VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
-Estd. u/s 3 of UGC Act 1956

PROCEEDINGS OF THE REGISTRAR

F.No.: VFSTR/Reg/A8/30/2023-24/02 **Dt: 29.09.2023**

Sub: VFSTR – Re-Constitution of "Waste Management Committee" – Regarding.

Re-Constitution of "Waste Management Committee"

ORDER

The Committee with the following composition is re-constituted to effectively manage the wastage collected from various blocks and hostels in the University: -

1. Dr. A. Siva Sankar, Professor – Civil Engineering – Chairman
2. Dr. D. Siva RamaKrishna – E.D., Sri Sai Manasa Nature Tech Pvt. Ltd. - Member
3. Dr. E. Shyam Sunder, CEO, Rejig green Logic Pvt. Ltd., Hyderabad- Member
4. Dr. Subhalakshmi Sen Gupa, Asst. Prof., Dept. of Chemistry – Member
5. Mr. K. Maria Das – Asst. Professor – Chemistry – Member
6. Mr. Hanumantha Rao – Sr. Asst. RO- Member
7. Mrs. Morampudi Anitha Rani, Sarpanch, Vadlamudi – Member

The Committee should ensure that, the following types of wastage is collected from various places of the University for storage and treatment: -

a) Organic Waste
b) Inorganic Waste (General waste from the blocks)
c) Liquid Waste

The wastage should be dumped behind the nursery in the silos made for the purpose in order to make compost which can be used for the plants as manure in our University.

The guidelines provided by the local authorities of Vadlamudi village from time to time may also be considered and followed while disposing the waste.

The Committee should meet at least once in three months to verify that all the procedures are followed while collection and disposal of waste material. The minutes of the meeting should be scrupulously maintained for record purpose.

REGISTRAR

VIGNAN'S FOUNDATION
FOR SCIENCE, TECHNOLOGY AND RESEARCH
(Deemed to be University)
VADLAMUDI-522 213
GUNTUR (DISTRICT), A.P. INDIA

To
The Individuals concerned

Copy to
PA to the Vice-Chancellor
All Deans/HoDs
Chief Wardens
Physical Director
Assistant Registrars
Master file

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

F.NO.VFSTR/Reg/A1/ /2023 30-09-2023

Sub: VFSTR- "Meeting of Waste Management Committee"- Regarding

MEETING OF WASTE MANAGEMENT COMMITTEE

MINUTES:

The committee on Waste Management met on 30-09-2023 to review the action taken on the points discussed in the previous meeting. The following members are present:-

1. Dr.A.Siva Sankar,Professor-Chairman
2. Dr.D.Siva RamaKrishna- E.D- Sri sai Manasa Nature Tech Pvt.Ltd-Member
3. Dr.E.shyam Sunder-CEO-Rejig green Logic Pvt.Ltd-Member
4. Dr.Subhalakshmi Sen Gupa,Asst.Prof;Dept.of Chemistry- Member
5. Mr.K.Maria Das- Asst.Prof;Dept.of Chemistry- Member
6. Mr.Hanumantha Rao-Sr.Asst.RO- Member
7. Mrs.Morampudi Anitha Rani,Sarpanch,Vadlamudi- Member

- The committee Discussed about to Improve the waste Management awareness of the students.
- The committee plan to conduct workshop on waste to energy production
- The committee Discussed to improve the waste collection points in the campus.

Chairman-WMC

Copy to
PA to the Vice-Chancellor
PA to the Registrar
All Deans/HODs

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

F.NO.VFSTR/Reg/A1/ /2023 28-12-2023

Sub: VFSTR- "Meeting of Waste Management Committee"- Regarding

MEETING OF WASTE MANAGEMENT COMMITTEE

MINUTES:

The committee on Waste Management met on 30-09-2023 to review the action taken on the points discussed in the previous meeting. The following members are present:-

1.Dr.A.Siva Sankar,Professor-Chairman

2.Dr.D.Siva RamaKrishna- E.D- Sri sai Manasa Nature Tech Pvt.Ltd-Member

3.Dr.E.shyam Sunder-CEO-Rejig green Logic Pvt.Ltd-Member

4.Dr.Subhalakshmi Sen Gupa,Asst.Prof;Dept.of Chemistry- Member

5.Mr.K.Maria Das- Asst.Prof;Dept.of Chemistry- Member

6.Mr.Hanumantha Rao-Sr.Asst.RO- Member

7.Mrs.Morampudi Anitha Rani,Sarpanch,Vadlamudi- Member

- The committee Discussed about to Improve the number of Dustbins in the campus
- The committee Discussed to improve the waste collection vehicles in the campus
- Plan to create awareness to students utilization of color-coded bins in public spaces for effective manage the waste segregation

Chairman-WMC

Copy to
PA to the Vice-Chancellor
PA to the Registrar
All Deans/HODs

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

F.NO.VFSTR/Reg/A1/ /2023

25-3-2024

Sub: VFSTR- "Meeting of Waste Management Committee"- Regarding

MEETING OF WASTE MANAGEMENT COMMITTEE

MINUTES:

The committee on Waste Management met on 28-12-2023 to review the action taken on the points discussed in the previous meeting. The following members are present:-

1.Dr.A.Siva Sankar,Professor-Chairman
2.Dr.D.Siva RamaKrishna- E.D- Sri sai Manasa Nature Tech Pvt.Ltd-Member
3.Dr.E.shyam Sunder-CEO-Rejig green Logic Pvt.Ltd-Member
4.Dr.Subhalakshmi Sen Gupa,Asst.Prof;Dept.of Chemistry- Member
5.Mr.K.Maria Das- Asst.Prof;Dept.of Chemistry- Member
6.Mr.Hanumantha Rao-Sr.Asst.RO- Member
7.Mrs.Morampudi Anitha Rani,Sarpanch,Vadlamudi- Member

- The committee Discussed about to Launch an awareness campaign focused on reducing plastic waste and promoting recycling.
- The committee plan to Optimize waste collection schedules to reduce bin overflow in high-traffic areas.
- The committee Discussed to Identify and collaborate with local recycling companies for proper disposal of plastic waste.

Chairman-WMC

Copy to
PA to the Vice-Chancellor
PA to the Registrar
All Deans/HO

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

F.NO.VFSTR/Reg/A1/ /2023

27-6-2024

Sub: VFSTR- "Meeting of Waste Management Committee"- Regarding

MEETING OF WASTE MANAGEMENT COMMITTEE

MINUTES:

The committee on Waste Management met on 25-3-2024 to review the action taken on the points discussed in the previous meeting. The following members are present:-

1.Dr.A.Siva Sankar,Professor-Chairman
2.Dr.D.Siva RamaKrishna- E.D- Sri sai Manasa Nature Tech Pvt.Ltd-Member
3.Dr.E.shyam Sunder-CEO-Rejig green Logic Pvt.Ltd-Member
4.Dr.Subhalakshmi Sen Gupa,Asst.Prof;Dept.of Chemistry- Member
5.Mr.K.Maria Das- Asst.Prof;Dept.of Chemistry- Member
6.Mr.Hanumantha Rao-Sr.Asst.RO- Member
7.Mrs.Morampudi Anitha Rani,Sarpanch,Vadlamudi- Member

- The committee Discussed about to Set up community composting units for organic waste.
- The committee plan to Pilot smart bins equipped with sensors to monitor fill levels in specific areas.
- The committee plan to identify key waste sources and patterns to reduce the waste.

Chairman-WMC

Copy to
PA to the Vice-Chancellor
PA to the Registrar
All Deans/HODs

Waste Management @ VFSTR

VIGNAN'S
(Deemed to be UNIVERSITY)

VFSTR: A Green Campus

VIGNAN'S
(Deemed to be UNIVERSITY)

Vadlamudi, Guntur Dist. Pin- 522 213.A.P., India.
www.vignan.ac.in

Waste Management at VFSTR

Vignan's Foundation for Science, Technology, and Research (VFSTR) has been preparing globally acceptable, industry-ready skilled professionals to aid the socio-economic transformation of the region as well as the country as a whole. It provides quality education in a diverse and intellectually stimulating environment. The institute celebrates the power of knowledge, cultivates vision and builds awareness about the self and society around. VFSTR (deemed to be University) situated in the rural area of Vadlamudi in Guntur district of Andhra Pradesh offers a pristine green environment to its students and staff. The campus employs an efficient solid waste management..

Key features of VFSTR waste management:

- Segregation of waste at Source
- Biogas Plant: 1000 KPD BioUrja plant
- Landfill and Compost
- Plastic Bottle Shredder
- Incinerators
- E-waste management (through third party)
- Sewage Treatment Plant for Liquid Waste Management
- MOUs with Industries for Waste Management

Solid Waste Management (SWM) at VFSTR

VFSTR campus comprises of Bhuvana Vijayam bhavan (A block), Vishweshwara bhavan (H block), Aryabhatta Bhavan (U block), Nagarjuna block (J block), M.L. Shroff building (Pharmacy block), Priyadarshini girls hostel, Vignan's Vihar boy's hostel, guest house, library building and the open campus. Solid wastes are collected regularly from these places and they are segregated at source. The waste generated on campus is broadly divided into wet waste and dry waste and toxic waste (chemical and sanitary waste). Total wet waste generated is 590 kg per day approximately. Dry waste is 335kg per day and toxic waste is about 115 kg per month approximately. The wet waste of campus is used in the biogas plant for generation of the bio gas which is in turn is used for cooking purpose. The plastic wastes are shredded compacted in the on campus plastic bottle and utilization for developing value added products is also carried out. The toxic waste are handled very judiciously. Three incinerators are present on campus for this purpose. The chemical waste from laboratories are handle very effectively and disposed of after proper treatment. The university also has various tie ups and several MOU's with various industries dealing with waste management for training and waste management purpose.

SWMatVFSTR

- Seggregation at Source

VFSTR has its focus on waste utilization and management. Sorting of wastes at sources for aids this process and this practice is conducted worldwide especially in developed countries.

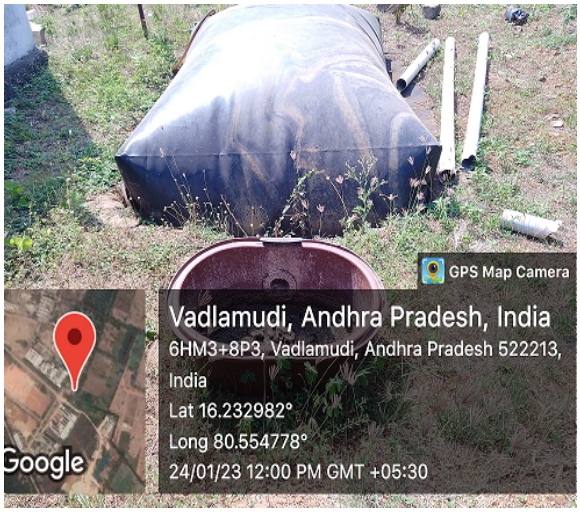
For this purpose, segregation of waste at source is done on campus. Colour coded bins are present for this purpose for the collection of wet waste (food waste, organic waste), dry waste, (plastic, papers etc.) and sanitary waste (sanitary pads, masks, gloves). Metal wastes (cans, containers, metal parts etc.) are also collected separately

Colour-coded dustbins @ VFSTR

SWMatVFSTR

- Biogas Plant: 1000 KPD BioUrja

The biogas plant which was established on campus in the year 2018 converts campus generated organic wastes into biogas which is again utilized for cooking purposes in hostel kitchen. The capacity of the plant is to digest 1000 kg of food waste per day and yield gas of about 70kg of LPG equivalent per day.



Biogas Plant at VFSTR

SWMatVFSTR

- Landfilling and Composting

Non hazardous solid wastes which are not re-utilized or given to any third party for their disposal and their storage requires open spaces are discarded in landfills at campus.

Since, VFSTR is a green campus dry plant parts constitute a significant part of the wastes. They are discarded at compost pits at campus.

Landfill and composting pits at VFSTR

Liquid Waste Management atVFSTR

A 600 KLD capacity sewage treatment plant system is being set up at VFSTR campus by Bluedrop enviro pvt. ltd. which uses the technology of artificially constructed wetland system. This technology uses phytoremediation and microbial remediation techniques for sewage water treatment. This STP is engineered to use the natural functions of vegetation, soil, and organism to provide waste water treatment.. After treatment this waster will be reused for gardening and car washing purposes.

STP at VFSTR

Biomedical & Sanitary Waste Management at VFSTR

VFSTR has three incinerators for disposal of biomedical and sanitary solid wastes.

VFSTR has installed a electrically heated incinerator of 30ltr capacity and having 7-9 KW electricity consumption at the animal house facility on VFSTR campus for incinerating animal wastes and other biotechnological and biomedical laboratory wastes on campus.

VFSTR campus has a sanitary napkin incinerator was installed at the girl's hostel premises for hygienic disposal of sanitary wastes. This incinerator had the capacity of burning 750 napkins per day.

Another incinerator was established at VFSTR at its medical centre which had a 3 KW single stage combustion chamber with a holding capacity of 5kg. The biohazardous wastes which included biological fluids, cotton, gauge pieces and sanitary napkins are safely incinerated here.

Incineration of biomedical solid wastes is one of the safest disposal methods and it reduces solid volume by 80-85%. Thus, such safe solid waste management practices are carried out on campus.

Incinerators at VFSTR

E-Waste Management at VFSTR

E-wastes or Electronic waste are one of the fastest growing component of solid wastes. E-wastes includes discarded computer equipment and variety of electronic devices.

VFSTR electrical equipment maintenance team is regularly monitoring E-waste generation and it routinely collects the electrical wastes and store and segregate them in the electrical store room before disposing them periodically through third party mediation.

Collection of E-waste at VFSTR

Plastic Waste Management

- Plastic Waste Shredder

Plastic waste management is area upon which VFSTR puts in a lot of importance VFSTR installed in its canteen an 100 L volume AVANTI BS 100P pet bottle shredder. In can shred 7 bottles per minute. This shredder is used in canteen in order to manage plastic wastes effectively and reduces littering and making them more manageable for recycling processes through third party mediation.

This shredded plastic flakes are used for research works in areas of development of materials from plastic wastes, plastic biodegradation studies etc.

Plastic Waste Shredder at VFSTR

Chemical Waste Management at VFSTR

Chemical and biological wastes generated in laboratories requires proper disposal.

At VFSTR, chemical wastes which are generated are not disposed with regular wastes. They are collected separately at the laboratories. The solvents are not discarded through sewerage lines. Instead they are collected separately. After separate collection they are disposed of properly with third party help at times.

Biological laboratory wastes containing microorganisms are heat killed in autoclaves before disposal.

Radioactive wastes are not generated at VFSTR laboratories.

Chemical Waste Management at VFSTR

MOUs with Industrial Partners

VFSTR has MOUs with industries for aiding our waste management initiatives on campus.

S.no	Company	Nature of MOU
1	IIC Academy, India	Training program for waste management
2	Kiwis Eco Laboratories Pvt Ltd., India	Skill development for environmental management
3	Adepto Geoinformatic Pvt. Ltd., India	Research project collaboration in geospatial services and waste management
4	Ladder survey institute of technology, India	Program and research projects in land survey and waste management
5	Provenance IT solutions Pvt. Ltd., India	Knowledge and skill development in area of environment and training program in waste management
6	Sri sai manasa Nature tech Pvt. Ltd., India	Skill development in environmental management training and research in solid
7	Ipage UM services Pvt. Ltd., India	Professional program in UAV applications and solid waste management
8	Veloway Env. Solution Pvt. Ltd., India	Training program in the area of environment for student and faculties
9	Nuthalapathy Quality control lab, India	Training and research program in the area of waste management

VFSTR team at Jindal Urban Waste Management Plant, Guntur

Aiming towards “Swachh Bharat” ...

स्वच्छ भारत

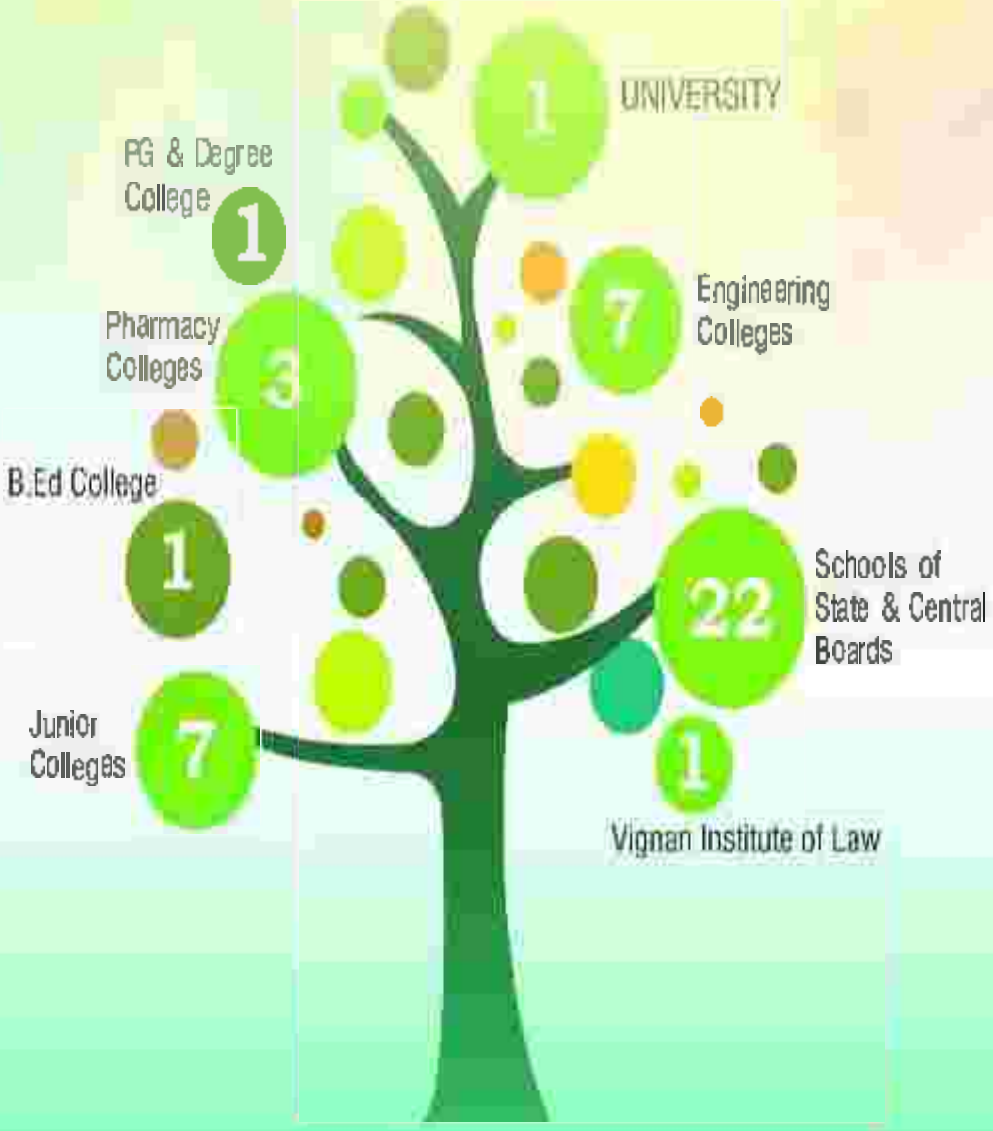
एक कदम स्वच्छता की ओर

VIGNAN'S

(Deemed to be UNIVERSITY)

VIGNAN

Spellbinding 44 years of honest growth



VIGNAN'S

(Deemed to be UNIVERSITY)

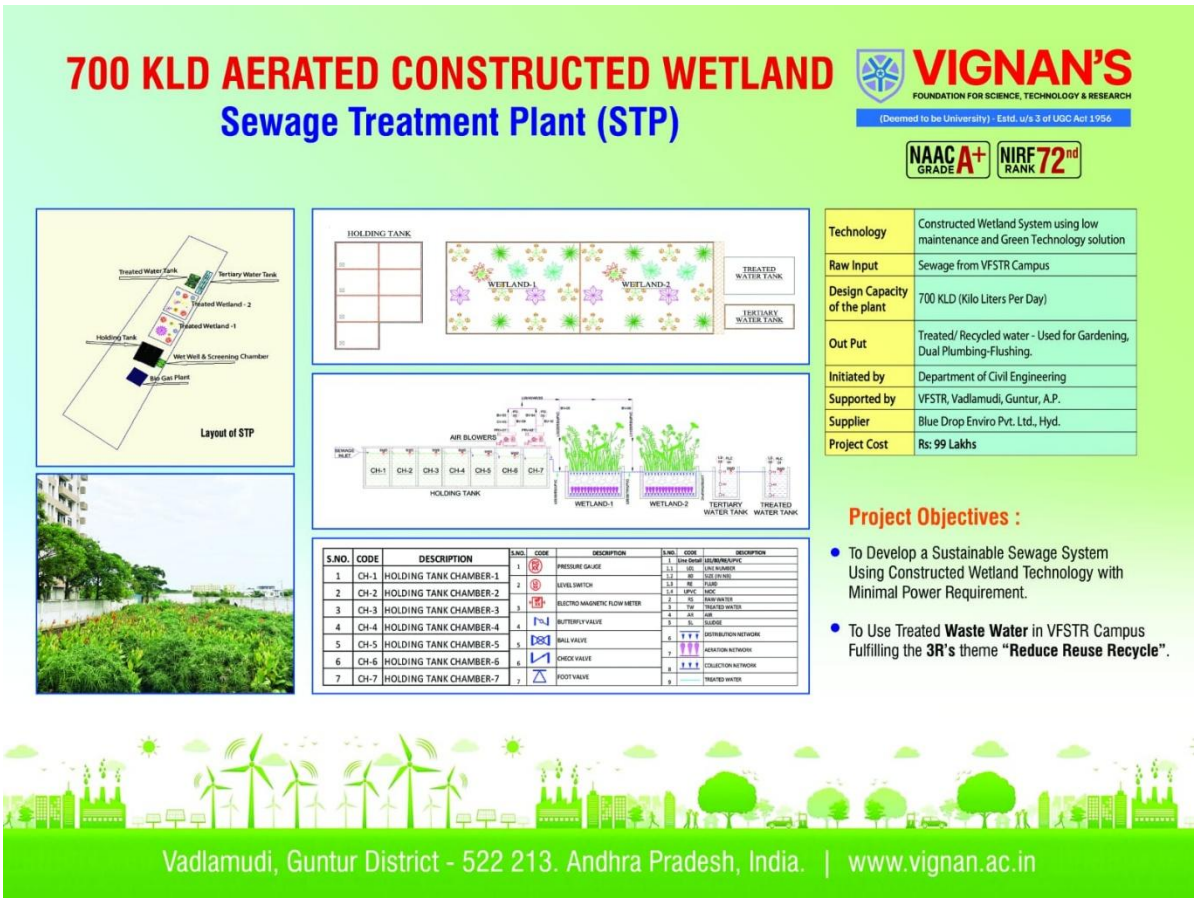
700 KLD STP VFSTR

A **700 KLD Constructed Aerated Wetlands STP** is a type of **nature-based sewage treatment plant** that uses **aerated wetland systems** to treat 700,000 liters of domestic or industrial wastewater per day. This technology combines the ecological treatment approach of constructed wetlands with **mechanical aeration** to enhance biological activity and treatment efficiency.

1. Boomi Pooja : 03rd Feb 2021
2. STP in Operation : 22nd Nov 2021
3. AMC : AMC Approved, but is not in force
4. In charge Faculty : Dr. M.V.Raju, CE
5. Technician : Mr.B.Anil Kumar, CE
6. Total Cost of Project : 99 Lakhs
7. Details of Machinery : 700 KLD Holding Tanks,
   725 m^3/hr 300 mbar Blowers (2No.)
   Control Panels for Blower, Pumps, EMF meter
   Ozonator (75g/hr.)
   2200CW-3HP-590LPM Submerged Pump
   Electromagnetic flow meter
8. Utilization per Day : Microbes (2-5g/1KL)
   Hypo (5LPD)
9. In Flow :100 – 150 KLD (KILO LETER PER DAY)
   Out Flow : 80-85 KLD
10. Financial Implications: Currently no operating cost, Only Microbes,
    Hypo and some periodical manintance at the range of 1.5-2.0 LPA.
11. Future requirements : Wastewater Discharge channel can be connected to STP,
    Excess Treated water can be transfer to in house Lake,
    Needs Beautification and landscaping around the Plant.
12. Working Condition : Currently Active

Inauguration and Foundation Stone Laying of Sewage Treatment Plant Project by the Chairman

Constructed Wetland Layout



STP Detailing

Process diagram of STP

Domestic Water Demand

The quantity of water required in households for drinking, bathing, cooking, washing, etc., is called domestic water demand and mainly depends on the habits, social status, climatic conditions, and customs of the people. As per IS: 1172-1963, under normal conditions, the domestic consumption of water in India is for residential about 135 litres/day/capita for non-residential 55 litres/day/capita

Per capita consumption

S.No.	Group of People	No. of Heads (Approx./ year wise)	2023-24	2022-23	2021-22
1	Students non-residential @135	5400 5900 5200	5400@55 2,97,000	5900@55 3,24,000	5200@55 2,86,000
2	Students residential @135	3600 2100 1800	3600@135 4,86,000	2100@135 2,83,500	1800@135 2,43,000
3	Staff @55	1200 1100 1000	1200 @55 66,000	1100@55 60,500	1000@55 55,000
Volume (L)/Day			8,49,000	6,68,000	5,84,000
Total Volume (L)/Acad. Year			8,49,000@191 162,159,000	6,68,000@191 127,588,000	5,84,000@191 111,544,000

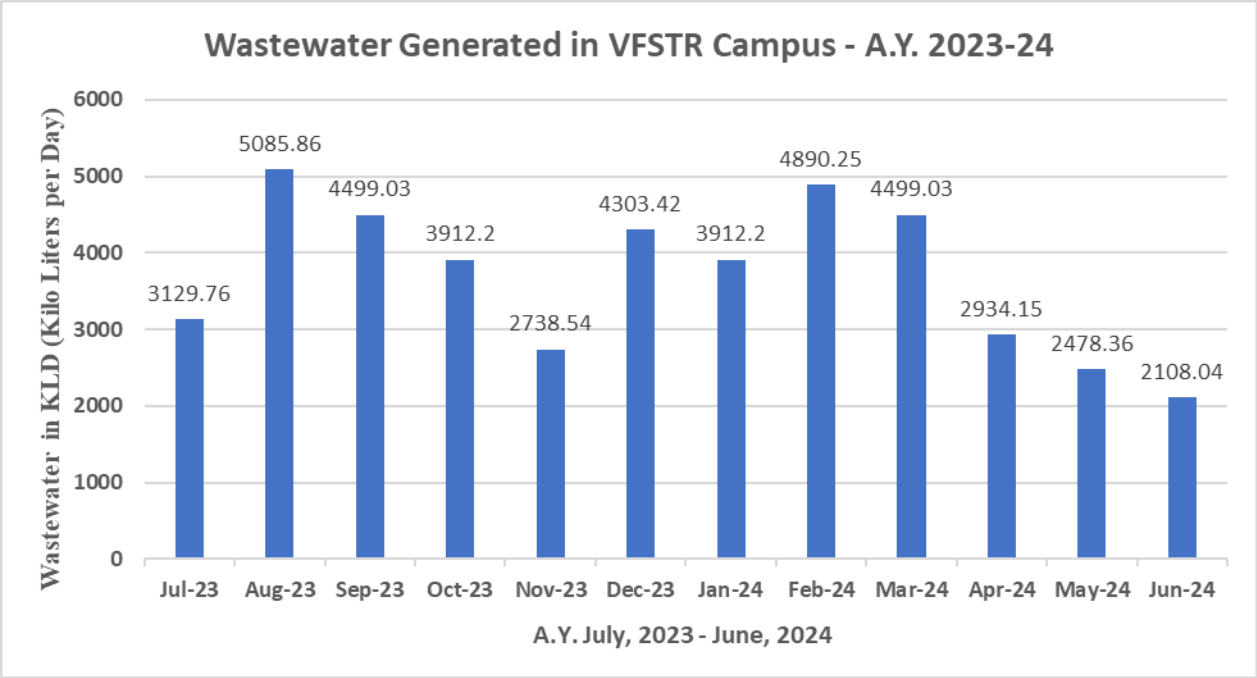
Volume of Wastewater generated (approx) = 407.520 KLD

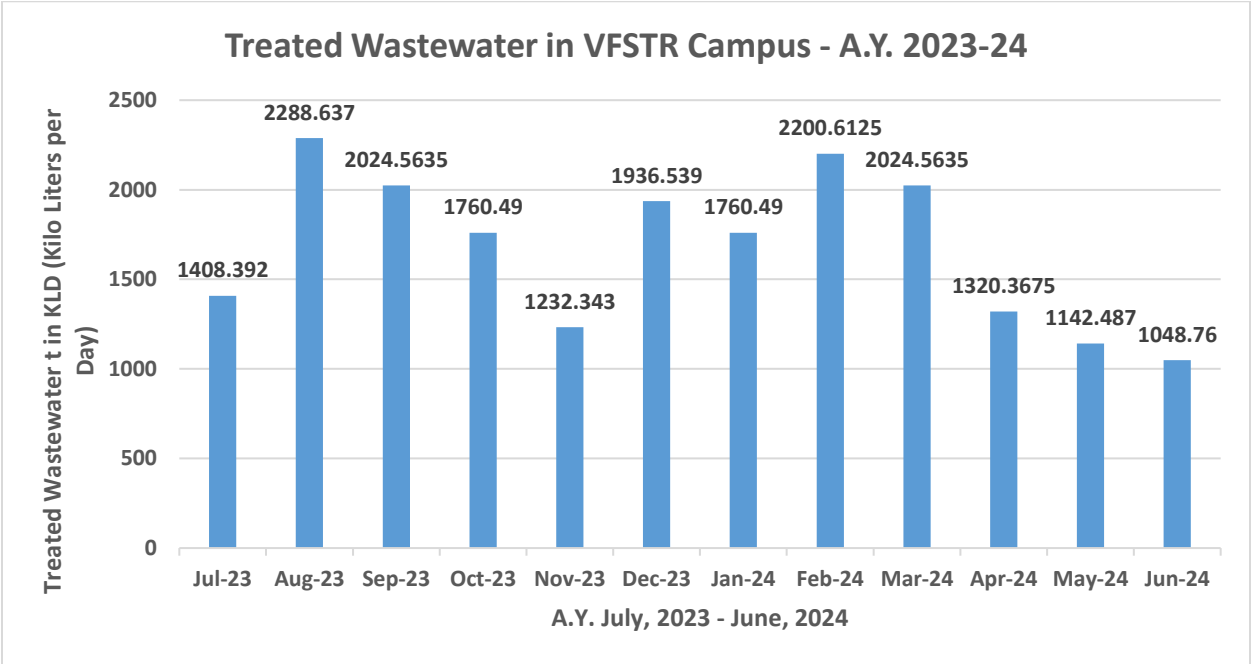
Volume of Wastewater entering sewers for treatment = 195.610 KLD (Avg.)

Volume of Treated Effluent = 86,500 KLD. (Avg.)

Note – **KLD** refers to Kilo Liters per Day.

Inflow and Outflow Characteristics of Raw and Treated Wastewater at STP





The above graphical representation deciphers the inflow wastewater and treated wastewater in the VFSTR Campus, Vadlamudi during the Academic Year 2023-24. The treated wastewater generated from the Sewage Treatment Plant (STP) is being effectively utilized within the campus premises for **watering plants and trees**, maintaining grass in the **cricket ground**, and for **dust suppression** on internal roads, thereby promoting sustainable water reuse and conservation practices.


AP07TH
7868


WATER TANK

Technical Specifications:

The STP contains one holding tank, two wet lands and one tertiary tank and Clear water tank. The holding tank is constructed with raft foundation by using PCC (Plane cement concrete) and RCC (Reinforced cement concrete); retaining walls and slab are constructed with RCC. The wet lands and tertiary tank are constructed with raft foundation by using PCC (Plane cement concrete) and RCC (Reinforced cement concrete); retaining walls are constructed with RCC. For the construction of STP required building materials used are like concrete and steel.

WETLANDS FUNCTIONING

The dimensions of Aerated constructed wetland (1 no) = 19m X 14.7m X 2m.

The wetland is composed of

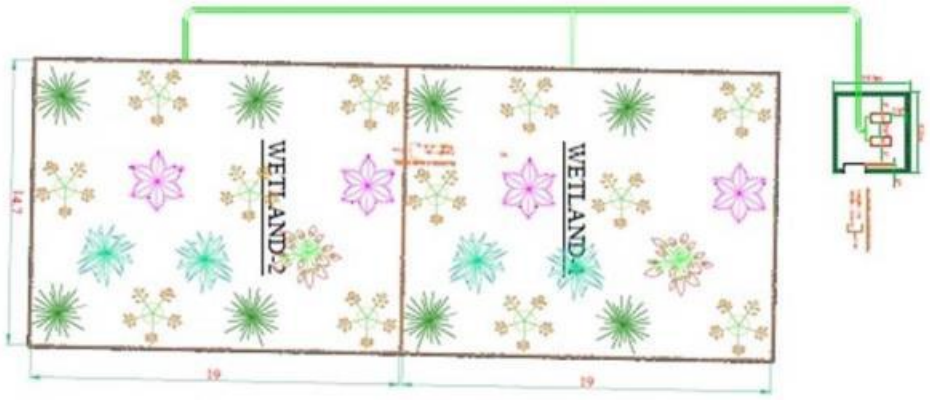
a) Aeration network, b) Treated Network, c) Local gravel (20mm size)

d) Plant species.

A) Aeration network:

- Aerated wetland application is one where aeration is introduced in the wetlands cells with external air blowers.
- This aeration network is laid on 20mm filled aggregate at 100 mm or 0.1m from the RCC raft.
- The maximum run time of the blowers being 4 to 6 hr per day at peak load.
- Aeration pipes C/C 80 mm

Aeration Network

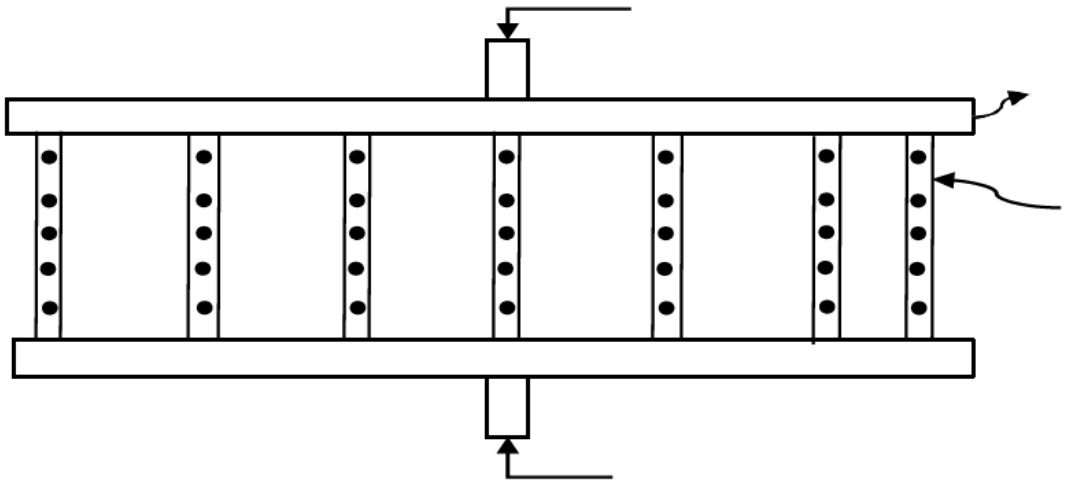


Sketch of Connections to Air blowers

20mm Gravel Filling

B) Treated or Sewage network:

- This network distributes sewage water from holding tank to wetlands 1 and 2.
- This network is laid on 20mm filled aggregate at 100 mm or 0.1m above the aeration pipes or 200 mm or 0.2m from the RCC raft.
- Then the wetlands are filled with 1.6m deep 20mm gravel.
- A Similar network is laid on this gravel at 1600 mm or 1.6 m above the existing treated network or 1800 mm or 1.8m from the RCC raft.



Sewage water from holding tank
Treated or Sewage network

Treated or Sewage network @ Site

Treated Network @ 1.8m from RCC Raft

Local gravel (20mm size) – 1500 Tons of local 20mm Gravel has been used

C) Plantation:

- There are eight varieties of plant species like wild canna indica, cypressalternifolius, thaliadelibeta, spidarlilly, wadeliaalamanda, lanena yellow and bouganvilla mix.
- These species filter the impurities in the waste water by phytoremediation technique.

D) Tertiary Treatment – Ozonation

Usage of Ozone in STP:

- **Ozone is a powerful oxidizer that breaks down odor molecules**
- **Chemical-Free Purifier & Deodorizer**
- **Significantly Reduces Bacteria Growth**
- **Clean Work Environment**

Maintenance of STP

Periodical maintenance of STP is carried out at regular intervals to ensure efficient and uninterrupted operation. The maintenance activities include inspection and cleaning of screens and tanks, checking of pumps and blowers, monitoring of sludge levels, and calibration of instrumentation systems, thereby ensuring consistent treatment performance and compliance with discharge standards.

Periodical Maintenance of Sewers connected to STP

Clearance of Grit and removal of settled sludge in Tertiary Tank

Field Observations – Student Visit to STP

Field visits to the STP are essential for students to gain practical exposure and understand the real-time functioning of various treatment units. Such visits enable them to observe inlet characteristics, treatment processes, sludge handling, and effluent reuse practices, bridging the gap between theoretical knowledge and field application. These observations help students develop a comprehensive understanding of the operation, maintenance, and performance evaluation of wastewater treatment systems.

VIGNAN'S

FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH

(Deemed to be University) - Estd. u/s 3 of UGC Act 1956

Biogas Facility

Supported by VFSTR under the Central Level Infrastructure

(Established in 2018)

Dr. Charles David
Faculty In-Charge, Biogas Facility
Associate Professor
Department of Biotechnology

Vignan's Foundation for Science, Technology and Research
Vadlamudi, Guntur 522213,
Andhra Pradesh, India.

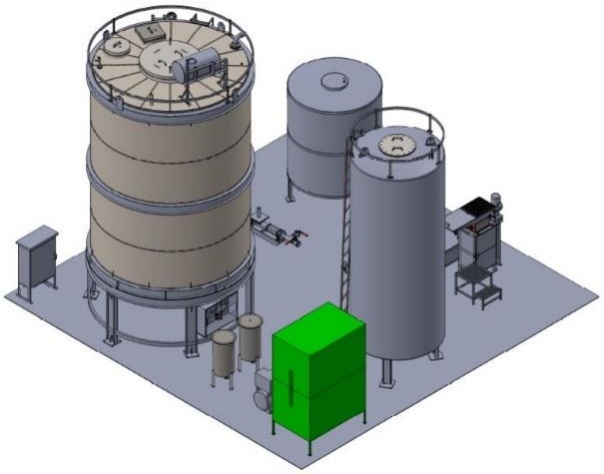
About the Biogas Facility

The Department of Biotechnology, VFSTR proposed the concept of "*Waste to Wealth*", a solid-waste management system for our University campus. The objective is to emphasize "*Green Campus*" by converting organic solid waste into biogas. The project cost is Rs.70 Lakhs which includes the purchase and installation of the pre-fabricated Biogas unit, *BioUrja-1000KPD* from GPS Renewables, Bengaluru.

The *BioUrja* utilizes food wastes generated from Vignan's Hostel kitchens as raw material. The highest productivity of Biogas is 70 Kg LPG-equivalent per 1000 Kg of wet waste per day. The Biogas unit was commissioned in December 2018. The biogas plant is maintained at pristine working conditions by specifically trained and skilled Biogas plant operators. The biogas generated since commissioning is been used for cooking purposes in the Hostel Cafeteria kitchen.

Objectives

- To generate renewable energy in the VFSTR campus
- To execute a fool-proof solid waste management system at our campus
- To achieve waste minimization & a Green campus
- To generate alternate fuel source for hostel kitchen cooking
- To promote the concept of "Waste to Wealth"



Daily activities at the Facility

a. **Check the pH of the Hydrolyser**
A pH meter with a glass electrode suitable for analyzing the acidity of the food-waste slurry was used to measure the pH value of the liquid in the hydrolyzer and bioreactor. A solution of lime hydrate was used to adjust the pH level in the hydrolyser.

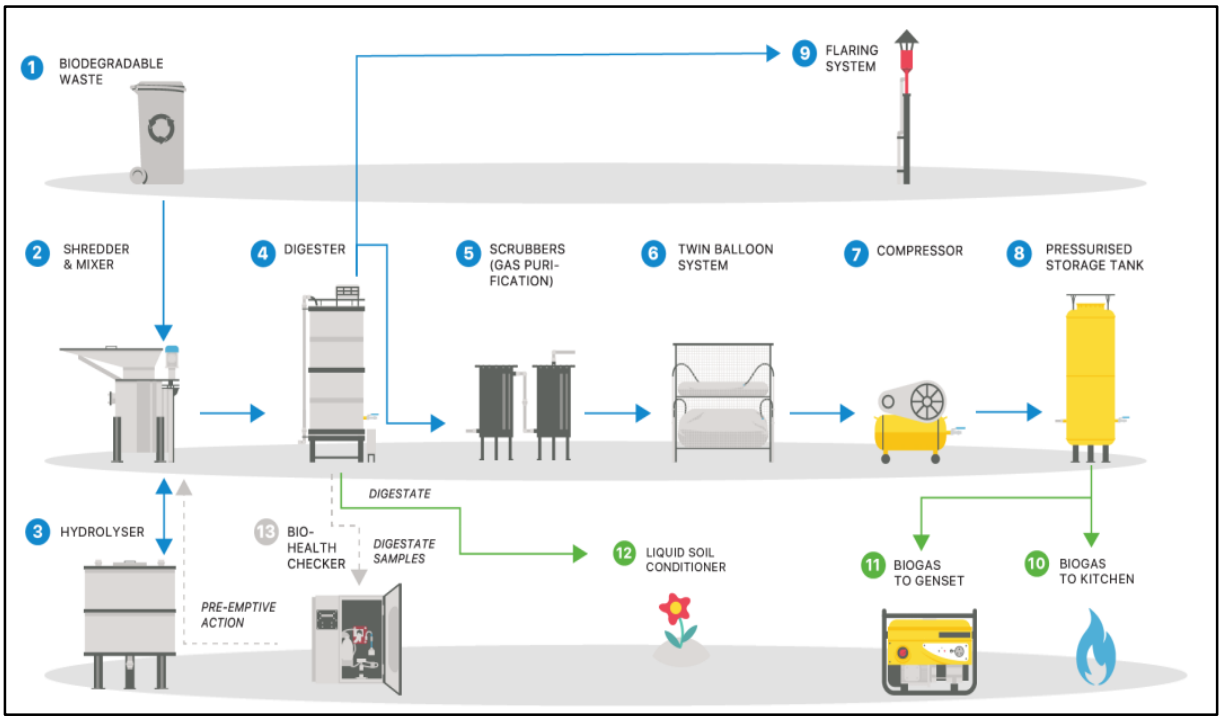
b. **Test the pH of the Digester**
The pH level of the Digester was measured using an auto-titrator equipped with a glass electrode suited for assessing the acidity of the hydrolyzed liquid. Based on the pH of the digester, the bio-health of the system can be quantified.

The picture shows feeding the pulverizer

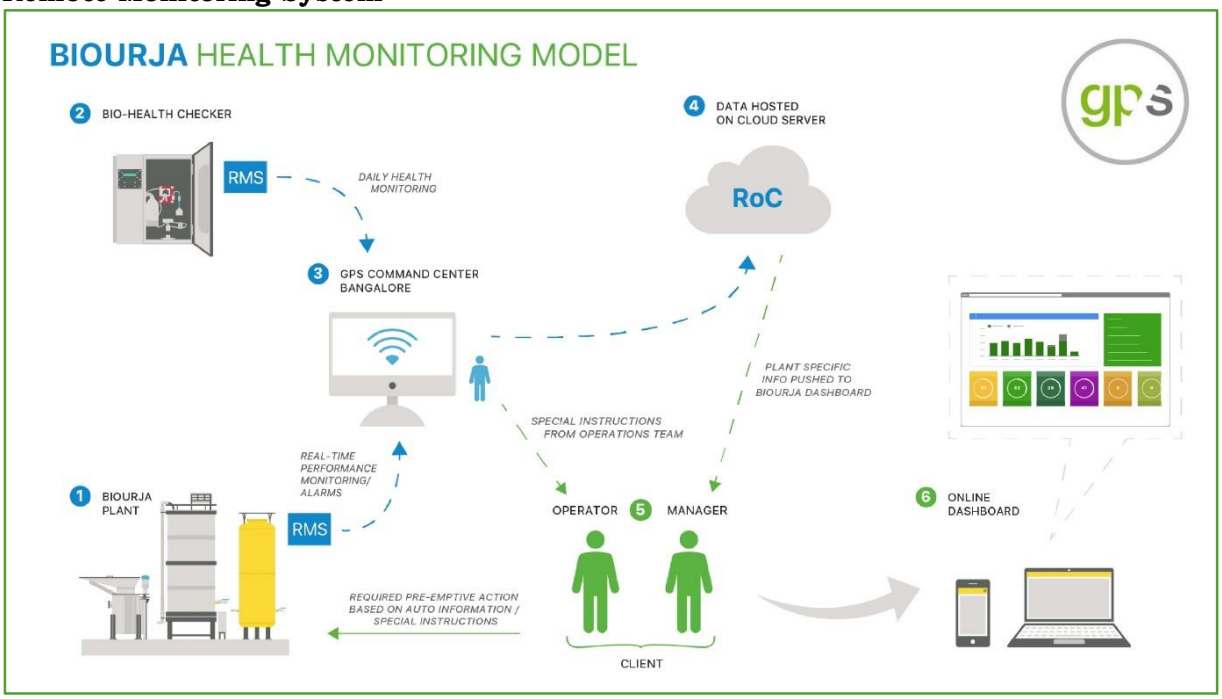
System components

Sub System	Specifications
Input system	• Shredder to process food waste at 250 kg/hour • Hydrolyzer unit • Sludge pump to feed the hydrolyzed waste into the digester
Reactor system	• Digester with heating system to enable faster digestion and minimal area requirement – 60 m^3 • Heating and proper mixing enable micro-mixing for higher stability
Gas Management System	• Scrubbers to remove H_2S and CO_2. • Automated temporary storage system – twin gas balloons – 1 cu. m. • Compressor unit – 6 cfm. • Gas storage pressure vessel for compressed gas – volume 11 cu. m. • Automated flaring system to burn in case of non-utilization of gas • Biogas supply via SS pipeline and Biogas burners
Automation and Monitoring	• Industrial control system for plant operations • 24x7 remote monitoring system for the safety and performance of electronically controlled systems
Bio-health Management	• Auto-titrator to track the biological health of the system • Trace elements are added to maintain bio-health

The Process Flow



Remote Monitoring System



Preventive Maintenance

Since the commissioning of the Biogas Plant, preventive maintenance has been performed every quarterly during which the whole plant will be checked for any possible failure or breakdown of the various equipment on board. Quarterly Preventive Maintenance protocol ensures uninterrupted operations and Biogas generation. During this scheduled program, many of the spare parts, engine oils, oil filters, power belts, scrubber fillings, etc. will be replaced as a part of the service procedure. On completion of the maintenance works, a detailed report will be submitted by the maintenance personnel to the faculty incharge.

Remote monitoring system

Figure showing Dashboard of Remote Monitoring System for BioUrja1000KPD

MONTHLY GAS REPORT

Doc No:	GPRSPL/MGR/01
Issue No & Date	01 & 05.07.2022
Revesion No & Date	00 & 05.07.2022

MONTHLY WASTE PROCESSED , BIOGAS PRODUCED & CONSUMED DATA SHEET

CLIENT NAME			VIGNAN UNIVERSITY		
DATE	WASTE PROCESSED	GAS PRODUCED	GAS FLARED	NET GAS PRODUCED	GAS CONSUMED
	In HYDROLYSER Kg	In m3	In m3	In m3	In m3
1-May-24	800	86.00	15.18	101.18	77.08
2-May-24	809	80.00	13.80	93.80	79.67
3-May-24	760	112.00	0.15	112.15	112.22
4-May-24	600	103.00	23.40	126.40	110.26
5-May-24	0	100.00	16.59	116.59	100.00
6-May-24	0	100.00	11.09	111.09	100.00
7-May-24	800	112.00	12.70	124.70	128.39
8-May-24	800	84.00	15.64	99.64	83.34
9-May-24	700	91.00	18.41	109.41	90.34
10-May-24	0	72.00	9.58	81.58	70.24
11-May-24	800	82.00	18.52	100.52	79.91
12-May-24	0	66.00	7.63	73.63	65.45
13-May-24	0	19.00	0.28	19.28	16.36
14-May-24	0	60.00	5.65	65.65	67.56
15-May-24	500	103.00	1.40	104.40	103.45
16-May-24	700	110.00	3.19	113.19	102.08
17-May-24	0	91.00	16.24	107.24	74.70
18-May-24	800	88.00	12.27	100.27	98.34
19-May-24	0	0.00	85.15	85.15	12.55
20-May-24	820	77.00	14.25	91.25	72.50
21-May-24	800	89.00	16.92	105.92	89.99
22-May-24	600	104.00	3.35	107.35	85.73
23-May-24	600	93.00	16.47	109.47	93.87
24-May-24	600	98.00	1.18	99.18	91.84
25-May-24	600	92.00	2.95	94.95	99.25
26-May-24	0	80.00	11.95	91.95	80.00
27-May-24	620	100.00	14.09	114.09	107.94
28-May-24	660	108.00	52.19	160.19	109.79
29-May-24	600	59.00	48.67	107.67	55.44
30-May-24	400	86.00	14.78	100.78	85.45
31-May-24	400	107.00	27.66	134.66	105.82

Total Waste Processed	In Kg	14769
Total Gas Produced	In m3	**3163.31**
Equivalent to LPG	In Kg	1638.59
Total Gas Flared	In m3	511.31
% of Gas Flared	in %	16.16%
Total Gas Consumed	In m3	2649.56
Equivalent to LPG	In Kg	**1372.47**

Prepared By :

(Sharadhi AM)

GPS RENEWABLES PVT. LTD. BANGALORE

Verified By :

(Vignesh V)

WASTE PROCESSED *VS.* BIOGAS GENERATED

ASSESSMENT DURATION – JUNE 2023 – MAY 2024

Month	Waste processed (Kg)	Gas generation (m^3)
Jun-23	6940	1434.78
Jul-23	9735	1768.86
Aug-23	8270	1212.8
Sep-23	11469	1632.15
Oct-23	12840	1848.08
Nov-23	11820	1536.04
Dec-23	11840	1449.09
Jan-24	11440	2043.78
Feb-24	14380	2291.52
Mar-24	15299	2404.46
Apr-24	16140	2960.75
May-24	14769	3163.31
Total	**144942**	**23745.62**

NOTE: 23,745.62 cubic meters of biogas corresponds to ~approximately 131,988 kWh of energy content in calorific value terms.

Dr. Charles David
Faculty in charge – Biogas Facility
Associate Professor, Dept. of Biotechnology
Mail: drcd_bt@vignan.ac.in

Detail of operation personal at the Biogas Plant Facility.

Operator Name: Mr. Siva Naga Raju [Emp. Code: 01872]
Designation: Biogas Plant Operator
Date of Joining: 17.01.2019;
Phone: 77993 04548