



## Biomass to energy, India

The Malavalli biomass plant, generating green power from agricultural waste, was the first emission reduction project in the world to receive Gold Standard (GS) status and deliver GS Certified Emission Reductions (CERs) under the Kyoto protocol.

### Location



The project is located in Kirugavali, a village in the southern state of Karnataka, at the base of the Chamundi Hills. Blessed with the irrigation waters of Cauvery and Hemavathi river, the region is lush in various hues of green throughout the year and is a predominantly agricultural area with mostly sugarcane and rice grown.

### Project



The Malavalli power plant runs on 100% biomass to generate clean electricity for a rural region, using an innovative way to burn low-density crop residues, combining power generation from renewable resources and sustainable development in rural areas.

The region is widely typified by agriculture, generating large amounts of crop residues, mostly cane trash, rice husk and coconut fronds which, before the project's start, used to be under-utilized and left for decay or burnt in the fields. Today, hundreds of farmer families in the region earn extra income through the sale of their biomass to the power plant, and in addition benefit from organic fertilizer from biomass ash they are given by the project owner. In other words, the plant is generating commercial value to crop residues, enabling farmers to get better prices out of their work and reach a higher living standard.



The collection of biomass from the region, the operation of the plant and the production of organic fertilizer generated several hundred new jobs in total, tackling the region's unemployment situation, particularly during the rainy season. The workers on the project site enjoy free health care and a pension plan above Indian standards. With more than 80% of India's population living in rural areas and considering their desolate power supply situation, the project has an immense replication potential throughout the country.

## Project achievements



### Socio-economic impact:

- About 400 jobs have been created in the biomass chain to supply the 140 tonnes of biomass per day required by the plant.
- The 200 plant workers are now earning 64% more per working hour compared to the average of previous occupations. All workers have access to free health care and enjoy a free daily meal and coffee, and the company pays 12% in addition to the salary into a pension fund for the employees (which is not required by the national legislation).
- The plant supports GAM (Grameena Abhivrudhi Mandali), a community project helping locals to pay their electricity bills without having to travel to the next office that could be a day trip away.
- The plant feeds the generated power to the local substation that supports about 50 nearby villages with electricity. Thereby the plant replaces the firing of wood and fossil fuels and thus contributes to cleaner air in the region, mitigating respiratory diseases.
- After the biomass is burned the ash is used for creating organic fertilizers that are given to the farmers from whose fields the biomass is collected.

### Environmental impact:

- The project encourages organic farming through production and distribution of organic fertilizer to farmers.
- The project reduces the uncontrolled burning or decay of crop residues on the fields, which would otherwise result in particulate and odor emissions as well as possible contamination of ground water.
- In collaboration with GAM, farmers are sensitized on energy conservation and water resources in agricultural practice.
- The free provision of ash based organic fertilizer avoids the use of inorganic fertilizers that harm water life and form a large source of greenhouse gas emissions, mainly methane and nitrous oxide.

## Checklist Project 300 011



The Gold Standard®  
Premium quality carbon credits

✓ Additionality and permanence:	according to the rules of the Gold Standard
✓ 3 <sup>rd</sup> party verified::	by by Det Norske Veritas
✓ Transparency:	provided by the Gold Standard Registry)
✓ Annual CO <sub>2</sub> -reduction:	15,000 tCO <sub>2</sub> e
✓ Social and environmental benefits:	as documented in our database
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