

# BIO ENERGY & AGRO TECHNOLOGIES

Technologies for Sustainable Future



**MGS** | MG Green Solutions



## Contact

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## Compact Biogas System

### 1. Floating Type Compact Biogas System

Biogas is a renewable energy source. It is produced by fermentation of animal dung, plant and food waste. Traditional biogas systems in India were dung based and these Gobar gas plants have been in operation for a long period of time. Biogas system is not only useful in producing gas, but the slurry given out by the system is high quality manure. It is useful in improving the agricultural yield.

Compact Biogas system is movable and is made up of Polyethylene material which is unbreakable. This system is odorless which allows its usability in rural & urban areas. Biogas System comes in various sizes and capacities; it is small enough to fit in gallery, on terrace of building and large enough to be installed in poultries, dairies, hotels, etc.



**Compact Biogas System**



**Biogas Stove**

### 2. Hirai – The Hybrid Compact Biogas System

**Hirai** Biogas system is a hybrid system as it is a combination of fixed dome and floating dome biogas system with attached pre-digester. The entire working of the system is anaerobic in nature with increased digestive capacity. This reduces the time required for producing gas.

Feed stock for the system is animal dung, plant and food waste. The working temperature of the digestive system of **Hirai** biogas plant remains constant irrespective of weather conditions.

Pressure of the gas obtained in this system is more as compared to other systems. The percentage of methane is higher than the floating biogas system. The fermentation slurry is in constant motion in this system which helps constant generation of gas. The digestive system maintains constant neutral pH. This system is movable and is made up of Polyethylene material which is unbreakable and movable. This system is odorless which allows its usability in rural & urban areas.



**Hirai Biogas System**



**Biogas Stove with high pressure flame**



## Compact Biogas System

### 3. Floating Type Compact Biogas System (Poultry)

The systems currently used in poultry are fixed dome and floating dome type. The limitation of these systems is that they get choked after working for certain period of time. This is due to the fact that around 50% of poultry material consists of indigestive weighted material, which gets deposited at the bottom and piles up until system stops breathing. This technology helps to avoid choking of the system and hence can be used for long term. It also helps in reducing the foul smell of poultry farm.

The digestive system maintains constant neutral pH. The system consists of a pre-digester with primary settling tank containing water built just below the cages, so that the litter directly falls in it. After a week this liquid is transferred to secondary settling tank and kept there for two days. Thereafter it is transferred to tertiary settling tank from where it is fed to biogas digester. The outlet of system is connected to collecting tank where liquid slurry is collected and stored.



*Primary Pre-digester settling tank*



*Secondary settling tank*



*Settling tank Inlet to Biogas Digester*



*Biogas system with slurry collection tank*

## Compact Biogas System

### 4. Compact Floating Type Biogas (Dung use)

This Biogas system is introduced for goshalas and rural areas. It uses animal dung as feeding material and the liquid slurry given out by the system can be used as manure for agriculture.

It consists of Biogas system with attached animal urine filter, distillation tank and liquid slurry collector.

#### Advantages of the Compact Biogas System:

- Alternative to conventional energy resource
- Waste management by conversion of waste to energy
- Generation of bio manure
- Reduce BOD and COD values of the waste.
- Reduce the cost of the organic waste disposal.
- Reduce air and water pollution
- Appropriate technology for rural and urban areas.



*Goshala*



*Urine Distillation*



*Slurry Collector*



*Urine Filter*



## Incinerator cum Hot Water Systems

Presently pollution has become a major issue for the entire world. Increasing severity of all sorts of pollution can be owed to ever increasing human population, increasing usage of fossil fuels, deforestation, improper management of organic waste etc. In current scenario the solid waste is managed by burning it in open space, which leads to air pollution. Now the question arises “How to dispose solid dry waste safely?” Here Incinerator cum Hot water system comes into picture

Incinerator is a clean burning technology which is designed for disposing all kind of solid dry wastes like coconut wastes, packing materials, cardboards, plant waste, sanitary napkins, etc. in a confined space. Along with clean burning of solid dry waste, it utilizes the heat energy from the flue gases to power water heating system. Along with addressing the issue of waste management, the system provides an alternative to conventional energy sources.

### Advantages of the Incinerator system:

- Clean burning and appropriate technology for solid waste disposal
- Multipurpose use for solid waste disposal, water heater, water distillation system, room heating, dryer, etc.



*Incinerator*



*Incinerator*

## Sarai Cooker

Sarai cooker is a multipurpose, multi-fuel and portable cooking device. It employs steamer approach of cooking food. Biomass, bio-char is used as fuel and the device is having high fuel efficiency. It provides good alternative to conventional fuel devices. It doesn't require frequent attention, food does not get overcooked or charred and highly nutritious food is obtained. Sarai Cooker significantly contributes to fuel, time saving and in improving the indoor air quality of the kitchen.

### Advantages of Sarai Cooker:

- Highly nutritious food
- Good Alternative to Conventional fuel
- Improves indoor air quality
- Portable



*Sarai Cooker*

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