



University of Tropical Agriculture UTA Foundation at [the Ecological Farm](#)



A downdraft gasifier was imported from India on 25 July 2005 and installed in the Ecological farm of UTA. The model is similar to the one installed in Cambodia (from Ankur, India; Photo G1) in September 2004, but is smaller: (4 KW). Initially small pieces of wood and bamboo (Photo 2) are chopped into small pieces (Photo G4) as feedstock but later the aim is to use the fibrous residue after squeezing the juice from sugar cane (Photos G5 and G6). The bagasse has a lower density than wood, and is similar to rice husks. To use these two types of fuel modifications have been made to the design of the gasifier and are presently being tested in Cambodia and Colombia. A high speed forage chopper has proved to be a suitable machine for chopping the bagasse (Photo G8). An important step forward has been to integrate the biodigester with the gasifier (Photos G6 and G7).



Photo G1: The 4KW gasifier unit in TOSOLY



Photo G2: Branches from coffee, citrus and other trees together with bamboo residues will sawn into chips (Photo G3)



Photo G3: The chips from the waste wood and bamboo that will be the feedstock for the gasifier



Photo G4: The 3-roll crusher used to extract the juice from sugar cane. This residue can be chopped into smaller pieces (Photo G5) but because of the lower density is not a suitable fuel for the "Ankur" gasifier which has been designed specifically to use wood chips.





Photo G5: Sugar cane bagasse after chopping with a guillotine. A way has to be found to mechanize this process and still achieve the necessary reduction in size



PhotoG6: The polyethylene reservoirs suspended close to the gasifier. These are filled with combination of biogas and producer gas. After running the gasifier and engine, the engine is stopped but the gasifier continues to produce gas which is stored in the reservoirs



PhotoG7: A similar system is used to store the gas in the reservoir of 7m³ that will fuel the Lister engine running in " dual-fuel" mode.



Photo G8: The machine used for chopping the bagasse