



## News from IEI's Asian Regional Initiative in Bangalore (India) – June 2014

### **Value-addition to food crop processing: converting banana plant-waste to cooking fuel**

This project had been selected for financial support by the Wuppertal Institute for Climate, Environment, and Energy, Germany, at the 7<sup>th</sup> Round of their Wisions-SEPS programme and implemented (between February 2012 and December 2013) by us in a village near Bangalore (Karnataka state, south-west India). We were able to demonstrate increased output of bananas (a source of nutrition) through efficient farming practices (particularly conservative irrigation) and simultaneously the use of banana-stem-waste for generating biogas. The gas generated in digesters constructed for the purpose, was supplied for stove-fuelling to homes in the village, through pipelines drawn from the digesters. As importantly, a share of the increased annual earning from banana sales is being used to recover the costs of the facilities.

Based on the positive experience of this demonstration, and possible modifications based on the lessons learnt, the project will now be extended, again through the financial support of the Wuppertal Institute. By extending the project to other locations, we want to emphasize that the challenge of delivering clean energy to rural homes in a financially sustainable way can be met if linked with related income-generating activities and that the initial demonstration was *not a single special case*. We also want to emphasise that the derivation of all the *benefits* – increased harvests of nutritious food, enhanced employment and income, conservative water use, derivation of a renewable source of energy from “free” crop waste, clean stove-fuel and N<sub>2</sub>-rich field-manure, are replicable. Based on the *observations of the initial demonstration*, instead of large digesters with extended pipelines, we intend constructing more small units, i.e. smaller biogas-digesters easily linked to the clusters of adjacent dwellings. We would like to prove that the “efficient cultivation->clean fuel” system can be sustainable with smaller groups of families, without the need for village co-operatives. This would enable replication beyond the non-profit sector.

### **Integrated Resource Planning (IRP) for state power utilities**

As applied to the power sector, integrated resource planning (IRP) is an approach through which the estimated requirement for electricity services during the planning period is met with a least-cost combination of supply and end-use efficiency measures, while incorporating concerns such as equity, environmental protection, reliability, and other country-specific goals<sup>1</sup>.

IRP is employed by the power utilities in other parts of the world and its benefits include, among others, better assessment of future power requirement and the consequent matching of capacity additions, lower costs and increased reliability of electricity supply, and reduced environmental impact. In India, IRP has thus far only been used to a small extent in research efforts. Hence, attempts are now being made to encourage IRP at state power utilities and where unbundled, their generating, transmitting, and distributing companies. At this stage, we are focusing on IRP requirements and the possibilities of overcoming the barriers to effectively carrying out such planning at state utilities.

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<sup>1</sup> A. D'Sa, 2005. “Integrated resource planning (IRP) and power sector reform in developing countries”, *Energy Policy*, 33, pp.1271-1285.