Flexible BioGas chain simulator

To improve biomass management and encourage biogas usage

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Abstract
Solid wastes like cooking-waste, farm-waste and manure have negative influence on the environment, health and hygiene of people. Within India there are possibilities to manage the available biomass[4] in an efficient way, which can bring environmental, health and economic benefits. Through Anaerobic Digestion, biomass can be converted into biogas and digestate, which can be used as renewable energy source and fertilizer respectively. However, there is a lack of knowledge on how to use the available biomass and, thus, it's products in a beneficial way. This leads to the main question: How to fit biogas production within the existing energy infrastructure of India? Our approach involves modeling biogas chains from production to consumption and then analyze several different chains. Within the Flexigas project a flexible BioGas simulator is being created, which is capable of simulating biogas chains. The simulator takes into account the location and availability of biomass, different biomass and biogas transport, anaerobic digesters, biogas upgraders and various cost involved in the biogas production process. A multi-touch User Interface is used for simulation control and result visualization. Results from the simulator shows how feasible it is to setup the biogas chains, its advantages and increases knowledge on effective biomass use.

[4] Asokan Pappu, Mohini Saxena, Shyam R. Asolekar, Solid wastes generation in India and their recycling potential in building materials, Building and Environment, Volume 42, Issue 6, June 2007, Pages 2311-2320, ISSN 0360-1323, 10.1016/j.buildenv.2006.04.015.