



**TATA INSTITUTE OF SOCIAL SCIENCES**  
V.N. Purav Marg, Deonar, Mumbai – 400 088.  
**(A Deemed University under Section 3 of the UGC ACT, 1956)**

TISS/BIOGAS/2019

22 Jul 2019

**NOTICE INVITING TENDER FOR DESIGN, MANUFACTURE, SUPPLY, INSTALLATION (ERECTION), TESTING, COMMISSIONING, INCLUDING WARRANTY, OPERATION AND MAINTENANCE FOR A PERIOD OF 5 YEARS FOR A KITCHEN WASTE BASED 500 KG BIOGAS PLANT BASED ON NISARGARUNA TECHNOLOGY OF BARC,**

The Tata Institute of Social Sciences(TISS) invites sealed bids from established, reputed and experienced firms to Design, Manufacture, Supply, Installation (Erection), Testing, Commissioning (including Warranty 01 year), of Kitchen Waste based 500 kg Biogas Plant based on Nisargaruna Technology of BARC and Operation and Maintenance for a period of 5 years in the premise of the TISS at V.N. Purav Marg, Deonar, Mumbai - 400 088. Details of the services required and other terms and conditions relating to the award of Contract are given in the tender notice.

2. Tender Document is available on the website of the TISS i.e. [www.tiss.edu](http://www.tiss.edu). The intending bidders may download the tender document containing the terms and conditions and submit the same.

3. All interested service providers are requested to submit their sealed quotations as per prescribed procedure to this office on or before 1500 Hrs. of 29.07.2019.

## **INVITATION FOR TENDER**

Sealed tenders are invited from BARC registered vendors of Nisargruna biogas plant for Design, Manufacture, Supply, Installation (Erection), Testing, Commissioning, including Warranty(01 year), Operation and Maintenance for a period of 5 years for a Kitchen Waste based 500 kg Biogas Plant at the premises of Tata Institute of Social Sciences(TISS).

SNo.	Items	Quantity	EMD for the in shape of DD(Rs)
1	Design, Manufacture, Supply, Installation (Erection), Testing, Commissioning, including Warranty(01 year), Operation and Maintenance for a period of 5 years for a Kitchen Waste based Biogas Plant, 500 kg/day including all related civil works. The Biogas plant must be installed with all the safety features as mandated by law.	1	50,000/-

Bid document for the above work can be collected from the Admin office of TISS on all working days in between 1030A.M. to 5.00 P.M. The bid documents can also be downloaded from TISS Website ( [www.tiss.edu](http://www.tiss.edu) ) . The bids shall be accompanied with the required EMD and valid STCC / VAT clearance certificate without which the same shall be rejected. Bids will be received up to 3.00 P.M of 29.07.2019.

All the papers of bid documents except the price bid duly signed should be submitted in the first envelope. Required earnest money deposit in the form of Demand draft in favour of Tata Institute of Social Sciences payable at Mumbai should be attached.

Second sealed envelope should contain Price bid as per Annexure -B in a separate sealed envelope. Any condition in regard to financial aspects, payments, terms of rebate etc beyond the prescribed financial terms of TISS will make the bid invalid. Therefore it is in the interest of the bidders not to write anything extra in the Price Bid.

### **Disclaimer**

Though adequate care has been taken for preparation of this document, the bidder shall satisfy himself that the document is complete in all respect. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any within the time of the tender dates it shall be presumed that this document is complete in all respects.

The Tata Institute of Social Sciences reserves the right to modify, amend or supplement this document in the interest of the public works.

## **SCOPE OF WORKS**

1. The broad scope of the work includes design, manufacture, supply, installation, testing commissioning of Nisargaruna biogas plant (with 01 year warranty) designed by BARC at TISS including operation & Maintenance for 5 years.
2. Supply of the complete systems, including all necessary components, sub-components, spares, tools, tackles etc. as per technical specifications given in this document including packing, forwarding, safe storage, handling, commissioning, trial and performance testing and handing over, operation & maintenance for 5 years.
3. All civil structures and site clearances for setting up of the biogas plant
4. All structural drawings to be got approved from TISS / any other competent authority.
5. Adequate training has to be provided to the persons to be designated by TISS in day to day maintenance and upkeep of the installed system. The bidder must also provide a detailed operation and maintenance manual specific to the installed systems.

## **ELIGIBILITY CRITERIA**

1. Only registered / license holder/ patent holder/ approved by Bhabha Atomic Research Centre, Bidders are eligible. Bidder should submit certificate in technical bid.
2. Bidder should have constructed, installed & commissioned at least 2 Biogas plant based on Nisargaruna technology developed by BARC of capacity equal or more than 250 kg per day in the last five years. If required official of TISS can visit any of the completed projects mentioned by the agency.
3. The purchase order copies on the Bidders name will have to be attached to qualify. The copies of experience certificate for successful completion and commissioning of the plant duly certified by the concerned client on the bidders name will have to be attached as a proof. The tender without such certificate will be treated as Non-responsive and not be considered for evaluation and the tender will be rejected.
4. The bidder should have experience in the last 2 years for O & M of atleast 01 similar plants with combined capacity of more than 500 kg with any Government/Municipal Corporation/ Industries / Corporates, with at least one plant of 6 months continuous O & M.

5. The firm must have valid STCC/ VAT/ GST clearance certificate/ e- file documents.
6. The firm must have a minimum annual turnover of Rs 50 lakhs over last three years exclusively in the business. Bidders shall not have incurred losses during any of the last three years.
7. The firm must not have been debarred / blacklisted by any Govt. Dept, agency, PSUs / institution / agencies / autonomous organisation. The bidder shall submit a self certification by an authorized person duly notarized to this effect.

## **INSTRUCTIONS TO BIDDERS**

1. A Bidder can submit a single bid only.
2. Bidders must submit their bids for all items as stated in this bid document above.
3. Bids must be submitted in English language only.
4. Incomplete, telegraphic or conditional bids shall not be accepted.
5. Prices quoted must be firm and fixed. No price variation/ escalation shall be allowed during process of completion of the project.
6. The bidders must sign at the bottom of each page of the bid documents at the time of submission in token of unconditional acceptance of the departmental terms and conditions, technical specifications etc.
7. Valid TIN / VAT/ GST/ Sales tax clearance certificate / e-submission document duly attested must be submitted along with the bid.
8. Deviations in terms and conditions, Specification of material, Inspection clause etc. will not be accepted under any condition.
9. The bidders should furnish the information on all past supplies and satisfactory performance.
10. The bidder shall submit copies of documents defining the constitution or legal status, place of registration and principle place of business of company or firm or partnership.
11. The bidder shall furnish a brief write up backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the required systems, equipments within the specified time of completion after meeting all their commitments.

12. The bidders shall submit reports on financial standing of the bidder such as audited profit and loss statements, balance sheets and auditor's reports for the past, bankers certificates. All accounting statements submitted should be duly audited and with proper auditor's note on accounts and accounting standards.

**13.** Earnest money as specified in bid may be deposited in shape of Demand Draft drawn in favour of the Tata Institute of Social Sciences payable at Mumbai from any nationalized bank. **Bids without E.M.D will not be accepted.**

14. Bids received late due to postal delay or otherwise **will not be considered.**

15. The bidders are required to furnish their offers in the price bid both in words & figures. In case of corrections, if any, the original text/numerical must be clearly crossed out and re-written legibly above, below or on the side of the crossed out characters as per availability of space and the authorized person must put his dated initial under such corrections. In case of any conflict between figures and words, the latter shall prevail.

16. Since timely execution of works is of paramount importance, requests for extension of time shall not be ordinarily entertained.

17. Canvassing in any manner shall not be entertained and will be viewed seriously leading to rejection of the bid.

18. Power of attorney to sign the agreement on behalf of bidders & partnership deed articles, if any, should be enclosed along with original bid documents.

19. Notice inviting tender, bid documents, prescribed Technical bid, price bid, terms & conditions will form the part of the tender.

20. All pages of the bid documents must be signed & sealed by the authorized person on behalf of the bidders.

21. Bids will be accepted & will be opened as per information mentioned in the notice-inviting tender. No receipt against submission of bid shall be issued by TISS.

22. Attach copy of valid STCC/ VAT clearance certificate/e-submission, copy of audited balance sheet for 2017-18 and 2018-19 valid customer certificate in support of the same, furnish a brief write-up, backed with adequate data, explaining the available capacity and experience both technical and commercial for the manufacture and supply of the required systems and equipment within the specified time of completion after meeting all their current commitments.

23. In case of supply of any defective material or substandard material, the materials will be rejected & it will be the responsibility of the supplier for

taking back & replacing the rejected materials at their own cost. In case of non-lifting of such rejected materials within a reasonable time offered by the office it will have the right to suitably dispose off the same and forfeit the amount.

24. The supplied materials should strictly comply with the specifications as mentioned in the bid, otherwise the material would be liable for rejection.

25. Any clarification on the technical specification and commercial terms and conditions may be clarified in writing from TISS.

26. Deviation of any commercial terms and condition and technical specification shall not be entertained under no circumstances.

27. Bidders may in their own interest visit the sites and undertake site visit before submitting bids. TISS will not be responsible for any incidental or consequential losses of the firms while execution and till expiry of the period of maintenance.

28. All the bidders shall essentially indicate the break-up of prices as shown in Price bid.

29. TISS shall award the contract to the successful bidder whose bid shall be qualified after evaluation in terms of the responsiveness and lowest rate determined on the basis price bids.

30. TISS does not bind itself to accept the lowest or any tender and reserves the right to accept or reject any or all tenders either in whole or in part, without assigning any reasons whatsoever.

**31. On award of contract the qualified bidder shall be termed as contractor / supplier / executor /turnkey operator.**

**32. BARC, MUMBAI Certification is necessary . Bidder will be liable to a penalty of Rs. 1000/- per day for delay unless he has a valid reason for that acceptable to TISS, MUMBAI.**

### **TECHNICAL DETAILS**

1. The tenderer is required to supply and install one wet garbage processing unit at TISS . The processing unit will digest the entire garbage and convert the same into organic manure and cooking gas. The waste will come from kitchen biodegradable waste materials consisting of vegetable peelings, fruits, cooked food, wastes etc.
2. The system should not generate any bad odour, pollution and further garbage. The system should be eco friendly and no harm to man and animals.
3. The system should be easy to operate and maintain. It should be clean and generate no mosquito breeding. Electricity consumption should be as

minimum as possible. It should completely convert the Bio degradable waste to manures and cooking gas ready for use without further processing.

4. The system aims at:
  - a) Processing of biodegradable waste
  - b) Achieving the dream of zero garbage and zero
  - c) Effluent Reduction in transportation costs of garbage
  - d) Biogas to be used for cooking gas purpose
  - e) Generation of manure/organic fertilizer.
  - f) Reduction in dumping yard menace
  - g) Quality improvement in dry waste as the wet and degradable portion is removed
5. The system should have scope to accept a variety of raw materials.
6. The reduction in volume of waste should be around 90-92% with a manure production of 8-10%. It should help in oxidation of sulphur compounds; thereby Biogas formed is free of this corrosive gas.
7. The manure generated in the process need to be weed-free and rich in organic carbon contents. Hence, it will be a better soil condition earthen any other organic manure.
8. The technology can be upgraded as per user requirement in future.
9. The firm will obtain all approvals / sanctions/ clearance from local / state / central Govt. authorities, if any, required for execution of the system.
10. Fabrication, erection works including associated civil and electrical works shall be carried out by the contractor. Safety of the Biogas system shall be completely the responsibility of the contractor.
11. The contractor will submit the complete design, structural layouts, electrical drawings etc. and get it approved before execution of the work.
12. The contractor will carry out everything necessary for completion of the work in all respects.

### **COMMERCIAL TERMS & CONDITIONS**

1. **Rate** The offer should indicate the cost of the system including Installation & Commissioning charges, NCMC Charges and taxes & duties separately. The unit cost must be inclusive of packing, forwarding, loading & unloading charges, cost of insurance and transportation for destination where the system will be installed as per the work order.
2. **Sales Tax & Duties etc** All Taxes and duties as prescribed both under Central and State Government sales tax rules would be applicable.

3. **Earnest Money Deposit** Earnest money deposit is required to be deposited along with the bid without which the bid will not be accepted. No interest will be payable for the EMD amount under any circumstances. The validity of BG for the EMD amount may be extendable in case of necessity. Earnest money can be submitted in shape of a Demand Draft in favour of Tata Institute of Social Sciences from any Nationalised Bank Payable at Mumbai. EMD can also be deposited in shape of irrevocable bank guarantee from a Nationalised Bank with validity up to six months from the date of opening of the bid. E.M.D would be refunded to the unsuccessful Bidders after finalization of the bid without any interest. E. M. D would be forfeited in case of non-compliance of the purchase order by the successful bidder. In case of claim for exemption from deposit of Earnest money sufficient proof in support of claim for exemption of EMD as prescribed in Govt. of India Notification is to be attached with the bid.
4. **Security Deposit/ Performance Guarantee Fees** The successful bidder must deposit the Security amount / Performance Guarantee fees @ 5% of the ordered value with the Tata Institute of Social Sciences, Mumbai at the time of acceptance of the work order in shape of irrevocable Bank Guarantees with 18 months validity from the date of acceptance of the work order till the completion of respective warranty periods whichever is later. The said deposit would be forfeited, if the supplies are not made as per the Terms & Conditions of the purchase order. The security deposit amount will be refunded after the expiry of the Warranty period of the systems, subject to satisfactory execution / performance of the systems.
5. **Programme Execution Schedule**
- Delivery of systems at sites: 8 weeks from the date of handing over the site to the vendor for the purpose of erection of the Biogas plant. Installation & commissioning 8 weeks from the date of preliminary inspection, physical verification. and handing over of systems for installation.
- The above dates are extendable by another one month under exceptional circumstances.*
- Upon intimation about commissioning of the systems by the executing firm a joint inspection will be carried out by the representatives of the executing firm and officials of TISS.
6. **Validity of offer** The offer must be kept valid for a period of 180 days from the date of opening of the technical bid or till the completion of the project whichever is later . No escalation clause except the admissible tax component under the period of consideration would be accepted.
7. **Tax return** The bidders must submit attested copy of valid up to date sales Tax / VAT clearance / GST/ e-submission certificate along with the bid. The bid would not be considered without this document. The original certificate would be produced at the time of opening of the bid, or, before placement of purchase order, if required.

8. **Warranty** The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in conditions prevailing in the country of final destination.
- This warranty shall remain valid for 01 year after the Goods or any portion thereof as the case may be, have been delivered to and commissioned and accepted at the final destination indicated in the Contract.
- The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall repair or replace the defective Goods or parts thereof, without cost to the Purchaser
- If the Supplier, having been notified, fails to remedy the defect(s), the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.
9. **Penalty and termination of contract** The systems shall be supplied, installed and commissioned within the scheduled time. If the supplier fails to adhere to the schedule, TISS shall without prejudice to its other remedies under the contract deduct from the contract price as liquidated damages a sum equivalent to 1% of the delivery price of the delayed goods or unperformed services for each week of delay until actual delivery or installation/commissioning up to a maximum deduction of 10% of the contract price for delayed goods or installation and commissioning. Once the maximum is reached (i.e 10 weeks of delay) TISS may consider termination of the contract and forfeit the security deposit without prejudice to the other remedies of the contract. If at any time during the performance of the Contract, the Supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of the Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract. A delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of liquidated damages pursuant, unless an extension of time is agreed upon without the application of liquidated damages.
10. **Termination for Default** The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or in part:  
if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser; or if the Supplier fails to perform any other obligation(s) under the

Contract. If the supplier, in the judgement of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

For the purpose of this clause :

“corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

“fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the borrower, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the borrower of the benefits of free and open competition.

In the event the Purchaser terminates the Contract in whole or in part, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

11. **Inspection** Pre delivery inspection of major components will be carried out by a team of designated officials of TISS at the place of delivery. Officials authorized by TISS shall be entitled at all reasonable time to inspect and supervise and test during erection and commissioning. Such inspection will not relieve the executing firm of their obligation in the contract.
12. **Payment** **Payment of the Contract Amount shall be made in the following manner:**
  - (a) 50 % advance against bank guarantee
  - (b) 50 % on supply, installation and successful commissioning of plant.
13. **Execution** Execution of work shall be carried out in an approved manner as outlined in the technical specification or where not outlined, in accordance with relevant Indian Standard Specification, to the reasonable satisfaction of the Authorized TISS official.
14. **Non-Comprehensive Operation and Maintenance Contract** Non-CMC will be applicable on successful commissioning of the plant. The bidder must enter into a Non-Comprehensive operation and maintenance contract for the specified period at the time of execution of the order. Offer without such Non-CMC shall not be considered. (sample format of CMC enclosed at Annex - C) The scope of Non-CMC must cover operation and maintenance services during the contract in force. Order shall be placed on bidders who agree to offer such Non-CMC. The Non-CMC charges quoted by the bidder must be realistic in view of actual rendering of after sale services. The payment of annual O&M charges under the Non-Comprehensive Maintenance Contract shall be made six monthly after completion of the work and would depend upon the functionality of the system duly certified by the concerned Authorised officials of TISS.

15. **Limitation of Liability** TISS, will, in no case be responsible for any accident fatal or non-fatal, caused to any worker or outsider in course of transport or execution of work. All the expenditure including treatment or compensation will be entirely borne by the Executants. The Executants shall also be responsible for any claims of the workers including PF, Gratuity, ESI & other legal obligations. The executants shall take all steps towards the security compliances of the TISS.
16. **Force Majeure** In no event shall either Party have any liability for failure to comply with this Agreement, if such failure results directly from the occurrence of any contingency beyond the reasonable control of the Party, including, without limitation, strike or other labor disturbance, riot, major power failure, war, natural calamities including but not limited to floods, earthquakes, fire, volcanic eruptions, epidemics, National Emergency, interference by any government or governmental agency, embargo, seizure, or enactment or abolition of any law, statute, ordinance, rule, or regulation (each a " Force Majeure Event"). In the event that either Party is unable to perform any of its obligations under this Agreement because of a Force Majeure Event, the Party who has been so affected shall as soon as may be, after coming to know of the Force Majeure Event, inform the other Party and shall take reasonable steps to resume performance as soon as may be after the cessation of the Force Majeure Event. If the period of nonperformance due to a Force Majeure Event exceeds thirty (30) days, the Party whose ability to perform has been so affected may, by giving written notice, terminate this Agreement.
17. **Arbitration** As far as possible all the disputes arising during and after the discharge of Terms and Conditions of the agreement should be resolved with mutually agreed deliberations. However if no such mutual agreement is arrived at , the matter should be referred to an Arbitrator who should be a senior expert Engineer/ Fellow Institute of Engineers/ Member Indian Council of Arbitration. The owners shall furnish a panel of 3 such persons to be chosen acceptable to the contractor or any other Engineer/ Arbitrator agreed upon by both the parties, should be appointed to examine the disputes and resolve the same. Terms of Arbitration of Cancellation act 1996 with latest amended.

## **ANNEXURE-A**

### **SPECIFICATION FOR 500 KGS FOR NISARGRUNA BIOGAS PLANT**

SNo.	Component	Specifications	Qty
1.	Receiving/ sorting/ Mixing platform	Platform prefabricated & installed on top	1
2.	Mixer	500 Kg per day capacity specially fabricated in M.S. and S.S. top for loading of waste, 1 HP phase CROMPTON/ KIRLOSKAR motor driven mixer or 1 HP Crusher Sharp Make 250-500 Kg/hr Capacity motor driven mixer..	1
3.	Pre and Main Anaerobic Digester	One Pre-Aerobic digester (Please define the thickness) in MS with acid proof & rust proof FRP coating & two coats of red oxide and two coats of oil paint, connected to main digester from bottom with FRP coated pipe (Total effective Capacity 4 cu. M.). These digesters have a grid of 0.5" GI (TATA Class) pipeline inside for effective aeration of the material.	1
4.		One number anaerobic digester (Please define the thickness) with acid proof & rust proof FRP & two coats of red oxide and two coats of oil paint coating, connected to slurry handling system with FRP coated pipe. (Total effective Capacity 16 cu. m.). The digesters have a grid inside for effective recirculation of the bio-gas.	1
5.	Gas Holder	4 mm thick. MS dome with necessary supports of angles and brackets surface finished with FRP coating & two coats of red oxide and two coats of oil paint. 2" diameter. Gas out let connected to distribution line with flexible pipe.	1
6.	Methane distribution system	18 mm dia. C class G.I. pipe line and fittings up to 20 m.length with water draining facility.	1
7.	Gas stoves	Modified gas burners steel body and casing	1
8.	Water pump	1 hp capacity single phase water pump ISI mark C.G./Kirloskar with necessary C class G.I. pipe line and fittings connected to the water recirculation system connected to control panel with necessary electrical wiring and fixers.	1
9.	Compressor	1 hp capacity ISI mark C.G./Kirloskar motor single phase compressor with necessary C class G.I. pipe line and fittings, connected to control panel with necessary electrical wiring and fixers.	1
10.	Air and Water Injection grid	Air and water injection grid placed in pre digester tank with necessary C class 12 mm dia G.I. pipe line, non return valves and fittings connected to the compressor and water pump.	1
11.	Methane purification	Methane injection grid placed in main digester tank with necessary C class 12 mm dia. G.I. pipe line, non return	1

	grid	valves and fittings connected to the compressor.	
12.	Biogas balloon and Room	Biogas balloon of 20m <sup>3</sup> capacity with all necessary connections from dome and to the end use point. Balloon Room of 2.6M x 2.6M x 4.5M GI sheet or as required.	1
13.	Culture reviving system	methanegenious slurry injection grid placed in main digester tank with necessary C class 12 mm dia. G.I. pipe line, non return valves and fittings connected to the slurry pump. (This item is not optional)	1
14.	control panel	All electrically driven equipments controlled at a single panel with necessary instrumentation, safety fixers and lighting at plant location. All electrical wiring should be in Armoured cable and starter should be Siemens or any reputed make.	1
15.	Gas meter & panel	Gas measuring equipment (WP 0.5 bar, 6m <sup>3</sup> /hr) Itron make, with control panel with necessary safety fixers.	1
16.	Skid & frame for mounting all the equipments	All the equipments shall be mounted on a skid & frame. The complete structure shall be enclosed in the frame & covered with steel panels.	1
17.	Painting	Painting of super structure in two coats of cement acrylic paint	1
18.	Weighing Scale	Electronic weighing scale + Standard ISI mark scale (standby) (1 to 100kg approx)	1
19.	Gas Blower	A twin lobe type gas blower of 2 hp supplying biogas at 0.2 - 0.5 bar pressure at the gas stove end.	1
20.	Equipment Room	Equipment room consist of crusher, blower, compressor and slurry tank will be installed at PCC of 6 inch thickness of size 2.6mx2.6m or as required. The equipment room will be covered with GI sheet of size 2.6mx2.6mx 2.6 m or as required.	
21.	Complete tool kit	Tool Kit will include screw drivers, spanners for mixers, compressors, pumps etc.	1
22.	Taxes, Transportation, loading, unloading, packing & forwarding	The pre-installed equipment shall be sent to the site in packed condition.	1
23.	Installation & commissioning	Installation of all electrical and mechanical systems, culture seeding in main digester & stabilization up to 2 months from commissioning	1

**ANNEXURE-B****PRICE BID**

<b>SNo.</b>	<b>Particulars</b>	<b>Cost (Rs.)</b>
1.	Design, Fabrication, installation and commissioning charges of Biogas plant. During the period of warranty (01 year), the supplier will also be responsible for the O&M of the system.	
	GST	
2.	5 Year O&M charges (Non-Comprehensive) on successful commissioning of the plant.	
	GST	
<b>TOTAL COST</b>		

**SCOPE OF OPERATION & MAINTENANCE OF BIOGAS PLANT FOR A PERIOD OF 5 YEARS.**

All materials, components of the Biogas plant during the period of maintenance shall be the property of TISS. Regular operation & maintenance for a period of 05 years after successful commissioning of the Biogas plant along with supply of consumable items as and when necessary and submission of daily performance datas of Biogas plant shall come, under the operation & maintenance contract.

The operation and maintenance schedule of the Biogas plant during the 5 years contract period shall be as detailed below.

1. 05 years operation and maintenance period shall begin on the date actual commissioning for the Biogas plant. The requisite numbers of qualified and trained personnel are required to be deputed.
2. The deputed personnel shall be qualified and well trained so that they can handle any type of operation hazard quickly and timely.
3. The deputed personnel shall have to keep daily log sheet for the Biogas plant as per format to be supplied after commissioning of the Biogas plant.
4. The deputed personnel shall be in a position to check and test all the equipment regularly, so that preventive actions, if any, could be taken well in advance to save any equipment from damage. Any abnormal behavior of any equipment shall be brought to the notice of TISS immediately for appropriate action.
5. The deputed personnel shall keep clean the biogas plant in all time. Other activities in the control room will not be allowed under any circumstances.
6. Normal and preventive maintenance of the Biogas plant such as cleaning of module surface, all electrical connection etc.
7. During operation & maintenance period of 5 years of the Biogas plant, if there is any loss or damage of any component of the Biogas plant due to miss management / miss handing or due to any other reasons, what-so-ever, the supplier shall be responsible for immediate replacement / rectification. The damaged component may be repaired, if it is understood after examination that after repairing performance of the component shall not be degraded, otherwise the defective component shall have to be replaced by new one without any extra cost.
8. List of spare parts & measuring instruments are to be supplied along with the systems may be specified in the bid.
9. Operation & Maintenance Instructions:
  - a) The successful bidder shall furnish 4 copies of operating and maintenance instruction in English for approval and supply 5 sets of the approved manuals of instructions at the time of inspection and taking over of the equipment. These manuals shall properly bound in book form and contain all information, description of equipment, diagram etc. necessary to enable the customer to operate and maintain the whole scheme.

b) Proper Operation & Maintenance of the plant shall be carried out by the contractor during O & M period of 60 months with 6 monthly / annual review check up of plant and equipment in detail with purchaser.

c) Properly qualified and trained personnel well versed in O&M of plants shall be deployed at site for operation & maintenance.

d) Proper repainting, re-coating of exposed surfaces to prevent rusting & replacement of worn out parts shall be carried out along with the maintenance.

- Plant personnel shall be deputed on such basis so that a qualified / trained person should be available at site during the maintenance period.
- Supplier shall depute one engineer of their company for the operation and maintenance of the plant who shall be fully responsible for the complete O&M and optimum operation of the plant. The name and contract nos. of this engineer shall be notified to the purchaser for the purpose of contract, responsibility and correspondence with regard to all trouble shooting.
- Replacement & repair of damaged parts shall be carried out immediately during the O&M period so as to ensure at least 95% uptime.
- Plant operation reports in a format prescribed by the purchaser shall be furnished by the supplier on a weekly and monthly basis.
- Plant shall be operated as per the standard practices to ensure proper safety measures as per the govt. regulations.
- The supplier shall ensure replacement of worn out parts and component during the operation & maintenance period.
- In case of any fault, the fault must be removed within 12 hours failing which a penalty of Rs.1,000/- per day shall be charged. In case of any part to be imported the maximum period for repair should not be more than 5 days. However, under Force Majure circumstances penalty can be waived off.