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Biomass Energy for Rural Development

Project Title

Biomass Energy for Rural India

Budget

Total: USD9 million

Global Environment Facility (GEF): USD4 million; Department of Rural Development and Panchayat Raj, Government of Karnataka: USD1.5 million; India Canada Environment Facility (ICEF): USD2 million; Ministry of New and Renewable Energy, Government of India : USD390,000; and Others: USD240,000

Duration

May 2002 - December 2010

Partners

Rural Development and Panchayat Raj Department, Government of Karnataka; and Indian Institute of Science, Bengaluru

Project Location

Tumkur district (Karnataka)

Challenges

India relies predominantly on fossil fuels to meet its energy needs. As much as 40 percent of the energy generated in the country comes from coal, 34 percent from fuel wood and 15 percent from petroleum. The share of fossil fuels is projected to increase to 74 percent of total energy use by end of 2010. Consequently, the growth in fossil fuel consumption will result in increased greenhouse gas emissions, local and regional environmental problems and land degradation.

On the other hand, over 95,000 villages, i.e., 60 percent of the total households, have no access to electricity. In many regions, electricity supply is erratic and voltage fluctuates. The extraction of biomass from forest and trees, low-efficiency of devices and high human drudgery associated with cooking characterise the rural energy consumption pattern. Meeting cooking and irrigation energy requirements through renewable energy technologies provide a large potential for environmentally sustainable development.

Response

The Global Environment Facility and the United Nations Development Programme (UNDP), support the Department of Rural Development and Panchayat Raj, Government of Karnataka, to promote the use of renewable bio-energy technologies.

Co-financing support is also provided by the India Canada Environment Facility, the Government of India's Ministry of New and Renewable Energy, and the project beneficiaries. The project has initiated activities for enhancing capabilities among rural communities, non-government organisations, entrepreneurs,

manufacturers, financing institutions and policy-makers to overcome the barriers (technical, institutional, information, financial, and market) in the promotion of renewable bio-energy technologies.

The aim is to develop bio-energy packages with the involvement and governance by local community members and locally-elected village councils called *Gram Panchayats* in 24 villages in the southern Indian state of Karnataka. To ensure that the biomass is supplied sustainably to produce electricity, plantations have been established in nearly 3,000 hectares of land. The power generated, thereby, is transmitted to a power grid and further supplied to those who need it the most. The project also envisages developing financial and market strategies to demonstrate the feasibility of using biomass technology on a large-scale.

Impact

Biomass gasifiers, developed by the Indian Institute of Science, Bengaluru, have been installed in selected villages for converting firewood and agriculture residue into combustible gas. About 280,000 kilowatt hour (kWh) of electricity has been generated from just three such units since January 2007. This is equivalent to annual electricity consumption of 300 rural households.

Under this project, the *Gram Panchayat* of Kabbigere village became the first locally-elected village council in India to enter into an agreement with the Bangalore Electricity Supply Company to sell power generated by their unit at a rate of Rs. 2.85 per kWh.

Recently, yet another *Gram Panchayat* signed an agreement with the privately-owned Malavalli Power Plant Ltd., to hold equity participation and sell power to a public utility. Such developments are helping to bring into practice India's Electricity Act of 2003, which allows for decentralised generation and distribution of power.

Besides, 51 group biogas plants have helped 175 households to cook with cleaner fuel. These biogas plants get their fuel from nurseries set up by 70 self-help groups, thereby providing women belonging to marginalised communities income-generation opportunities.

For more information, please write to info.in@undp.org

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