

## Rakhi GP in Bemetara promotes integrated SWM



Bemetara district has been a frontrunner in the implementation of the Godhan Nyay Yojana. The district administration has set up a Biogas Plant in Rakhi village of Saja Block under the Gobardhan Scheme of Swachh Bharat Mission Grameen at a cost of Rs.8 lakhs.

The project is a unique example of convergence between Gothan, biogas plant, Gobardhan and solid waste management.

According to the Janpad CEO Ms. Kranti Dhruv, the Chief Minister of Chhattisgarh, Mr. Bhupesh Baghel launched the electricity generation scheme from cow-dung in Gaushalas at Rakhi village on October 2, 2021. Currently, five other similar projects are ongoing.

The sprawling Gaushala spread across an area of 5 acres is equipped with a biogas plant comprising of 2 units, each with 10 CC capacity, complete with a mixer tank, a biodigester and inlaid tank, scrubbers and gensets.

The facility is run by the Blue Brigade with SHG women (dressed in blue sarees) who earn substantial rewards through the scheme. Initially the SHG women were trained in the usage and maintenance of the facility.

**Process for biogas production:** About 200 kgs of cow dung is mixed with water and fed into the influent collecting (biogas) tank. Thereafter, the fermentation slurry flows through the inlet into the digester where it remains for some time, allowing for the bacteria to produce biogas. The fully digested slurry leaves the digester through the outlet into the slurry storage. The biogas of 50% quality is collected and stored until the time of consumption in the gasholder. The impure methane gas from the plant is channelled into the cylinders or scrubbers where it is purified and comes out as pure methane gas that can be used for cooking. When the gas is fed into a genset (generator) it produces electricity that can be used for lighting.



As many as 900 cows are lodged in the Adarsh Gauthan Rakhi in Bemetara district. The Gaushala Committees procure cow-dung at the rate of Rs.2/- per kg from almost 300 Gaushalas of the district and this cow-dung is being processed into vermi compost and super compost by women groups. Compost is being producing by way of putting earthworms in residual of cow-dung and thereafter the produced compost is packed and sold by the women at Rs. 10 per kg.



**Vermi/Nadep Composting:** Within the premises is a vermi composting shed with many troughs where large scale composting is done with the unused cow dung procured for the biogas plant. Alongside is a unit for Nadep method of organic composting which uses a wide range of organic materials such as agricultural and kitchen waste, the end-product that serves as rich manure.

#### **Compost sale in Rakhi village:**

- Cow dung purchased: 193086 kgs
- Compost produced: 14,900 kgs
- Compost sold: 6610 kgs
- Balance compost: 8290 kgs

### Electricity generated in Rakhi village:

- Cow dung to be used for biogas each day: 200 kgs
- Electricity generated per day:  $20 \times 12 = 240$  volts

### Use of biogas and electricity produced:

The Government Primary and Middle School in Rakhi uses the biogas generated in the Gothan to cook mid-day meals for children who are served hot and tasty food. The children in turn learn about biogas and see the practical use of the gas. Needless to say, the cooks who used wood and dung cakes to prepare food earlier are delighted to use gas that produces hardly any smoke. Further, the cost of preparing food has reduced considerably.

Additionally, electricity generated from the cow-dung helps light up the school, the streets and the gaushala. The village women are able to execute their tasks even at night with the lighting available. This allows them more time to work on other chores and at the same time, increase their income.



**Future plans:** Of the 120 Gothans sanctioned for Saja Block, 49 are running successfully with as many as 396 Gothans currently in operation in Bemetara District.

Given the large premises of the Gothan, plans are in the pipeline to develop the same into an industrial park with space for SHGs to produce leaf plates, pickles and jam, banana fibre products, Rakhi wrist bands, oil lamps and agarbattis made of cow dung among others and sell them.

Fodder for the cows and a plantation with trees (Amala, Vel, Peepal, Nimboo and Karonda) and a kitchen garden are other activities planned.

The Janpad CEO is keen to begin a plastic recycling plant and procure a tile making machine to make solid waste management totally integrated in the Gothan premises.

**Convergence:** Existing schemes can be utilised to support this initiative such as the Mahatma Gandhi National Rural Employment scheme, for building cattle protection trenches, wire fencing, land preparation, NADEP tanks, vermicompost infrastructure, road

and water troughs; and the National Rural Livelihood Mission can provide capacity building support for SHGs, among others.

