

Biogas Biofertilizer Plants

WASTE UTILIZATION AND NOT WASTE TREATMENT.

Features

- Technical know-how from BioenergieBeratungBornim GmbH, Germany. **B³**
<http://www.b3-bornim.de>
- Generation of renewable source of energy i.e. Electricity, Heat, Steam, Cooling, Automotive Grade fuel, Cooking fuel etc. from Bio waste.
- Nutrient rich Biofertiliser production as a byproduct.
- Earns Carbon Credit:
CH₄ has 21 times GWP than CO₂



Energy Generation

- ✓ Power and Heat - through CHP
OR
- ✓ Refrigeration / Chilling or Cooling through AARP / chillers
OR
- ✓ Automotive grade fuel
OR
- ✓ Steam production through boilers

Bio Waste Available

Solid / Liquid Bio Waste like:

Mother Liquor , Biosludge , Effluent Water , Fruit processing waste , Deoiled cake Pressmud , Cow Dung , Agricultural waste etc.

Suitable to Industries Like:-

Dairy, Sugar, Oil Processing, Foods and Beverages, Pharmaceutical, Slaughter Houses Hotels, Community Wastes, Vegetable molls.

Potential Biowastes



Fruit & Vegetable Waste



Animal Manure



Automotive Grade Fuel



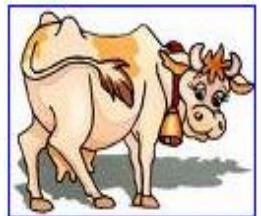
Power



Heat
Heating & Chilling



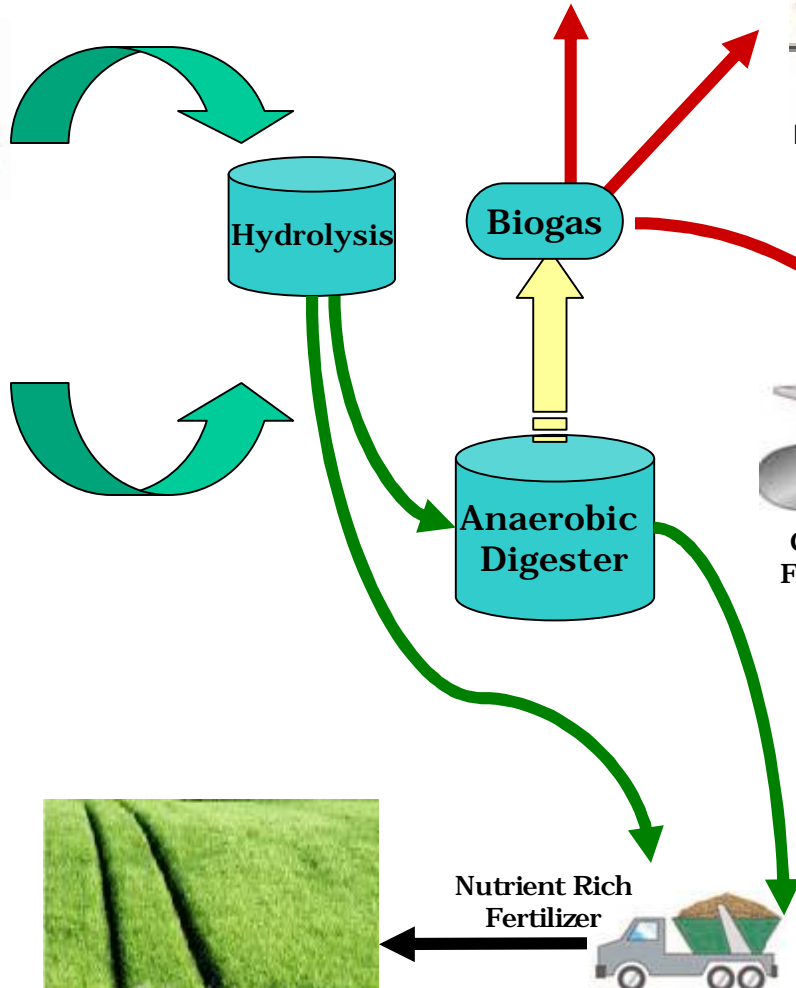
Crop Residue



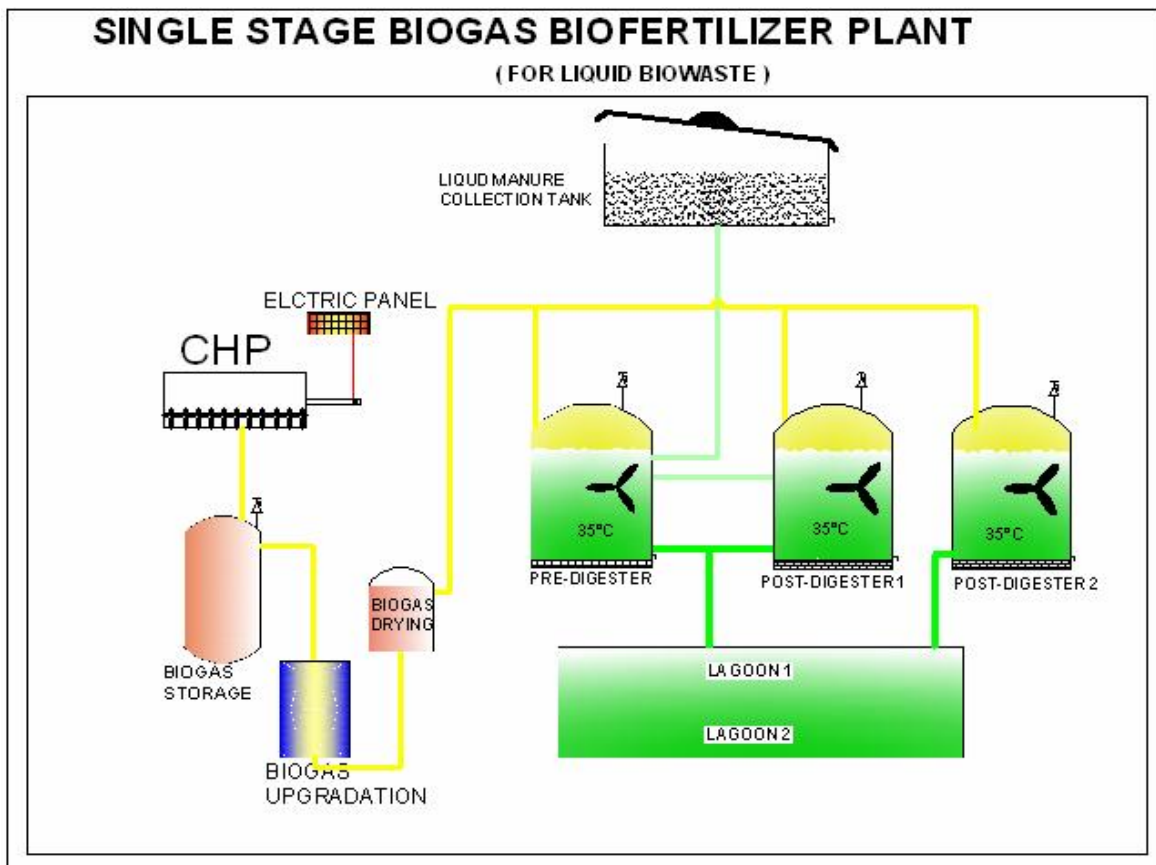
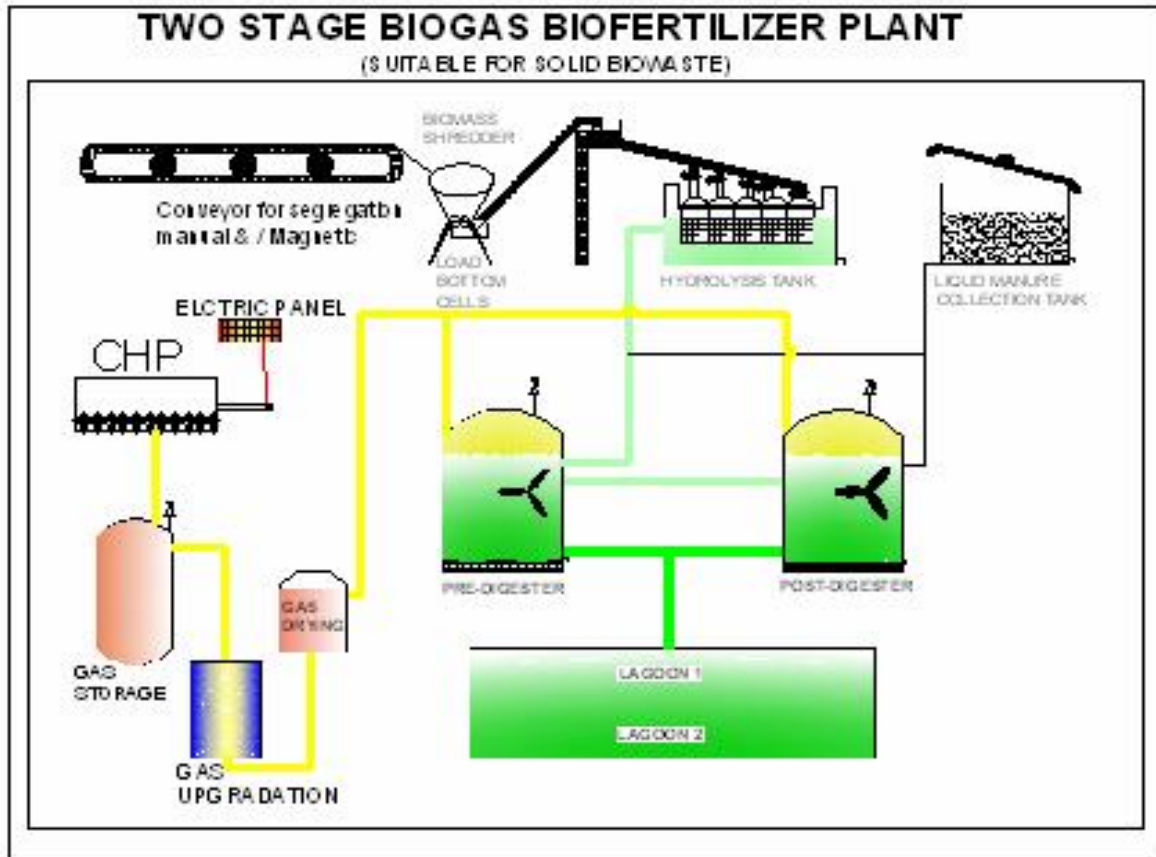
Dairy waste



Poultry Waste



TYPICAL APPLICATIONS:	
Dairy	Residential Complex
Food & Beverage Sector	Hotel
Sugar Industry	Rice Mills
Breweries & Distilleries	Commercial Complex
Edible Oil Industry	Software Parks
Refineries	Waste to Energy Plants
Fertilizer	Five Star Industrial Estate
Pharmaceutical Sector	Agricultural Industries



**ADANTAGES OF TWO STAGE SYSTEM OVER SINGLE STAGE
FOR SOLID BIOWASTE**

Sr. No	Criteria	Anaerobic Digestion		Significance
		Single Stage	Two Stage	
1	Flexibility.	No	Yes	Optimization of Each stage for improved yield and Quality
2	Risk of Breakdown of Methanogenesis	Yes	No	Uninterrupted biogas generation
3	Stability	No	Yes	Stable operation of the plant
4	Digester Environment Control.	Difficult	Simple	Greater Yield and Quality
5	Digester Volume	Higher	Lower	Cost efficient
6	Retention Time	110-120 days	30-40 days	Reduced cycle time
7	Organic Loading Rate	O.L.R.<2.5Kg ODM/d/m ³	O.L.R.>6.0Kg ODM/d/m ³	Improved Capacity
8	Foaming	Higher	Lower	Improvement in Fermentation performance

Biogas as Power

2 m³ /Day biogas plant could replace, in a month, fuel equivalent of 25 kg of LPG (nearly two standard cylinders), or 33 litres of kerosene, or 88 kg of charcoal, or 210 kg of fuelwood, or 740 kg of animal dung.

Case Study: Power Generation From 25 Kg Of Fresh Dung		
Process	Direct Burning	Biogas Formation
Produce	5 kg of dry dung	1 m ³ Biogas
Gross Energy	10640 Kcal	4604 Kcal
Efficiency	20 %	55 %
Useful Energy	2128 Kcal	2592 Kcal
	2.48 Kw	3.01 Kw
Manure	NIL	10 Kg air dried manure
Economics		
Electricity Rs.5/ per KWH	Rs. 12.37	Rs. 15.07
Biofertiliser Rs.4/ Kg	NIL	Rs. 40
TOTAL INCOME	Rs. 12.37	Rs. 55.07

Services offered by Transparent

- ◆ Feasibility study for available Bio waste.
- ◆ Conceptualization and planning of biogas plant.
- ◆ Detailed engineering, manufacturing of system & hook up
- ◆ Project co-ordination.
- ◆ Final commissioning & performance testing.
- ◆ Manpower training.
- ◆ Consultancy and utilization of Bio energy resources

Transparent Biogas system involve following components:

Input storage tank with online scaling system	Transparent Make
Screw Conveyor for automatic operation of unloading waste to digester	Transparent Make
Digester Tanks - Carbon Steel with FRP	Transparent Make
- Concrete Tank	Sourced
- PP/FRP Tank	Sourced
Agitator assembly	Transparent Make
Heat exchanger assembly	Transparent Make
Gas storage tank - Carbon Steel / Stainless Steel	Transparent Make
- Neoprene Rubber Baloon	Sourced
Slurry Storage tank - Carbon steel with FRP	Transparent Make
- Concrete	Sourced
Highly modernized measurement and online control system	Sourced
Ammonia Absorption Refrigeration Plant / Boilers	Transparent Make
Chillers	Sourced
Gas Engine	Sourced

Transparent Group of Companies



Transparent Group Companies, are technology leaders working in the field of Co-generation Systems(CHP), Ammonia Absorption Refrigeration Plants (AARP), Waste Heat Recovery Systems, Energy Conservation Contracts, Biomass Gasification, Water Recycling Plants. Superefficient Boilers, Energy and Water consultancy, Pollution control, Drying Plants , Noise abatement Systems etc. having Indian Patents for many of its products.

Transparent Energy Systems Private Limited

Our company was incorporated on 16th April, 1986 with the name of Vapor Energy Machines Private Limited. The first commercial production was started in January, 1988. The name of the company was changed from Vapor Energy Machines Private Limited to Transparent Energy Systems Private Limited on 18th December, 1995.

1. Co-generation Systems - www.tesplcogen.com

Cogeneration Systems involving combined generation of

- Power - Heat - Refrigeration / Chilling - Water Recycling / Desalination by multistage evaporation.

Fuels and energy sources for Cogeneration.

- Natural Gas - Heavy Fuel Oil (HFO) - Coal - Process Waste Heat - Biogas - HSD / Kerosene / LDO - Biomass

Types of Cogeneration Systems

- Steam Engine / Turbine Based Co-generation - Reciprocating Engine Generator Based Co-generation - Gas Turbine Based Co-generation

2. Ammonia Absorption Refrigeration Plants- www.tesplaarp.com (Technology collaboration with Mattes Engineering GmbH, Germany)

- Refrigerant Evaporators - Refrigerant Circulation Systems - Air Handling Units - Accessories

- Flash Vessels - Ammonia Vaporizers - Turnkey Refrigeration Contracts.

3. Heat Recovery Systems – www.heatrecovery-system.com

Waste Heat Recovery Boilers - Finned Tube - Water Tube - Smoke Tube

Waste Heat Recovery Thermic Fluid Heaters

Heat Recovery & Efficiency improvement Retrofits

- Combustion Air Preheater - Economisers (Smoke tube / water tube / finned tube type) - Condensate Recovery Systems

- Blow Down Heat Recovery Systems - Flash Steam Recovery Systems

4. Boilers & Heaters – www.tespl.com (Technology Collaboration with Lamont Kessel GmbH, Germany)

- 96% Superefficient Oil / Gas Fuelled Boilers - 93% Superefficient Thermic Fluid Heaters / Hot Air Generators

- 89% Superefficient Agrofuelled / Coal Fired Boilers. - Superefficient High Pressure steam Boilers, (Oil / Gas / Coal / Biomass Fired) for Cogeneration application

5. Energy Conservation Projects – www.tespl.com

Conservation of Electrical heating to Steam / Thermic Fluid / Hot Water Heating

6. Water Treatment Plants & Other Accessories – www.tespl.com

7. Bio mass Gasification - www.tespl.com

(Technology collaboration with Bioenergie Beratung Bornim GmbH, Germany)

- Wet and Dry Fermentation of solid, semi solid and liquid biomass, Bio Diesel and Ethanol production



Transparent Technologies Private Limited - www.ttplpune.com

1. Dryers- spray Flash/Fluid Bed/ Flash 2. Coolers - Spray Coolers (Closed / Open Circuit) / Fluidized Bed Coolers / Bulk Flow Coolers

3. Granulators -Spray Granulators / Fluidized Bed Granulators / Rotary Granulators 4. Waste to Energy Incinerators

5. Evaporators and Concentrators



EcoKleen Pollution Control Pvt. Ltd. - www.ecokleen.com

1. Pollution Control- Scrubbers/ Bag Filters / Cyclones / Multicyclones

3. Fume and Dust Extraction Plants

5. Thermal Oxidation System of Airborne Solvent Vapors

2. Flue Gas Desulpharisation – Wet- Wet/Dry Wet/ Dry Dry Systems

4. Air stripping plants & Airborn Solvent Vapor Recovery Plants

6. Bulk Material Handling



Decimin Control Systems Pvt. Ltd. - www.decimin.com

Noise abatement products and systems (in collaboration with IAC BOET STOPSON, France)

- Acoustic Canopies for D G sets, Machineries

- Noise silencers for engines, blowers, compressors, valve exhaust, acoustic louvers and baffles.

- Gas turbine inlet / outlet systems.

- ISO containerized DD sets / compressors engine house acoustic.



Ecosustain Energy Systems Pvt. Ltd. - www.ecosustainenergy.com

(Co Operation Agreement with ShandongQingeng Thermal Power Equipment Co. Ltd.)

1. Steam Turbine Generators - Stage Extraction / Condensing / Back Pressure Multi-Stage / Single – Stage Superheated / Saturated Steam inlet.

2. Steam Turbine Drives for Pumps / Blowers / Compressors.

3. Steam Condensers - Water cooled shell and tube, Air cooled finned tube



Peerless Techno-Legal Services Pvt. Ltd. - www.ptlspl.com

Intellectual property protection, Patent , Trade Marks, Copy Rights, Design Registration

- Securing patents, registration of trademark, copyrights, design, anti-piracy, anti-counterfeit activities.

- Prosecution or defense of passing off, falsification, counterfeiting, infringement, claims,

- Litigations relating to patents, design, trademark & copyrights, proceedings before controller of Patents,

- Inter-party proceedings, Arbitrations, all kinds of disputes relating to Domain names, cyber squatting, cyber crime,