. Incomplete bids are liable to be rejected at the sole and exclusive discretion of the Client.

5. Canvassing in connection with the bid is strictly prohibited and the Bid submitted by the Bidder who resort to canvassing, are liable to be rejected at the sole and exclusive discretion of the Client at any time during the process including up to the contract award.

6. Bid not fulfilling any or all of the conditions prescribed or which are incomplete shall be rejected at the sole and exclusive discretion of the Client.

7. The Client at its sole and exclusive discretion, reserves the right to accept or reject any Bid either in whole or in part without assigning any reason for doing so, and the Client is not bound to accept the lowest-cost bid.

8. All the individual pages of all the original copies of documents that comprise the bid, should be signed by the authorized representative of the Bidder. Please refer to Section B.

9. The Client reserves the right to divide and distribute the work. In such case/s, the decision will be solely at the discretion of the Client, including that of assignment of works.

10. The successful Bidder shall furnish a list of relatives, if any, working with the Client or Client's associates or partners, along with their designations and addresses.

11. Validity period of Offer: The RFP shall remain valid 90 days from the date of opening of financial Bid.

12. The Client requires Bidders, Suppliers, and Contractors under this Project to observe the highest standard of ethics during procurement and execution of such contracts.

Yours Sincerely

SECTION B: GUIDELINES FOR SUBMISSION OF BIDS

1. Deadline and Address to deliver Bids to:

The Bids should reach .... by Hand or Courier/Post.

The Bidder shall deliver the Bid Packet (comprising the Technical Bid and Financial bid) by post/courier to:

Contact Person Details

To reach before: Time hours on Date

at the following Address:

Address and Phone

2. Form of Submission

The Bid shall be submitted in ONE SEALED ENVELOPE with the following written on it:

"Proposal for FSTP at ....FSTP Site Location"

The ENVELOPE shall contain Two (02) Sealed Covers with the following documents:

2a. Cover 1 – Technical Bid – One Original with initials of the authorized signatory of the agency, on each page of the Technical Bid. In addition, two (02) print copies and one Digital Copy written on a CD (with all the digital versions of the documents) will be enclosed. This Cover should be marked TECHNICAL BID and sealed.

2b. Cover 2 - Financial Bid – One Original with initials of the authorized signatory of the agency on each page of the Financial Bid. In addition, one Digital Copy written on a CD (with all the digital versions of the Financial Bid documents). This Cover should be marked FINANCIAL BID and sealed. *Please note that this should be in a sealed cover separate from the Technical Bid.*

3. Contents for Technical Bid (to be enclosed in Cover 1)

3a. Company Profile

Table 1: Outline for Submitting Agency Profile	
Name of the Firm/Company (Lead Agency)	
Registration Details	
Mailing address of firm/Company with contact number, mobile, Fax no:	
Name and contact details of the consortium partners, if any	

Table 1: Outline for Submitting Agency Profile	
Lead Agency Contact Person: Contact Mobile: Contact Landline: Email ID:	
PAN No.	
TIN/VAT No.	
CST No.	
Service tax registration No.	
Any other relevant Registration details	

Table 2: List of projects undertaken in last 5 years (Project completion certificates for at least 3 Key projects shall be enclosed.)					
No.	**Key project description** (related to STP, ETP, WWTP etc. incl. capacity and technology type)	**Name of the key client/s**	**Location of installation/ Project**	**Project value** (Lakh INR)	**Remarks** (Partner details, duration, etc.)
1.					
2.					
3.					
4.					
5.					

Table 3: Turnover for last 3 years, (A Copy of the Turnover documents shall be enclosed.)		
Year	**Total Turnover (in Lakh INR)**	**Turnover (in Lakh INR) from STP/ETP/WWTP/ FSTP business**

Table 4: Human Resources	
Staff category	**No. of Staff**
Management	
Engineering	
Technical	
Non-Technical	
Other	

3b. Technical Proposal

The Technical Proposal should be submitted following the Outline for Submission of Technical Proposal provided below. The bidder may provide additional information if that assists better in evaluation of the proposal.

Outline for Submission of Technical Proposal

1. Design Basis: Process flow-chart with design values for inputs and outputs at each stage.

2. Process description accompanying process flow-chart above with:

    a. Mass Balance calculations for the process flow-chart above;
    b. Dimensioned layout of treatment components within site plan;
    c. Hydraulic profile of treatment components;
    d. Energy consumption

3. Design estimates and material specifications:

    a. Detailed engineering drawings with supporting design calculations, work and material specifications;

    b. Structural design (in case of structures and fittings);

    c. Dimensioned layout including associated infrastructure such as internal roads, septage receiving station, internal drainage and any other facility as required for the safe and successful operation of the FSTP;

    d. Anticipated life (in years) for components including civil, mechanical and electrical, making up the treatment solution and any machinery installed (identify replacements that would be necessitated over a life period of 15 years);

    e. If the bidder is proposing more than one option, it should be made clear what the option offered is an alternative for and the comparative advantages of each.

4. Construction/ Installation / Implementation Plan along with supervision and QC protocols, labour mobilization, QA testing, etc.;

5. Identification of Risks and Mitigation Plan - Identification of hazards - ability of system to handle anticipated shocks, e.g. Local flooding, soil-subsidence, power outage, process hazard if chemical or biological materials are used, etc.; and measures for mitigating hazard risks.

6. Plan for preparation of Operation Manual, Training Manual and imparting of training to selected personnel (a minimum of two rounds of trainings are anticipated between 18-24 months of the O&M Phase);

7. OPTIONAL - Specifications for Operational Laboratory. The Bidder may propose the systems and equipment to meet the CPCB norms for testing the influent and effluent as per protocols for testing, and testing of bio-solids as per the WHO norms. (Setting up the of the Operational Lab shall be excluded from evaluation at this stage, and this will be discussed and finalized with the successful bidder).

(There is no separate Format for Technical Bids – submissions will need to follow the Outline above.)

The Technical Bid comprises 3a and 3b should be submitted in a separate cover (Cover 1) marked "Technical Bid".

4. Financial Bid (to be enclosed in Cover 2)

The Financial Bid should be submitted in a separate cover marked "Financial Bid".

Outline for Submission of Financial Bid: The Financial bid should cover the items provided below, and use the Format provided in Annexure E to submit their Financial Bids.

1. **Capital Costs** with the break-down of the following items:

   a. FSTP Construction / Installations with component-wise break-down.
   b. Reception area with toilet and washroom, room dimension: 6m X 6m
   c. Operator Room with toilet and washroom, room dimension: 6m X 6m
   d. Operational Laboratory, dimension: 6m X 6m
   e. Roads inside the FSTP premises
   f. Electricity connection
   g. Borewell
   h. Compound wall
   i. Fecal Sludge receiving station
   j. Drainage inside the FSTP premises and drainage outfall in to the storm water drain
   k. Facility to store/treat bio-solids
   l. Any other capital item that may be necessary for the proposed FSTP

The bidder may indicate alternatives or additions to the above list provided that the items above are comprehensively addressed by such proposals. In case of options presented, the preferred option according to the bidder, will need to be indicated.

2. **O & M Costs**
   a. Personnel (Labour) Costs
   b. Consumables
   c. Energy
   d. Other utilities and services
   e. Repairs and Maintenance
   f. Others

3. **Overheads and Contingencies** will be indicated separately for each of the Capital Cost and O&M Cost categories above.

4. **Replacement/refurbishment costs** anticipated over 15 year life of treatment plant, shall be provided by the bidder.

5. **Taxes and Statutory charges to be indicated separately:** the base cost for the items/components detailed are to be presented in the relevant sections. Statutory charges like taxes, duties, cess, etc. need to be indicated separately.

6. OPTIONAL – **Capital and O&M Cost Estimates for Operational Laboratory**. The Bidder may propose costs pertaining to the capital costs including systems and equipment; as well as O&M costs, to meet the CPCB norms for testing the influent and effluent as per protocols for testing, and testing of bio-solids as per the WHO norms. (These shall be excluded from evaluation at this stage, and this will be discussed and finalized with the successful bidder).

7. The bidder may propose the Payment Schedule. This shall be negotiated with the preferred bidders, and shall not be evaluated at this stage.

SECTION C: SCOPE OF WORK

1. Introduction

A problem encountered at many urban areas in the State is the unsafe disposal of Fecal Sludge (FS). Network-based systems are limited to large towns with population of 1,00,000 and above and coverage in these towns is very limited. The populations not serviced through network systems, and those in small towns rely on on-site sanitation (pit latrines, septic tanks). Proper functioning of the on-site systems requires regular emptying of the pits and septic tanks. The emptied content of the pits and septic tanks, referred to as fecal sludge, need to be properly treated and safely disposed of. However, as no wastewater or septage treatment systems exist in small towns, indiscriminate disposal of fecal sludge is the widely practiced norm in many towns. In order to safely treat and dispose fecal sludge an FSTP proposed.

The proposed treatment plant will cater to the population of ...Locations. A site for this purpose has been identified and has been made available for the FSTP by the Name of the Local Body. The site is located at a distance of about 5 km from the center of PNP town.

Include any other relevant information which is necessary.

This document details out the Scope of Work for the design, construction/installation, commissioning and operations and maintenance (O&M) management of the proposed FSTP at PNP.

2. Scope of Work

The scope of work includes:

1. Designing the Fecal Sludge Treatment Plant.
2. Construction/Installation of the FSTP within the stipulated time frame.
3. Undertaking the Operations and Maintenance (O&M) management of the FSTP for a duration of 24 months after commissioning of the plant.
4. Training of the personnel from the Govt. (or of agencies assigned by them) on O&M management.

2.1 Detailed Scope of Work

2.1.1 Design Capacity

The design capacity of the plant should be specify capacity range KLD, and with a provision of augmentation to increase the capacity of the facility by about X percent in the future i.e. up to Y KLD.

2.1.2 Design for Receiving Fecal Sludge

The Fecal Sludge (FS) is typically conveyed by trucks or tractors with capacities varying from specify truck capacity range at present. The design should provide provisions for roads/pavements for these, and the layout should be such that there is enough space for trucks to park and safely unload within the boundaries of the site within a reasonable turn around time.

2.1.3 Structural Design

The design of structures such as treatment modules, building, receiving stations, etc. should consider the local conditions and bidders should propose appropriate safe and cost-effective designs. The structural design should be robust enough to cope with the risks associated with extreme events such as storms, wind, flooding, etc. A recently conducted soil safe bearing capacity for the site, is provided in Annexure B for reference (this may be treated as indicative).

2.1.4 Storage Design

Depending on the type of end products, e.g. sludge and treated waste-water, adequate and safe storage facility should be provided in the design. The Design should take into account the necessary measures, storage and/or treatment needed to render the helminths' eggs inert.

2.1.5 Safe for O & M

The design should ensure safety in the O&M management of the facility, with adequate control for odour and vectors.

2.1.6 All-weather Operations

The FSTP should be designed for all-weather operation and be able to handle variable input loads of varying characteristics. Arrangements for buffer-storage and/or pre-treatment should be provided in the design, as necessary. The typical characteristics of Fecal Sludge are provided in the Annexure D.

2.1.7 Low energy dependence and Ease of O & M

a. Energy: the design should take into account energy consumption, dependence on external source of energy, and provisions required for back-up power.
b. Ease of O & M: the design should enable ease of O & M management including low dependence on skilled manpower, consumables, process complexity, easy revival in case of break up and disruption, etc.

2.1.8 Open access of Technology **(Optional, delete if not needed)**

The proposed solution should be amenable to be made open access over a period of time.

2.1.9 Mandatory Requirements for Treatment (cf. Annex C)

a. The treated waste-water from the FSTP should meet the Central Pollution Control Board (CPCB) Standards.
b. The design should ensure that the TS content to be atleast 30 percent in treated bio-solids and meet the WHO Guidelines for Helminth eggs.

2.1.10 Support infrastructure and services

The Bidder shall be required to provide the following:

a. Reception area with toilet and washroom with room dimension: 6m X 6m
b. Operator Room with toilet and washroom, dimension: 6m X 6m
c. Operational Laboratory, dimension: 6m X 6m
d. Road inside the FSTP premises
e. Electricity connection
f. Borewell
g. Compound wall (Size Stone Masonry (SSM) wall of 30 cm thickness, 2 m height above ground level)
h. Fecal Sludge receiving platform
i. Facility to store bio-solids as needed
j. Drainage inside the FSTP premises and drainage outfall into storm water drainage

2.1.11 Operations and Maintenance Management services

The Bidder shall carry out O&M Management to best quality standards for a period up to 24 months. An Operational Manual, and all systems and procedures for proper O&M of the facility, shall be prepared and implemented immediately at commissioning.

2.1.12 Training to Govt. (or delegated) Personnel in O&M

The Bidder shall impart training to personnel nominated by the Govt., so that they can satisfactorily carry out all O&M Management roles and functions before the end of 24 months. A Training Manual shall be prepared and used for imparting training to selected personnel.

2.2 Scope of work Exclusions

The following are excluded from the scope of work (include/ exclude as applicable):

1. The site for the treatment plant (Layout and location details provided in Annexure A) has been secured, vide provide details on land secured if available, and approved by the by …..The Local Body shall initiate the process of obtaining required Statutory clearances for construction after finalization of the contract with the successful bidder.

2. Mobilizing the tanker operators /de-sludging operators to the FSTP is not part of the current scope of work. The mobilization of the tanker operators will be managed by the Local Body; however, the Proposer will need to ensure proper record-keeping and monitoring of the FS loads received at the FSTP.

3. Contract Duration

The total contract duration is for specify years and specify months. The contract shall comprise two phases:

1. Phase I: specify months from signing of contract - for Design, Construction and Commissioning of the FSTP

2. Phase II: specify months from Commissioning of the FSTP - Operation and Maintenance (O&M) management of the FSTP

SECTION D: EVALUATION CRITERIA & SELECTION PROCESS

1. Evaluation Criteria for Technical Proposal

The Technical Proposal will be evaluated following the criteria presented below.

1a. Criteria for the Evaluation of Technical Proposal

No.	Evaluation Criteria for Technical Proposal	Maximum Score or Mandatory
1	CPCB Standards for waste-water treatment (2017)	Mandatory (proposals not meeting standards shall be rejected)
2	Bio-solids (dry fecal sludge) Output Indicators	
2a.	Removal of Helminths eggs	10
2b.	Lowering of Moisture content	10
3	Range of influent characteristics the designed Plant can handle	15
4	Life of Plant in years	10
5	Energy - measured as net energy consumption/KLD of Fecal Sludge treated	20
6	Re-use of treated outputs (liquid and solid)	10
7	Ease of Operations and Maintenance	15
8	Hazard Risk Mitigation	10
	Total	**100**

1. The proposed FSTP must meet the CPCB (2017) standards for waste-water disposal. (cf. Annexure C). The Bidder shall confirm that the proposed FSTP will meet this standard.

2. The proposed FSTP must meet the WHO Guidelines for Helminth eggs. (cf. Annexure C). The proposed facility should also achieve reduction in moisture content in bio-solids (i.e. the TS content to be at least 30 percent). Further reductions will be preferred.
3. The proposed FSTP should be able to handle influent characteristics ranging from very low to very high BOD, COD and TSS, etc. (Cf. Annexure D). The Technical Proposal should specify the range of influent characteristics that the proposed solution can treat successfully.

4. The proposed FSTP should have an economic operational life of at least 15 years. Bidders should specify the design life of plant in years.

5. The proposed FSTP should be energy efficient and consume minimum power. The Technology provider should specify the estimate of net energy consumption/KLD of Fecal Sludge treated.

6. Re-use of the derived products from FSTP will be an important criterion to evaluate the proposal. The bidder should specify the potential for re-use of the derived products from the FSTP.

7. The proposed FSTP should be easy to operate and maintain. This may be measured by the extent of dependence of the facility on skilled manpower, consumables, process complexity, ease of revival in case of disruption, etc.

8. Risks and mitigation: the proposed FSTP needs to be able to cope with shocks and events including local flooding, soil subsidence, power outages, process-related hazards if chemical or biological materials are used, etc.

1b. Criteria for Evaluation of Financial Bid

The criteria for evaluation of the Financial Bid are listed below:

No.	Evaluation Criteria
1.	Capital Expenditure Components wise break up will be considered for evaluation (Lab is excluded from evaluation)
2.	O & M Costs per Month and per Annum Component wise Break up of O & M will be considered for evaluation (Lab is excluded from evaluation)
3.	Replacement/ Refurbishment Costs shall also be accorded weightage in evaluating the Financial Bid

1c. Evaluation and Selection Process

1. The evaluation and selection process shall be a two-stage one: first, the technical evaluation shall be carried out, followed by the evaluation of the financial bids.

2. The Technical Bids shall be evaluated by a Technical Advisory Committee comprising experts. The Committee will use the criteria for Technical evaluation outlined above. However, the Committee may also include other criteria as may be deemed necessary.

3. On the basis of evaluation of the Technical bids, the bids will be awarded marks ranked in descending order.

4. After evaluation of Technical Bids, the Financial Bids for all bidders shall be opened and evaluated for review.

5. Based on Technical ranking, the agencies will be individually invited (in order of ranking) for discussions till negotiations are successful concluded.

6. The client reserves the right to ask for re-submission of proposals.

7. The bidders will be intimated about the results of the evaluation within 60 days of the deadline for submissions or successful completion of negotiations with preferred bidder/s, whichever is earlier.

ANNEXURE

TABLE OF CONTENTS

Annexure A: Location and Layout of Fecal Sludge Treatment Plant Site

Annexure B: Soil Bearing Capacity Test Results at Site for Fecal Sludge Treatment Plant

1. SOIL EXPLORATION REPORT

(*excerpted from soil investigation report*)

1.1. PURPOSE AND SCOPE

The primary purpose of our investigation is to obtain data to develop foundation design recommendations for the above work. At, first instance, Five boreholes was bored at site. Client's representatives selected the locations of borings. To accomplish these purposes, the following tasks were performed:

1. Detailed soil borings were done up to stratum to explore the sub surface stratigraphy and obtain soil samples for testing. Field and laboratory tests were conducted to evaluate the index and engineering properties of the soils
2. Engineering analysis was performed to develop foundation design information for proposed structure.

2. FIELD INVESTIGATIONS

2.1. ROTARY BORING

2.2. STANDARD PENETRATION TEST

2.3. SAMPLING

3. LABORATARY TESTS

Following laboratory tests are conducted.

For Cohesion & cohesionless soil

a) Specific gravity
b) Sieve analysis
c) Atterberg's limits
d) Natural moisture content.

4. FOUNDATION ANALYSIS

4.1 Soil Profile

4.2 Safe Bearing Capacity

5. RECOMMENDATION

The borehole investigation was conduct and SBC was determined.

Annexure C: Discharge Standards prescribed by CPCB and Guidelines prescribed for treated sludge (WHO)

The discharge standards for treated wastewater to be met are as detailed in the Table C-1.

Table C1: Effluent Discharge Standards (applicable to all mode of disposal)

No.	Industry	Parameters	Standards	
"105	Sewage Treatment Plants (STPs)		**Location**	**Concentration not to exceed**
			(a)	**(b)**
		pH	Anywhere in the country	6.5-9.0
		Bio-Chemical Oxygen Demand (BOD) in mg/l	Areas/regions other than Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Union territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	30
		Total Suspended Solids (TSS) in mg/l	Areas/regions other than Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Union territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	<100
		Fecal Coliform (FC) (Most Probable Number (MPN)/100ml)	Anywhere in the country	<1000

Source: Environment (Protection) Amendment Rules, 2017.

Helminth eggs need to be controlled. The WHO guideline, Table C-2, is to be the target for design purposes.

TABLE C-2: GUIDELINES FOR TREATED FECAL SLUDGE

Parameters	Unit	Value
Helminths	No. of eggs/g of TS	≤1 (In fecal sludge post treatment)
Source: WHO, 2006		

Moisture needs to remove to the maximum extent possible. This will depend on the process and time. A target of at least 30% Total Solids (i.e. reduction of moisture by 70%) is aimed for this proposal. A target of higher than 30% TS will be desirable. If reuse option is co-composting with MSW, the compost quality has to meet the standards prescribed in MSW Management & Handling Rules, 2016. See page 69-70.
(http://www.moef.gov.in/sites/default/ files/SWM%202016.pdf)

Annexure D: Characteristics of Fecal Sludge

Faecal sludge comes from Onsite Sanitation Systems (OSS). It is raw or partially digested, a slurry or semisolid, and results from the collection, storage or treatment of combinations of excreta and blackwater, with or without greywater. Examples of OSS include pit latrines, septic tanks and so on.

The physio – chemical characteristics of the faecal sludge can vary depending on the characteristics, namely the size and type of OSS, design, desludging interval and the local climatic conditions of the place where the tank is located, the quantity and quality of water supplied and the type of wastewater originating from the household.

Indicative characteristics of FS is provided in the Table D-1 below based on three samples taken at ...Location. The Bidder if felt required is advised to carry out their own sampling and testing to get better understanding of FS.

Table D-1: Characteristics of Fecal Sludge from the desludging trucks in Location

Parameters	Sample 1	Sample 2	Sample 3
pH			
Ammonium mg/L			
Phosphates mg/L			
COD mg/L			
Total Solids mg/L			
Volatile Solids mg/L			
Fixed Solids mg/L			
Other parameters			

Literature from different countries and locations report significant variability in FS character. Data presented below in Table D-2 and Table D-3 are for reference and only to indicate the level of variability.

TABLE D-2: ***Faecal sludges from on-site sanitation systems in tropical countries: characteristics, classification and comparison with tropical sewage (after Strauss et al. 1997 and Mara 1978)***

Item	Type "A" (high-strength)	Type "B" (low-strength)	Sewage - for comparison's sake
Example	Public toilet or bucket latrine sludge	Septage	Tropical sewage
Characteri-sation	Highly concentrated, mostly fresh FS; stored for days or weeks only	FS of low concentration; usually stored for several years; more stabilised than Type "A"	
COD mg/l	20, - 50,000	< 15,000	500 - 2,500
COD/BOD	5 : 1 .... 10 : 1		2 : 1
NH_4-N mg/l	2, - 5,000	< 1,000	30 - 70
TS mg/l	≥ 3.5 %	< 3 %	< 1 %
SS mg/l	≥ 30,000	≡ 7,000	200 - 700
Helm. eggs, no./l	20, - 60,000	≡ 4,000	300 - 2,000

TABLE D-3: FECAL SLUDGE CHARACTERISTICS (US EPA, 1984)

Parameters	Concentration (mg/l)	
	Typical Value	Range
Total Solids	34,106	1,132-130,475
Total Volatile Solids	23,100	353 – 71,402
BOD	6,480	440 – 76,600
COD	31,900	1,500 – 703,000
Ammonia-Nitrogen	97	3 - 116

Annexure E: Format for submission of Financial proposal by Bidder

FINANCIAL PROPOSAL

Directions for the Bidder:

a. The Bidder will use this format for Submission of the Financial Proposal.
b. Capital and O&M Cost Items are to be presented separately.
c. The base cost for the items/components detailed below are to be presented first. Statutory charges like taxes, duties, cess, etc. need to be presented separately.

A.1	**FSTP CONSTRUCTION / INSTALLATIONS WITH COMPONENT-WISE BREAK-DOWN (including Civil Works, Machinery and Equipment, etc.)**	
	ITEM/COMPONENT	**AMOUNT (Rs.)**
	(To be provided for each component outlined in Process flow chart of technical proposal)	
1		
2		
3		
4		
5	*(Add rows as required)*	
6	Reception area with toilet and washroom, room dimension: 6m X 6m	
7	Operator Room with toilet and washroom, room dimension: 6m X 6m	
8	Operational Laboratory, dimension: 6m X 6m	
9	Roads inside the FSTP premises	
10	Electricity Connection	
11	Borewell	
12	Compound wall (Size Stone Masonry (SSM) wall of 30 cm thickness, 2 m height above ground level)	
13	Fecal Sludge receiving station	
14	Drainage inside the FSTP premises and drainage outfall in to the storm water drain	
15	Facility to store/treat bio solids	
16	Other (Specify)	
	Overheads	
	Contingencies	
	SUB-TOTAL	
	Taxes as applicable	
	TOTAL A.1	

A.2	ADDITIONAL CAPITAL ITEMS INCLUDING COST OF QA/QC	
	ITEM/COMPONENT	**AMOUNT (Rs.)**
1	Cost of QA/QC tests during construction/installation	
2		
3		
	(Add rows as required)	
	Overheads	
	Contingencies	
	SUB-TOTAL	
	Taxes as applicable	
	TOTAL A.2	
	TOTAL CAPITAL COSTS (A.1+A.2)	

For Items A.1 and A.2, the bidder may indicate alternatives or additions to the above list provided that the items above are comprehensively addressed by such proposals. In case of options presented, the preferred option according to the bidder, will need to be indicated.

B	REPLACEMENT/REFURBISHMENT COSTS ANTICIPATED OVER 15 YEAR ECONOMIC OPERATIONAL LIFE OF TREATMENT PLANT		
	ITEM/COMPONENT	**Periodicity of Replacement / Refurbishment (every X months)**	**Cost of of Replacement/ Refurbishment ((Rs.) at each instance**
1			
2			
3			
4			
5			
	(Add rows as required)		
	TOTAL B		

C.1	ESTIMATED OPERATION & MAINTENANCE COSTS		
	ITEM/COMPONENT	**AMOUNT (Rs.) for 24 months**	**AMOUNT (Rs.) for 60 months**
1	Personnel/Labour		
2	Consumables		
3	Energy		
4	Other utilities and services		
5	Repairs and Maintenance		
6	Others		
	Overheads		
	Contingencies		
	SUB-TOTAL		
	Taxes as applicable		
	TOTAL C.1		

Note: Revenue Realisation from treated waste products may be indicated separately if relevant.

C.1.2	Estimation of Energy Costs Per Month in B.1.3 above	Unit	Consumption Per Month	Assumed Cost per Unit (Rs.)	Total Cost per Month (Rs.)
A	Energy Type 1: Number of units estimated as required for 12 months				
B	Energy Type 2: Number of units estimated as required for 12 months				
	TOTAL C.1.2 Per Month				

Note: Provision exists for estimating energy use from different sources - electrical, thermal, etc.

D	OPTIONAL: CAPITAL AND O&M COSTS FOR OPERATIONAL LABORATORY		
	COST FOR EQUIPMENT	**AMOUNT (Rs.)**	**REMARKS**
a			
b			
c			
d			
e			
	{Add rows as necessary}		
	Overheads		
	Contingencies		
	SUB-TOTAL		
	Taxes as applicable		
	TOTAL D.1		
2	**O&M COSTS**	**AMOUNT (Rs.) for 24 months**	**AMOUNT (Rs.) for 60 months**
a			
b			
c			
d			
e			
	{Add rows as necessary}		
	Overheads		
	Contingencies		
	SUB-TOTAL		
	Taxes as applicable		
	TOTAL D.2		

These shall be excluded from evaluation at this stage - these will be discussed and finalized with the preferred bidder/s.

E	PROPOSED PAYMENT SCHEDULE		
	Milestone (Refer Implementation Plan)	**Weeks from Start**	**Amount (Rs.)**
1			
2			
3			
4			
5			
6			
7			
8			
	(Add rows as required)		
	TOTAL		

This shall be negotiated with the preferred bidders, and shall not be evaluated at this stage.