GOVERNMENT OF INDIA
MINISTRY OF NEW
AND RENEWABLE ENERGY

सत्यमेव जयते

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Swachchata Hi Sewa

Cleanliness is Service

"Swachchata Se Swachh Urja"

A Workshop

on

"Use of Waste for Energy"

Government of India

Ministry of New & Renewable Energy

New Delhi

26th September 2017 , Indian Habitat Centre

Waste

URBAN

- Kitchen
- Garden
- House-hold garbage,
- Cattle dung
- Vegetable & fruits market
- Slaughter house
- Poultry waste
- Commercial/institutional garbage

AGRICULTURAL

- Paddy straw
- Agro processing industries residues/ effluents
- Green grass

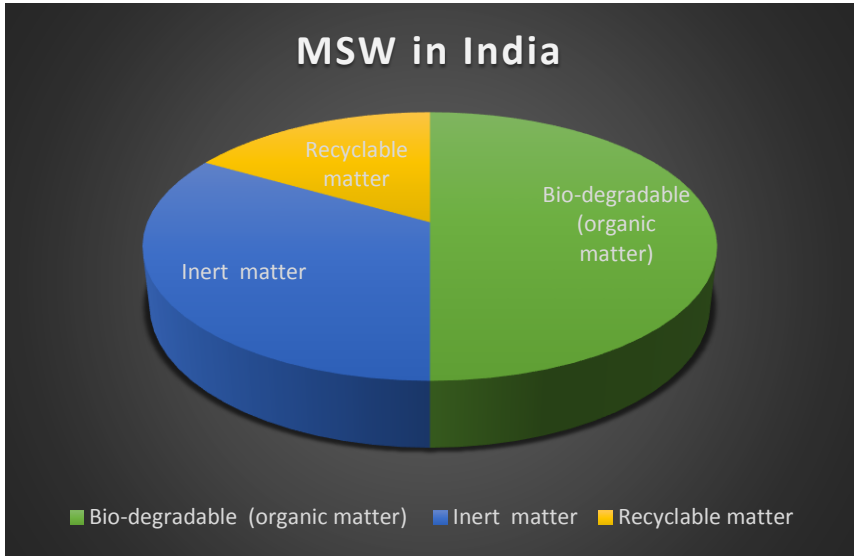
INDUSTRIAL

- Agro processing industry
- Paper & Pulp Industry
- Milk processing
- Spent wash from distilleries
- Waste from sago/starch
- Pharmaceuticals
- Oil extraction plants
- Slaughter house/ tanneries
- Press mud

Indian Solid Waste

- Municipal solid waste comprises organic and inorganic wastes including recyclables which could be sorted out and reused as raw materials. The organic fraction of municipal solid waste can be converted into useful product like organic manure or Methane gas etc. which could be used for cooking, heating and production of energy.

- Bio-degradable (organic matter) 30-55%
- Inert matter 40-55%
- Recyclable matter 5-15%

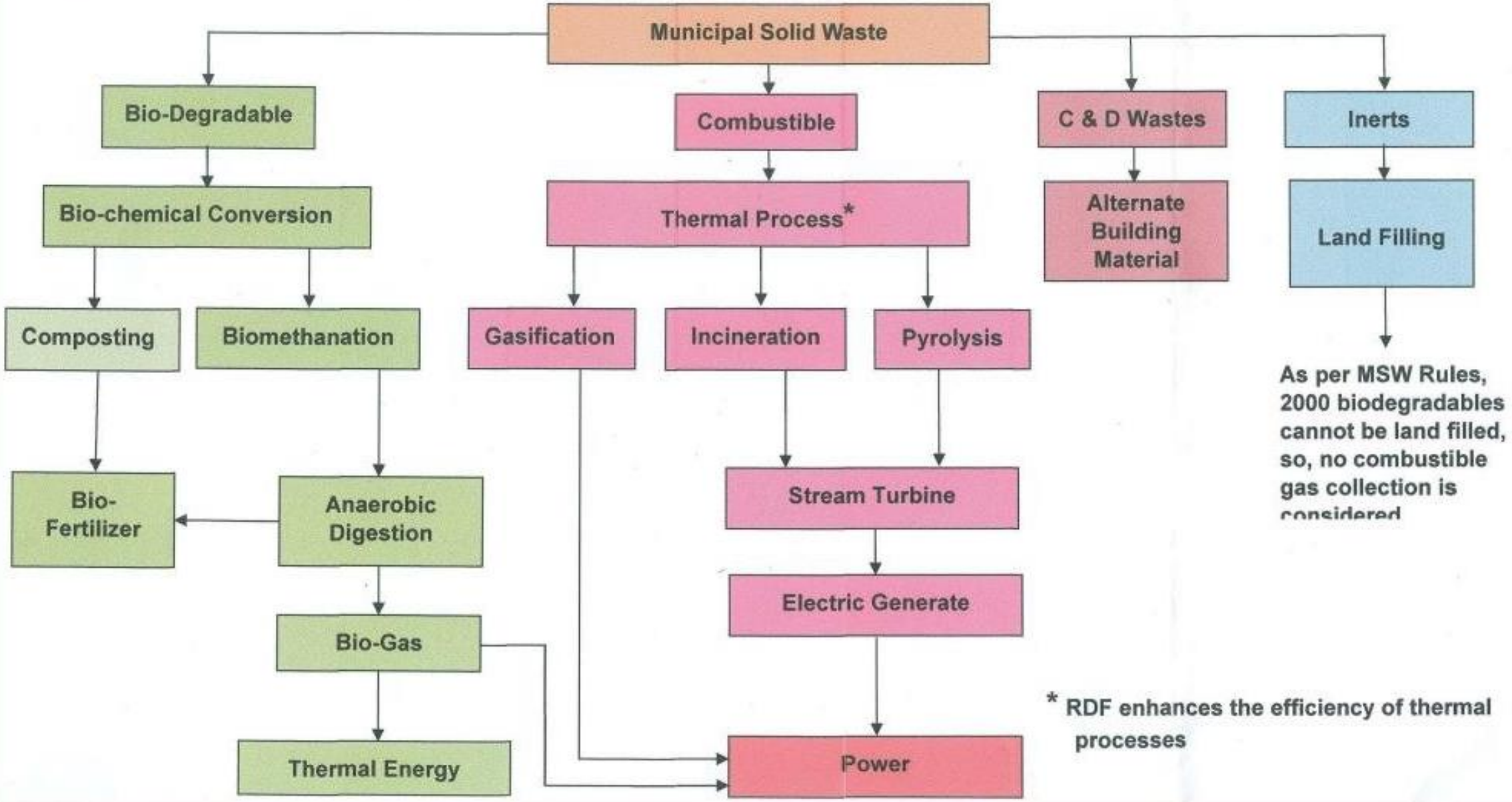


*Composition of waste varies with size of city, season and income group.

Waste to Energy: Technological Options

- SANITARY LANDFILLS
- BIO-METHANATION
- PYROLYSIS / GASIFICATION
- COMBUSTION/ INCINERATION

Waste to Energy: Technological Options



Waste to Energy: Advantages

The quantity of waste gets reduced by nearly 60% to over 90%, depending upon the waste composition and the adopted technology

* Demand for land, which is already scarce in cities, for landfilling is reduced;

* The cost of transportation of waste to far-away landfill sites also gets reduced; and

* Net reduction in environmental pollution.

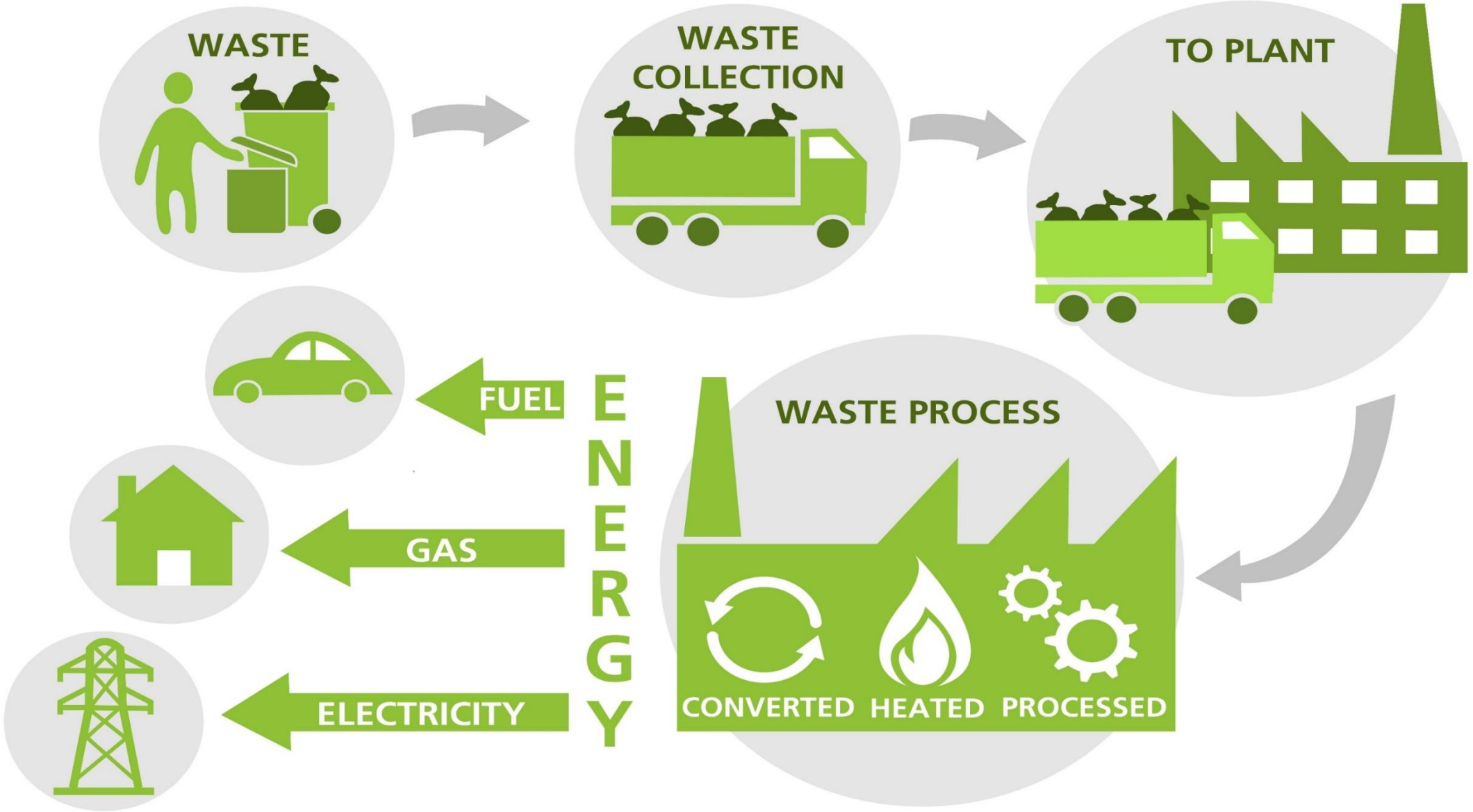
Programme on Energy Recovery from Urban, Industrial and Agricultural Wastes/Residues

Scheme has following 3 Components –

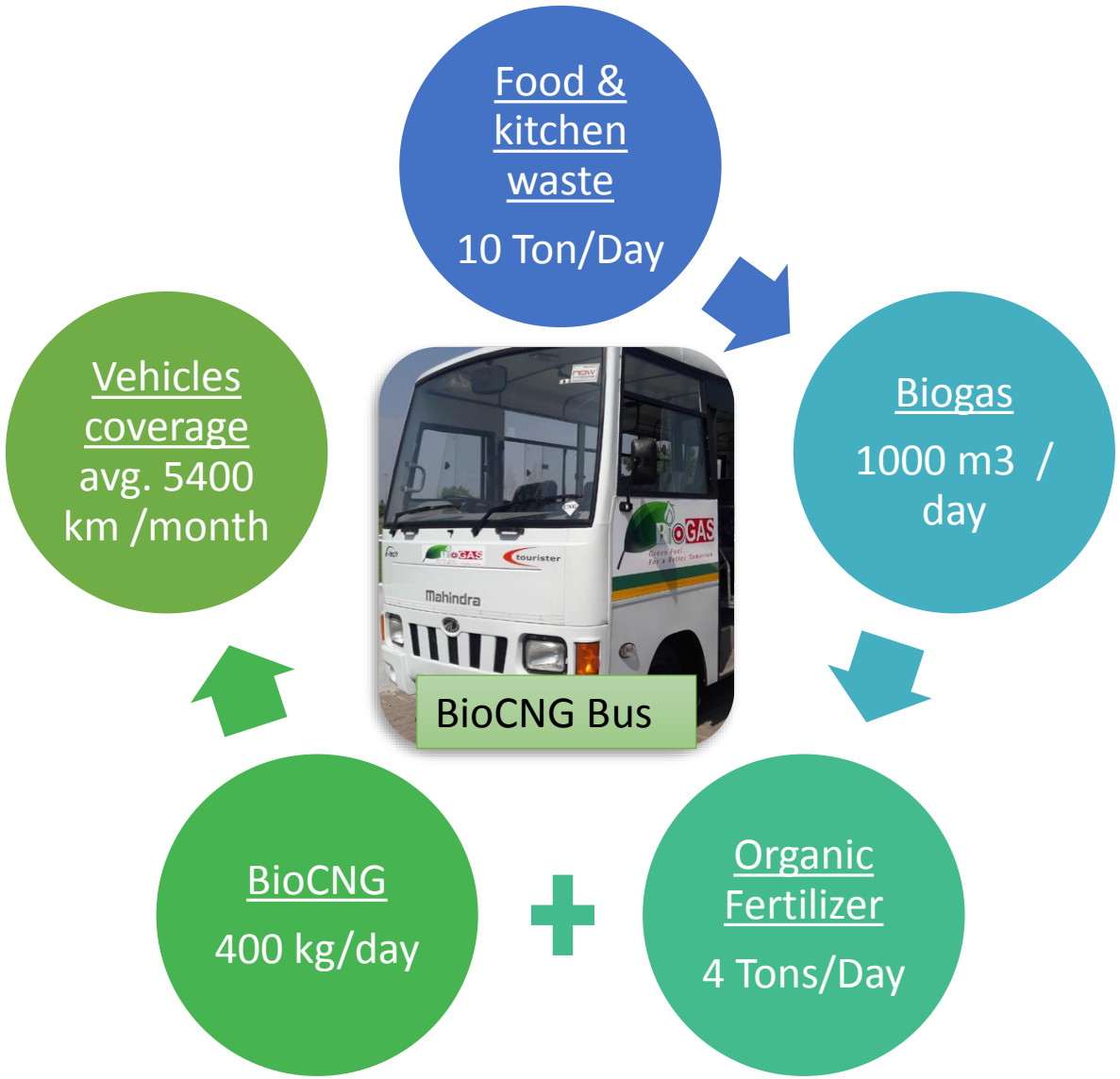
- Setting up of 5 pilot projects based on Municipal Solid Wastes (MSW);
- Biogas generation from urban/industrial/agricultural wastes or mix of these wastes; and
- Power Generation/Production of Bio-CNG from Biogas produced from sewage or urban/industrial/agricultural wastes or mix of these wastes.

Cumulative Achievement as on Aug 2017 - 287 MW

Waste to Energy project- One project many Solutions



WtE Plant for BioCNG based Bus (Mahindra World City ,Chennai)



Biogas Production, Purification & Bottling plant

Generation of biogas from any organic waste (such as Food & Kitchen waste, cow dung, Municipal waste etc…) purifying the gas to get CNG grade fuel to utilize in **Automotive vehicle** /Supply for Heating & Burning /Generation of Electricity/Production of enriched organic fertilizer

Total project cost for the Bio-CNG plant: **1.8 crores** (excluding Vehicles, tractors, gas gensets)

WtE Plant for BioCNG & Organic Fertilizer

(Bharat Biogas Energy Limited, Ahmedabad)

14000cum/day Biogas plant which includes Cow Farm, Biogas Project and Organic Manure manufacturing Unit in Ahmedabad. Total Cost of Project: Rs 13 Crores

BioCNG

- 6.538 TPD
- Supplying to AMUL
- Carbon Emission saved: 37,500 Tons / year

Solid Organic Fertilizer

- 31 TPD
- Marketing as Sundar Organic Brand

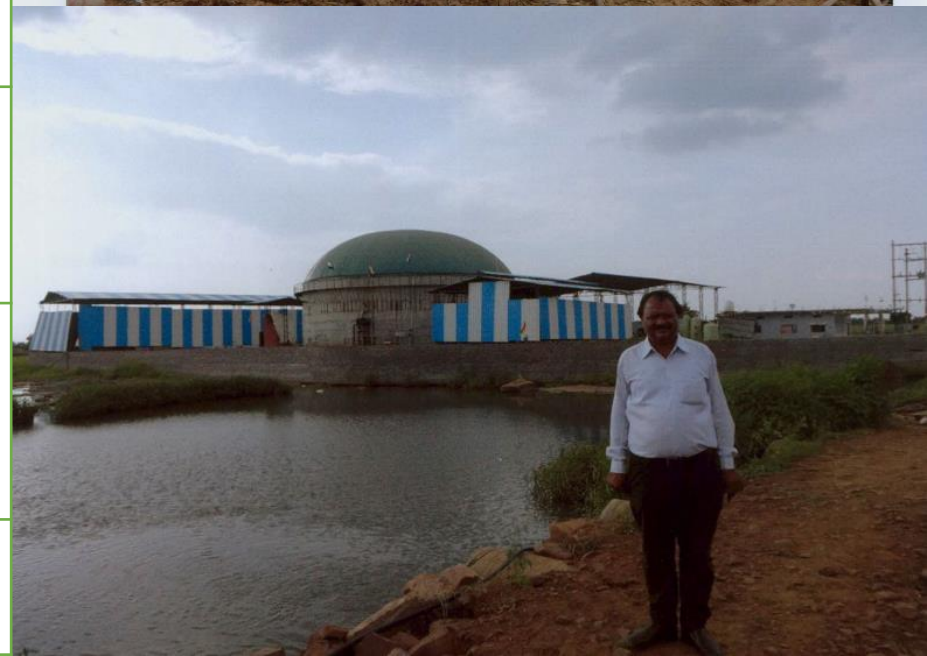
Liquid Organic Fertilizer

- 8 cum/day
- Marketing as Sundar108 Brand

WtE Plant for BioCNG & Organic Fertilizer

(Shri Dayoday Urja Eveam Jiveek Khaad Bhopal)

Number of cattle in Goshala	4000-4500
Quantity of Waste	75 MT/day
Daily biogas production	3000 m3/day
Bio-CNG	1200 kg/day
Bio-Fertilizer Production	27 Ton/day (DRY)
Total Cost of biogas plant	Rs 3.51 Crores
Payback Period	2.90 Years



WtE Plant for Captive Power

450Cum/day biogas plant at Govind Godham Gaushala, Punjab.

The plant meets half of the power needs of the gaushala. The plant with the capacity of 450 cubic meter of biogas can generate power of 50 KVA through a generator set fuelled by biogas generated at the plant.