

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

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

We are continuing our extension of efficient resource use at farms, integrated with the generation of clean fuel; in this case, resource-efficient banana cultivation is combined with plant-waste converted to biogas for stove-fuel. As with the initial demonstration (selected for financial support by the Wuppertal Institute for Climate, Environment, and Energy, Germany, at the 7th Round of their Wisions-SEPS programme), banana cultivation will be carried out with efficient water and fertilizer use, and the plantation-waste (chiefly pseudo-stems around the main fruit-bearing stalk of each plant) will be used as digester-substrate for the generation of biogas for stove-fuel. Apart from sustainable production of additional food and clean fuel, and the related employment in the locality, the earning from the banana sales will support the cost of the biogas generation facilities. Building on the lessons learnt from the initial demonstration in one village and the current extension to dispersed clusters of homes, we intend drawing up a manual on the food-livelihood-energy package, along with an assessment of funding opportunities of such projects.

Two months along, micro-irrigation (drip) facilities have been provided for 2 acres, i.e. 0.5 acre each at four small farms located in Ramanagara district, Karnataka state.

Banana saplings have been planted and cultivation has begun. *The photographs show drip irrigation piping installed prior to the planting of saplings at one of the farms, and later, rows of young banana plants growing.*

Simultaneously with the crop cultivation, biogas-generation facilities are being developed. Instead of a single large digester, the construction of four small biogas-digesters – two of 8m³ and two of 10m³ -- has been planned. Each plant is being suitably located between the homes of the banana-plantation owners and others who want clean stove fuel and are willing to pay for it. This will enable direct connections to the gas-holder in each case instead of extended piping and also facilitate each group's managing activities such as mutually-convenient hours of supply.

Thus far, the construction of one of the biogas-plants -- in *Hulikál village (Magadi taluk)*, has begun. *The photographs show the construction work in progress:- labourers working on the base of the digester pit, and later, the (concrete brick) lining and partition wall under construction within the pit.*



Integrated Resource Planning (IRP) for state power distribution utilities

Essentially, integrated resource planning (IRP) for the power sector consists of estimating the need for electricity during a specified period, and evaluating the cost/unit of the available options -- generation technologies and transmission upgrades, as well as end-use efficiency improvements and DSM measures -- that contribute to bridging the demand-supply gap. The main purpose is to identify the mix of resources that will minimize power costs to the utility and society, while ensuring sustainable operation of the system.

While IRP is used (by mandate or by choice) at power utilities in other parts of the world, it has not yet come to be employed by Indian utilities, despite the benefits likely to be reaped. This implies that there have been and perhaps continue to be barriers to utilities' adopting integrated planning methods. In particular, with most state power utilities "unbundled" between generating, transmitting, and distributing companies, each individual utility could experience difficulties with conducting integrated assessments of supply and demand-side options. Further, the utilities most visible to the public -- the distributing utilities, who only purchase electricity to distribute among their customers, could perceive barriers to assessing both supply - and demand-side options.

In order to address these problems, a deliberate attempt is being made to draw out all the possible barriers to Discoms' effectively carrying out IRP, with specific reference to the Bangalore Electricity Supply Company (BESCOM) serving the south-east part of Karnataka state. For a systematic assessment, the barriers are being classified as financial, technical, and operational. More importantly, likely routes to surmounting such barriers are being located, so that the benefits of integrated planning could be experienced by the utilities and the consumers.

