

File No: A and P/1/2018-O/o US (AandP)
 Government of India
 Ministry of Development of North Eastern Region

Vigyan Bhawan Annexe,
 New Delhi – 110011., Dated: 28.02.2018

Subject: - Approved STINER Projects under Advocacy & Publicity Scheme.

Kindly refer to the sanctioned order No. AandP-11/65/2017-O/o US (AandP) dated 30.03.2017 (Copy enclosed). In this regard the Screening committee has reconsidered the units and cost (obtained from BARC) and the following has been approved by the Screening Committee in its 11th Meeting held on 17th January, 2018.

Project Title	Action for NEDFi
A) Nisarguna Plant 50Kg Capacityx30 units @ Rs 4.95 lakhs per units for NERLP (15 Units) & NERCORMP (15 units).	<ol style="list-style-type: none"> 1. NEDFi may solicit bids from the agencies empanelled by BARC (BARC Nisarguna License holder) as per a sample Tender Notice template provided by BARC (Copy enclosed). 2. In addition to the technology fabrication, GST and transportation may be charged as per actual by the vendor
B) Nisarguna Bio-methanation Plant 5MT Capacity x 8 units @ Rs. 1.2 Cr per unit for Tripura (2 units), Mizoram (2 units), Nagaland (2 units) and Sikkim (2 units).	<ol style="list-style-type: none"> 3. It was felt that the issue of O&M of the 5MT and 50 Kgs NISARGUNA plants may be addressed properly as the benefits that accrue over a few years and any disruption early could have negative connotations. 4. As far as plants of 5MT capacity O&M should be built into the RFPs and work orders so as to ensure hand-holding by committed technical personnel provided by vendor and who are on call. 5. As for the 50 Kgs plants which are small form factor and are approved for SHGs under NERLP & NERCORMP livelihood projects of the Ministry, the emphasis should be on training and capacity building of SHGs to be able to do basic maintenance themselves. To that end vendor may be tasked with this capacity building as part of RFP/work order while also providing specialised technical back up from identified hubs/vantage points. 6. For release of fund to Tripura, Nagaland, Sikkim and Mizoram, NEDFi may release to the concerned Department of State Governments which will be the executing Body after ascertaining the same from the SG. It is already doing so in the case of Tripura. 7. For NERLP and NERCORMP, fund may be released to the societies for the units approved (List of location enclosed).

8. NEDFi may ensure necessary documentary work especially incorporating contractual namely NEDFi, State Govt/Livelihood Societies and Vendors before release of funds.



(Mercy Epao)
Director

Tel: 011-23022304

To

1. Dr. K. Jayakumar, IAS, Department of Science & Technology and Climate change, Government of Sikkim Vigyan Bhawan, Deorali, Gangtok-737102 East-Sikkim.
2. Dr. C. Vanlalramsanga, Secretary, Urban Development & Poverty Allevation Department, Government of Mizoram, 226-227, New Secretariat, Khatla, Aizawl, Mizoram-796001.
3. Shri Chaitanya Murti, Special Secretary, Science, Technology & Environment, Secretariat Complex, Govt. of Tripura, Agartala – 799010
4. Shri M. Patton, Secretary Commission, Department of Municipal Affairs, Nagaland, B-06, Planning & Urban Development, Civil Secretariat, Kohima-797001
5. Dr. Sukhendu Ghosh, Director, Bhabha Atomic Research Centre (BARC), Trombay, Mumbai-400085.
6. Shri B. Paul Muktieh(CMD), North Eastern Development Finance Corporation Ltd. NEDFi House, G.S. Road, Dispur, Guwahati-7810006.
7. Dr. Shailendra Chaudhari, Managing Director NERCORMP, "Sympli Building", First Floor, Malki-Dhanketi, Shillong-793001, Meghalaya
8. Shri H K Hajong, Project Director, NERLP, House No. 102, Dilip Huzuri Path, Dispur, Guwahati-781006.

Copy to:

1. Dr. Ketaki Bapat, Scientist 'F', O/o PSA, Vigyan Bhawan, New Delhi for information.

A. District-Wise allocation for NISARGRUNA Plant (50 Kg Unit) under NERLP

S. No.	District	No. of Units	Name of SHG/Federation	Address
1.	Aizawl,	1	Rulchawm SHG Federation	Rulchawm, Thingsuthliah
2.	Lunglei	1	Tiabung SHG Federation	Tiabung, Lungsen Block
3.	Peren	1	Mhainamtsi SHGVF	Mhainamtsi Village, Peren Block
4.	Tuensang	1	Chessore HQ CDG	Chessore HQ, Chessore Block
5.	South Sikkim	2	Salghari SHG VF	Salghari Village, Jorethang Block
			Assangthang SHGVF	Assangthang Village, Namchi Block
6.	West Sikkim	1	Gyalshing Omchung SHG Federation	Upper Omchung, Gyalshing Block
7.	West Tripura	1	Diya SHG	Satdubia Village, Mohanpur Block
8.	North Tripura	2	Agradeep SHG	Saraspur Village, Kadamtala Block
			Shonali SHG	West Padmabil Village, Panisagar Block
9.	Sipahijhala	2	Dakshin Charilam Janakalyan SHGVF	Dakshin charilam, Charilam Block, Bishalgarh PFT
			Madhya Ghaniamara Yarung Federation	Madhya Ghaniamara, Jampuljala Block
10	Khowal	2	Vivekananda SHG Federation	Uttar Krishnapur, Teliamura Block
			Deepiyoti SHGVF	Tuchindraibari GP, Teliamura Block
11	Unokoti	1	Halaipar SHG Village Federation	Halaipar Village, Gournagar Block
Total No. of units.		15		

B. State-wise allocation for 5 MT of NISARGRUNA Plant

S. No.	District	No. of Units	Name of implementing Department	Address
1	Aizawl, Mizoram	2	Urban Development & Poverty Alleviation/ Aizawl Municipal Corporation	Secretary, Government of Mizoram, New Secretariat Complex, Aizawl-796001
2.	Agartala, Tripura	2	Agartala Municipal Corporation / Planning & Coordination	Secretary, Govt. of Tripura, New Capital Complex, Agartala-799006
3.	Gangtok, Sikkim	2	Science and Technology & Climate Change	Principal Secretary, Government of Sikkim Vigyan Bhawan, Deorali, Gangtok-737102, Sikkim
4.	Dimapur, Nagaland	2	Dimapur Municipal Corporation	Secretary & Commissioner, Govt. of Nagaland, Civil Secretariat, Kohima-797004, Nagaland

C. District-wise allocation for NISARGRUNA Plant (50 Kg Unit) under NERCORMP

S. No.	District	No. of Units	Name of SHG/Federation	Address
1.	Dima Hasao, Assam	01	Cherap SHG Federation, Boro Lobang	President: 7635959203 Mr. Biren Teron, 9401941574, Village: Boro Lobang, BPO Boro Lobang, P.O./P.S. Umrangso, District: Dima Hasao, Assam – 788931
2.	Karbi Anglong, Assam	01	Ingjirmarli Chingthur Asong SHG Federation Apex Body	Fenalis Engtipi 8761882690 New Market, Hamren, Karbi Anglong, Assam
3.	Changlang, Arunachal Pradesh	01	Old Changlang	Old changlang village, Changlang district, Pin 792120, Arunachal Pradesh
		01	Longtom	Longtom village, Kharsang circle, Changlang district Pin 792122 Arunachal Pradesh
4.	Longding, Arunachal Pradesh	01	Maipoa SHG	Ms. Kolem Wangjen 8133859507 Ms. Halsu Wangjen 7630015697 P.O. Kanubari – 792131 Longding district, Arunachal Pradesh
5.	Tirap, Arunachal Pradesh	01	Guisa SHG	Chaham Chimyang 9402978205 Kamtui Chimyang 8119023491 P.O. Khonsa – 792130 Tirap district, Arunachal Pradesh
6.	Chandel, Manipur	01	Mosang Pantha	Ts. Helena Monsang 8414867467 Kh. Borbina 7628815705 Monsang Pantha Village, P.O./P.S. Chandel, Chandel District Chandel Sub-Division, Manipur 795127
		01	Bina Gamnom Veng	Mrs. Hoikholam Haokip 8415954714 Mrs. Chinkhokim Hmar 9402667921 Bidna Gamnon Veng, Moreh Ward no. 03, Tengnoupai, P.O. Moreh, Maniur 795131
7.	Churachandpur, Manipur	01	Monglenphai NaRMG	Mr. Thang 8416039475 Mr. Haopu 8132849889 Block – Tuibong Churachandpur District Pin – 795128, Manipur
		01	Ngarian NaRMG	Block – Samulamian P.O. – Ngarian (Branch office Bishnupur) Churachandpur Pin – 795128, Manipur
8.	Senapati, Manipur	01	New Magaimai	Mr. Rang 8132880313 Mr. T. Samson 8415039554/9856590263 New Magaimai Village P.O. Maram Bazar Senapati District, Manipur - 795015
		01	Makhel	Ms. Adani 9862601435 Ms. Kaisii 7085839924 Makhel Village P.O. Tadubi, Senapati District, Manipur - 795014
9.	Ukhrul, Manipur	01	Ikra SHG, Viewland, Ukhrul	Ms. Awonpam Shatsang 8730026499 Ms. Soriya Longleng 8732031420 Viewland, Ukhrul district, Manipur
10.	West Garo Hills, Meghalaya	01	Dakopgre	Mrs. Jennifer Khumlo 9615758492 Mr. Sitaram Prasad Sah 7005051834 Near Tuta Municipal Board (TMB) Garbage plant, P.O. Dakopgre, District – West Garo Hills, Meghalaya
11.	West Khasi Hills, Meghalaya	01	Mawlaisyiern Cluster SHG Federation	Langlew Village, BPO Laitseh, West Khasi Khasi District - 793119

TENDER NOTICE

Scaled tenders are invited from BARC Nisargruna license holders for "Fabrication and installation of 3 MT per day Biogas Plant based on BARC Nisargruna technology at KVK Raipur." The details of tender document with terms and conditions can be downloaded from the website www.igau.edu.in. The last date of submission of sealed tenders is upto dated..... Time..... only through Registered Post/ Speed Post.

TENDER NOTICE

Sealed tenders are invited from manufacturers/ Company or authorised dealers for "Fabrication and installation of 3 MT per day Biogas Plant based on BARC Nisargruna technology at KVK Raipur" as per specification attached in Annexure-A. The details of tender document with terms and conditions can be downloaded from the website www.igau.edu.in.

Tender Schedule : The last date of submission of sealed tender and date of opening the tender will be as per following schedule :

S.N.	Description of Work	Last date of submission of tender		Date of opening of tender	
		Date	Time	Date	Time
1	Items as per Annexure A				

1. **Scope of Supplies :** As per Annexure A attached.
2. **EMD :** The earnest money in form of Demand Draft payable to **Indira Gandhi Krishi Vishwavidyalaya, Raipur** should be deposited separately for all items separately as given in the list of items of tender document as per Annexure A, which is refundable after finalization of tenders if rate are not approved, or, after completion of work, in case the rates are approved.
3. The tender should be submitted in three separate parts.
 - a. Pre qualification stage
 - b. Technical Bid
 - c. Financial Bid
4. Self attested documents with seal of bidder related to all three stages must be submitted separately in sealed envelopes.

Stage I/ Envelope I (Pre-qualification stage) : This is the stage wherein following documents related to bidders qualification and EMD details are to be submitted.

- a. Tender fee amounting to Rs in form of Demand Draft payable to **Indira Gandhi Krishi Vishwavidyalaya, Raipur.**
- b. EMD released to desired items along with list of submitted in Format A
- c. Income tax return for the past two financial years (2015-16 and 2016-17).
- d. Audited Balance Sheet and Profit and Loss account for the past two financial years (2015-16 and 2016-17).
- e. Sales Tax/TIN/ Service Tax number registration certificate and PAN card.
- f. Proof of recent past experience continuously 3 years of dealing similar products/ items. The proof (photo copy of atleast three supply orders for each financial year) for the same must be submitted.
- g. Notarized undertaking from the bidder that the firm is presently not black listed from any of the Government organization/ undertaking in the country.
- h. Undertaking : Bidder needs to submit an undertaking in the **Format - D.**

(Technical bid will not open if above mentioned documents in envelope I not found desirable)

Stage II/ Envelop-II (Technical Bid) : This is the stage for technical evaluation of the bidder. The bidder has to submit following details :

- a. Tender specification as per tender (Format B). Separate envelope.....
- b. Valid Authorization Certificate from the original manufacturer/ company/ distributor for published tender items.
- c. Brochure indicating technical specifications.

- d. Performance report of atleast three users on letter pad of the users for such items.
- e. Valid ISI/ BIS certificate.

(Bidder who qualifies in Stage II (Technical Bid) will only be entertained for the Stage III (Financial Bid))

Stage III/ Envelop-III (Financial Bid) : This stage is for financial evaluation of the bidder, for which the bidder has to submit financial bid separately for each of the items in separate sealed envelope. At this stage following details and documents are to be submitted :

- a. Financial bid as per Format C.
- b. For each items separate rate should be quoted and be submitted in separate sealed envelope.
- c. Specify all types of taxes including Central Excise Duty Exemption Certificate, if required.

5. Other Terms and Conditions :

- a. Tenders received late or without tender fee and Earnest Money Deposit (EMD) or submitted on wrong address or incomplete in any respect will not be considered. The quantity may vary as per requirement.
- b. The firm/company/ manufacturer should provide/ give the correct and true information while submitting the tender. In case of incorrect/ false information found at any stage, the tender/bid will be cancelled and legal action will also be initiated.
- c. The applicable VAT, IT, Cess or any other deductions shall be deducted at source at the time of payment, certificate in lieu of which shall be issued on demand. VAT shall not be paid on transportation charges. The rate quoted should be inclusive of transportation, FOR destination to field, and installation charges.
- d. Taxes : As applicable at the time of supply.
- e. Delievery Period : As per **Annexure A**.
- f. **Validity** : The offer must be valid up to
- g. **FOR** : The quoted rate must be FOR destination of any work site of Reserach Station/ KVK in IGKV with free installation. The approved rate will be applicable to all units of IGKV.
- h. **The supplier will have to deposit 5% of total cost of equipment as security of the equipment in the form of FDR in the name of respective indenters and will be released after work performance in 3 to 6 months from the date of initiation, if functioning well. Otherwise, the FDR will be forfeited.**
- i. **Successfull bidder has to submit duly signed Pre-Contract Integrity Pact to indenter in prescribed format available on University web site www.igau.edu.in.**
- j. **University reserves all right to place or not to place order(s) to any of the company/firm/manufacturer/dealer even the rates are approved by CPC (IGKV). No correspondence will be entertained in this respect.**
- k. **Manufacturer/ dealer/ must give guarantee for 2 years for any manufacturing defects and should take up regular/ periodicals service, repairs, replacement of defectives parts on free of cost after sales. Manufacturer/dealer must provide user manual.**
- l. Milestone payment with the capital expenditure (fabrication, erection, installation and commissioning) will be effected as per the following schedule.

Description of work	Payment %
Completion of pre-digester and main digester(60-90 days after placing work order)	30
Procuring and installing all mechanical equipments, fabrication and installation of dome, construction of processing room and manure handling system(90 to 120 days)	30

Commissioning of the project and successfully operating then plant for 30days using biodegradable waste(150 days after placing work order)	30
After successful operation of plant for 6 months	10
O & M charges for 1 year	Quarterly payment

6. Court of Jurisdiction : Raipur, Chhattisgarh.
7. Name of consignee : will be indicated in supply order (within state).
8. University reserves all rights to accept or reject any or all tenders in part or full without assigning any reason thereof. For any dispute, University shall be the final authority and its decision shall be final and binding on both the parties.

List of vendors for small metal modular projects.

1. M/s. Alter Energy Systems, Madurai, Shri V Sivakumar, Alterenergy system, 1A, New Natham Rd, Madurai-625002 Email: shivamerina@yahoo.co.in. 9344118252
2. Global Scientific Inc., Asidham, Opp. Gomati Apartment, WHC Road, Law College Sc., Nagpur-440010. smeetapb@yahoo.co.in 8979778944
3. M/s Village Vision Biopower Pvt. Ltd, 17-1-383/IP42, Flt No. 504, Sri Krishna Gayathri Towers, Indraprastha, Phase-I, Saidabad, Hyderabad, Telengana. Pin-500059. bmkrishna6@gmail.com7032387288
4. M/S AviPlast, 204,Manasi Apartments, 255 Jawahar Nagar,Aryasamaj Road No.15,Goregaon (W),MUMBAI400062. PHON:022-28761887,022-22905771, 9869980222 e-mail: aviplast2007@rediffmail.com,
5. Avni Enterprises. 312 Nav Radheshyam, Dr. Rajendraprasad Road, Dombivli (East)- 421201. ajitkude@yahoo.com 9322519823
6. Sampurn(e)arth. #304, Incubation Centre, Academic Building 2, Naoroji Campus, Tata Institute of Social Sciences, V.N. Purav Marg, Deonar, Mumbai 400 088. Ph: 9096039586

Sl. No.	Description (50 Kg/day capacity metal modular biogas plant of Nisargruna technology)	Quantity	Amount In Rs.
1.	<p>Pre Fabricated Biogas Digester MS of 5 mm thickness with FRP Exterior quoting and interior with epoxy double coat of epoxy and Black Japan paint, Gas Pipeline 5 meters plus transportation. Both predigester and digester volume should be sufficient to accommodate 50 Kg of waste per day as per Nisargruna biogas technology of Bhabha Atomic Research Centre.</p>	1	4,97,000
	<p>EQUIPMENT: 0.5 HP Compressor, aeration pipe, 0.25-0.5 HP Blower/biogas booster 1.0 HP Pulverizer with SS Hopper, 2 m3 biogas Balloon with enclosure, Biogas meter 2m3 per hour, Manure Tank 3'x 3' as per specifications.</p>	1 1 1 1 1 1 1	
	<p>Total (Rupees four lakhs ninety seven thousand only)</p>		4,97,000

2/28/2018

https://mail.gov.in/wc_staticlayout/shell.html?lang=en-US&3.0.1.2.0_15121607

Subject: **Cost of 50 Kg and 5 MT Nisargruna proects**
To: ketaki.bapat@nic.in
Cc: mercy.epao@nic.in, snpradhan@gov.in,
VP Venugopalan' <vpvenu@barc.gov.in>

Date: 12/20/17 12:42 PM
From: s b ghosh <sbghosh@barc.gov.in>

Dear Dr. Bapat,

This is in continuation of our earlier telephonic conversation on the above subject matter. Please note that a 50 Kg/day capacity metal modular Nisargruna plant generally costs in the range of Rs 5 lakhs while a 5 MT per day (MTPD) capacity project in civil construction will cost Rs 1.2 crore including electricity generation facility. However, these estimates are valid for most metro and tier/II cities in India. In NE, depending on location, transportation (of men and machinery) may be charged at actuals by the vendor. Comprehensive operation maintainance of a 5 MTPD plant will be Rs 50,000/- per month or Rs 6 lakhs per annum. For 50 Kg plant we are considering any regular O&M because you can run it through some self help group. Only occasional wear and tear (after one year, first year it will be under warranty. Such clause should be there in the work order) to the tune to couple of thousand rupees per annum should be considered.

Thanking you,

Sincerely,

Dr. Ghosh
BARC, NABTD.

2/28/2018

Subject: **Fwd: Unsolicited quote for Nisargruna proects to be sent to Ms Mercy Epao.** Date: 01/17/18 12:12 PM
 From: Sukhendu Ghosh <ghoshsukh@gmail.com>
 To: smita bhabra <smeetapb@yahoo.co.in>, Devarshi Bhargav <devarshibhargav.sespl@gmail.com>
 Cc: snpradhan@gov.in, mercy.epao@nic.in, "ketaki.bapat" <ketaki.bapat@nic.in>, Sukhendu Ghosh <sbghosh@barc.gov.in>

Dear Dr. Bhabra,

In continuation of my above mail, I request you keep the abopve 4 recipients in Cc (who are in Cc of the present mail) while sending your unsolicited bids as BARC Nisargruna license holder. Please also do not forget to introduce yourself as license holder and attach the license document copy.

REgards

Dr. Ghosh

----- Forwarded message -----
 From: **Sukhendu Ghosh** <ghoshsukh@gmail.com>
 Date: Wed, Jan 17, 2018 at 11:58 AM
 Subject: Unsolicited quote for Nisargruna proects to be sent to Ms Mercy Epao.
 To: smita bhabra <smeetapb@yahoo.co.in>, Devarshi Bhargav <devarshibhargav.sespl@gmail.com>
 Cc: Sukhendu Ghosh <sbghosh@barc.gov.in>

Dear Ms Bhabra,

This is in continuation of our earlier telephonic conversation. Please note that approximately 30 units of 50 Kg plants and 10 units of 5MTPD plants may be required in the NE region. Ms mercy Epao is a director in the relevant department. I request you to send yor quote in the follwing format. Against "travels" you may mention "as actuals" for the time being. Considering the location/GST/Travel/implementation/O.M. for 1 year, the revised estimated cost/plant needs to be indicated /estimated you may kindly give the estimated cost for such units as follows.

Regards

Dr. Ghosh,

NABTD, BARC.

S.No.	Details	Capacity 50 kg	Capacity 5 ton
1	Components and construction		
2	GST		
3	Implementation <i>Implementation</i>		
4	Training		
5	Travel		
6	Contingency		
7	Generator		
8	Location cost		
9	Etc.		
	Total		

Name of the work: NISARGRUNA biogas plant
Capacity 3 MT/day

Sr. No.	Technical Specifications	Qty	UOM
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Civil Work:

All civil work has to be done using class A brick. The quality of the brick has to be certified by civil engineer at user end (IGKV engineer) or by BARC. All standard quality and practices of civil works have to be maintained.

1.	<p>Processing room (brick work) 5m X 3m X 4m (Length, height and breadth respectively) (Excavation, 9" Rubble Soling, P.C.C:- 1:3:6, Brick Work:- 1:5, Plastering: - 1:4) with suitable smaller platform for mixers and waste delivery system on it. Flooring of the processing room should be of Shahabad stone (or equivalent, not ceramic tiles, should be strong enough to withstand impact when 5kg weight is falling from 2ft height) and channel for waste delivery should have glazed tiles. The roof will be of 4" RCC slab. The room will have two windows (1.5m X 2m) provided with aluminum grill and glass on opposite walls for good ventilation. The door should be two paneled and wide enough to facilitate the trouble free movement of the machinery and waste material. Two exhaust fans and two wall fans will be provided and adequate lighting using CFL will be provided.</p>	1	Each
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|----|---|---|------|
| 2. | <p>Pre-digester (cylindrical) should have a volume of 30 m³ (dimensions may vary depending on the site but volume should remain constant) with a centre wall (baffle wall, 230 mm thickness, single brick across) along the dia of the predigester, having 24" opening at the bottom for free slurry movement (Excavation, 9" Rubble Soling, P.C.C:- 1:3:6, Brick Work:- 1:5, Plastering:- 1:4) and aeration grid (using 0.75" GI pipes of TATA class) in both the compartments to provide aeration at the bottom level. The pre-digester will be covered by a slab of 4" thickness RCC with two manholes (3' X 3') cast in MS (5mm) and having GI vent pipes of 10' X 2" O.D. A vent pipe will be connected to each half of predigester and will release the odour (if any) at a height beyond the roof of the predigester. The seal for all the openings should be airtight. The mixer slurry will be delivered through a cement pipe of 3 to 6' X 6" diameter to the top of the first half of predigester. The predigester wall has to be 14" thick and there will be three RCC (M20) rings of thickness equal to that of the wall and 4" height in equal spacing from bottom to the top in coping with similar three M20 RCC beams along the baffle wall.</p> | 1 | Each |
| 3 | <p>Chamber joining predigester with main digester: A chamber of 6' X 4' X 4' will be constructed in bricks between predigesters and main digester. The slurry will flow from top of predigester into this chamber and the chamber will be connected to main digester at two places using 12" diameter cement pipes of suitable length so as to deliver the slurry 9" above the bottom of main digester. The cement pipes entering into the main digester will be flushed to the wall of the main digester. The chamber will be covered with 3" thick airtight MS cover and a suitable handle.</p> | 1 | Each |
| 4 | <p>Main digester will have a volume of minimum 130m³ (dimensions may vary depending on the site but volume should remain constant) for slurry excluding free board and with three partition walls (Excavation, 9" Rubble Soling, P.C.C:- 1:3:6, RCC M20, Plastering: - 1:4) as described in BARC biogas drawing. Water seal around the main digester and the levels will be as per the drawing. Two outlet cement pipes of 12" OD has to be provided as per the drawing and will be connected to a chamber 4' X 4' X 4' (Excavation, 9" Rubble Soling, P.C.C:- 1:3:6, Brick Work:-1:5, Plastering :-1:4).</p> | 1 | Each |

- | | | | |
|---|--|---|------|
| 5 | <p>Chamber joining main digester with Manure pits: A chamber of 6' X 4' X 4' will be constructed in bricks between main digester and manure pits. The slurry will flow upward from bottom of main digester into this chamber through 2 cement pipes of 12" dia in mirror image of entry pipes from balance tank. The chamber will be connected to Manure pits at three places using 6" diameter cement pipes of suitable length so as to deliver the slurry at least 9" above the bottom of Manure pits. The cement pipes entering into the Manure pit will be flushed to the wall of the Manure pit. The chamber will be covered with 3" thick airtight MS cover and a suitable handle.</p> | 1 | Each |
| 6 | <p>Manure pits and Sump: The chamber will deliver the manure slurry in manure pits through a channel. There will be 3 manure pits of 4m X 4m X 2m (Excavation, 9" Rubble Soling, P.C.C:- 1:3:6, Brick Work:- 1:5, Plastering:- 1:4) as per the drawing. All the pits will have a filtration system of fine sand <0.2mm (layer of 100mm), coarse sand 0.6mm (100mm) and gravel 2 – 3 mm (200mm) with drains connected through suitable pipes to an underground water tank (Excavation, 9" Rubble Soling, P.C.C:- 1:3:6, Brick Work:- 1:5, Plastering:- 1:4) of 10,000 liter capacity and having a MS cover (5mm sheet). The manure pits are to be covered with steel mesh using proper channel supports to avoid any sagging. A sump close to the manure pits of volume of 3000 litres at a level below the manure pits will hold the filtered water from manure pits.</p> <p>All cement structures are to be painted with cement paint and MS parts other than dome with green oil paint.</p> | 1 | Pair |
| 7 | <p>Balloon room: The 7m X 4m X 5m to be constructed using metal sheets raised on 1m X 1m X 1m brick wall (45cm thick) and necessary PCC work for flooring. The room should be rodent proof. There will be two small windows at the top on opposite sides for ventilation. There will not be any electric connection within the room.</p> | 1 | Each |

Mechanical components

1	Mixer with a capacity of 1 MT/hour fitted with 5 HP motor (preferably "sharp" brand of Point Industries or equivalent) with one Ss Table (6' X 1.5' X variable height from 3' to 2' towards mixer end .	2	Each
1	Compressor (3HP)	1	Pair
3	Water pump 1 HP	2	Pair
4	Solar water heater 1000L/day capacity with suitable water storage tank and hot water tank to be mounted for giving maximum efficiency in an aesthetic manner		Each
5	Slurry pump 2-3HP	1	Each
6	A gas holder fabricated in MS (5mm sheet) with suitable reinforced structure and coated with fiber paint on outside and epoxy painting on inside will be placed in water seal before commissioning of the project		Each
7	Electric panel with 15 ampere (3 No.), 5 ampere (6 No.) sockets and 5 switches for tube lights, fans etc. Mixers should be provided with L&T switches to avoid tripping of power. These switches will be suitable mounted for easy and safe operations.		Each
8	Gas meter Actaris Make 16m ³ /hour to be connected on-line	1	Each
9	Gas pipe line 100m (2" id X 20m)		Each
10	Weighing scale for 1-100 Kg		Each
11	Neoprene gas balloon of capacity 50 cubic meter	1	Each
12	Wall mounted fans (for processing room)	2	Pair
13	Exhaust fans. (for processing room)	2	Pair
14	Methane recycling grid to be provided on main digester as per drawing using 0.75" GI pipes entering the main digester at two places in each compartment.		Each
15	Screw press of 2-5 M ³ /hr capacity of Sepcom make or equivalent for manure handling as well as for squeezing liquid from crop residue or vegetable waste.	1	Each
16	High capacity garden Shredder e.g. CS-33 of Bhide make or equivalent with 7.5 HP motor.	1	Each

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|----|---|---|------|
| 17 | 10 KVA imported Complete Bio gas engine generator with acoustic enclosure & standard control panel with H ₂ S scrubber and dehumidifier, control panel for electricity supply | 2 | Each |
|----|---|---|------|

Operation & Maintenance

1. O and M cost for 1st year: Subsequent years will have 10% increase in O&M.

Deliverables:

1. Daily processing of 3 MT of waste
2. Generation of 180-200 cubic meter biogas which can generate 250 KW power.
3. Generation of 200 Kg good quality manure daily.
4. Gains to the environment by stopping escape of methane