

# Business Standard

Monday, Jul 09, 2012

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## Keya Acharya: Planting power

Keya Acharya / Jul 08, 2012, 00:35 IST

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It is certainly remarkable to happen upon a 300-acre "energy forest" in the midst of interior, degraded lands, and that too, an indigenous plantation. "It's the first of its kind anywhere in the world," says Sam Venkatesam of Energy Plantations India (EPPI), "and it's different from other energy plantations because it belongs to the power plant company."

EPPI's plantations will now supply a 2 Mw biomass gasification power plant, using 2.6 tonnes of biomass per megawatt daily. Its plantation, started in 2007, has the fast-growing *Melia dubia* of the neem family along with seven other indigenous species including *Subabul*. Growing to 20 feet in four years, the plot will yield an average 50 tonnes per acre yearly. *Melia dubia* is 'coppiced' (or cut so that it re-grows) first in four years and subsequently every three years.

Fed with drip and under-topsoil irrigation systems, EPPI spends Rs 20,000 per acre annually, which still makes costs per unit of energy cheaper than having to buy biomass, suppliers of which have been unable to ensure a steady supply in the market. Gasification in fact has faltered in India due to unsteady availability.

But EPPI says the lack of available scientific research on what constitutes steady growth and supply for energy plantations led them to set up an R&D plot in 2003 to determine factors like growth rate, calorific value, moisture needed for optimum growth, soil suitability and its link with indigenous species. Climate extremes, like drought, are countered by increasing, as a buffer, the volume of each critical component. For instance, five acres of land are calculated in place of the one acre needed. "We call this 'predictability'," says Venkatesam. "We bring in local suitability, repetitive value and scalability together with 'social inclusion' to our operations."

But a pioneering spirit is also part of the ensemble. "If I were to accept all factors such as climate change and the like, I'd have to give up, saying there's nothing I can do," remarks 70-year-old Venkatesam, who is familiar with the problems of start-ups. A retired director of the telecom MNC Motorola, Venkatesam was responsible for spreading cellphone growth in China in earlier decades. In EPPI, Venkatesam has had the support of Satheesh Gundappa and Murali Anur in the company's tribulatory journey to today's success.

Over half of EPPI's small workforce of 35 people are women, employed mainly in the nursery, with work timings changed to suit their home responsibilities. They come to work at 7 am, leave at 2 pm and are back with their goats for grazing on

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lands set aside for that purpose, a feature that has endeared the women to their jobs.

Bio-fuel plantations, however, such as those of sugar-cane or maize for ethanol, have been controversial the world over. In India, jatropha plantations for biodiesel oil continue to be environmentally and economically controversial. The use of vast lands by corporate interests inside village areas pose threats to food supplies and livelihoods, or of using scarce water resources that affect groundwater or monocultures that affect soils, causing angst in India.

But EPPI's method of bio-gasification is an ideal solution for small power needs in rural areas, says Deepak Gupta, who visited EPPI as director of the ministry of new and renewable energy (MNRE) and has recently retired. Gupta points out that unlike solar energy which needs sunlight to function, biomass power can be continuous, provided the biomass availability is ensured; it can be provided to the local grid, thereby cutting transmission losses; it works best with local community employment; helps regenerate degraded lands; and it is cheaper. "Such energy plantations could even power regional rural needs, such as for the tea industry in the Nilgiris," says Gupta.

EPPI's forests have now revived the area's ground water table, from 300 feet in 2007 to around 80 feet today. Rainfall has increased from approximately 200mm in 2005-06 to 800mm in the last two years. The area's regeneration has attracted birdlife and wildlife which come to drink water at the plantation's four storage reservoirs, built on natural contours to conserve rain and groundwater.

There are other value-additions too. A 2 Mw energy plantation can help power one cellphone transmission tower. There are 500,000 transmission towers in India, due to rise to 800,000 in the next five years, currently consuming close to 4.3 billion litres of diesel annually, according to the Telecom Equipment Manufacturers Association (TEMA), the second largest in consumption after the Indian Railways. Using two litres of diesel per hour of operation, the savings on diesel and its subsidy is significant.

EPPI has now garnered \$4 million towards construction of one 2 Mw plant, but is looking for further backing to expand.

*The writer is president of the Forum of Environmental Journalists in India*

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