

Setting up innovative jute processing using biomass based electricity in India



Typical gas engine for biomass gasifier-based electricity generation



A typical 100 kWe biomass gasifier plant to be implemented in Bihar's jute sector

Background

Bihar is India's second largest producer of raw natural fibre or jute, which is a major cash crop for 140,000 local small farmers. However, in jute growing districts, the electrification rate is just 6–7%, which means that small weavers cannot process the material locally. Only 10% of the jute crop is processed by the two large mills within the state. Limited storage also causes farmers to offload their produce to middlemen at the earliest opportunity, reducing farmer profits by up to 2000 rupees (US \$ 37) per ton.

Since the jute producing districts are also abundant in rice production, so locally available biomass resources can be utilized for biomass based electricity systems.

This initiative combines the work of The Energy and Resources Institute (TERI) in biomass gasifiers with the Punrasar Group's jute processing expertise and the Bihar Rural Livelihood Mission. The resulting Bhagidari Network aims to use a women's self-help group to create a sustainable basis for decentralised processing of raw jute and for improving local livelihoods.

Project purpose

To demonstrate the sustainability of the Bhagidari concept with two local pilot jute processing and training centres.



Main activities and outputs

- Shortlist suitable locations in the selected jute producing district
- Create map of local biomass resources
- Establish two pilot processing and training centres, with 80 small machines requiring 120 kWe
- Install TERI-designed biomass gasifiers to provide electricity
- Work out suitable institutional and implementation arrangements
- Supply electricity to jute centers and local village households
- Monitor and collect pilot data
- Prepare case study material, films
- Organise a national level workshop to share outputs with stakeholders and other sectors such as cotton weaving, fruit and vegetables

Expected impacts

- Creation of thousands of women's weaving microenterprises in the region
- Reduced involvement of middlemen in jute supply chain thereby increasing farmer's profits
- In-state jute processing increased
- Availability of electricity in villages previously not or poorly served
- Emissions reduction of around 375 t CO₂ per year

Project Information

Location:

India

Duration:

2013–2015

Sector:

Renewable Energy

Thematic focus:

Energy and food

Total project budget:

€ 542,714

REEEP grant:

€ 150,000

REEEP donor:

Switzerland

Co-funding:

€ 392,714 from Punrasar Group, the Ministry of New and Renewable Energy (REC) and the State of Bihar

Implementing partner:

The Energy and Resources Institute (TERI)