



## Biomass Based Clean Energy Solutions in India

### Accelerating use of Biomass for Clean Energy Services



**Nearly half of India's rural population has no access to electricity. Their lighting energy needs are met from inferior fuels such as kerosene and other sources, affecting social and economic development. The goal of the project is to accelerate the diffusion of biomass-based clean energy systems to improve rural energy services.**

#### Theme

Climate Change

In India, nearly half of the rural households do not have electricity access. Households and enterprises with electricity access suffer from unreliable supply and availability of assured energy fuels for productive end-uses. This affects not only villagers, but small industries, which depend on a variety of fuels and use thermal energy through processes that are both inefficient and low-yielding, which has a significant impact on the health of local populations and the environment. Clean energy systems using renewable organic material (biomass) have the potential to improve electricity access in villages and to meet energy needs in small and medium enterprises.

#### Region

India

#### Partners

The Energy and Resources Institute (TERI), Sorane Sa, Technical University of Denmark (DTU) and National Thermal Power Corporation (NTPC)

#### Starting point / Background information

Rural India suffers from the lack of quality electricity supply and clean energy sources for productive use. In spite of the tremendous potential of biomass based energy solutions to address India's energy deficit, biomass systems are yet to achieve scale.

#### Producing energy at the local level

Households in villages and Micro, Small and Medium Enterprises (MSME) are exploring energy solutions that are based on renewable energy resources. One example of growing relevance is the use of a technology called biomass gasifier, which creates thermal energy or electrical power from organic materials (such as wood and crop residues).

#### Project target

Accelerate the adoption of biomass-based energy systems so that rural communities and small enterprises secure access to clean energy services.

In spite of the tremendous potential of biomass based energy solutions to address local energy concerns, these systems are yet to achieve a level of mass application. Factors ranging from imperfections in the technology, biomass availability, to lack of awareness of existing innovations, have hampered their acceptance as a mainstream energy source. This offers a new opportunity to organise the biomass supply for clean energy use and to upgrade the technology for accelerated diffusion of biomass energy based clean energy systems.

#### Target group

Un-electrified rural households and MSME units

#### Spreading innovative solutions

Consequently, the project focuses on developing and spreading the technology for decentralised biomass-based energy solutions, e.g. through developing technology packages for rural villages and promoting thermal gasifiers in the MSME sector. The project supports technology development of two-stage power gasifier and tested for field applications using different fuel types and energy loads. The project also supports technology upgradation of thermal biomass gasifiers.

#### Costs

CHF 2'400'000

#### Duration

07/2012 – 06/2015

To accelerate the diffusion of biomass energy systems, the project will support efforts to demystify the biomass supply chain and put in place diffusion strategies. Finally, the project will encourage market development and technology transfer by developing new models for scaling up through local service providers and establishing cooperation around South-South knowledge exchange.

#### Contact

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