

# MOCHIDZUKI LAB.

## [Biomass Energy]

Collaborative Research Centre for Energy Engineering

<http://www.biomass.iis.u-tokyo.ac.jp>

### Local Energy Engineering

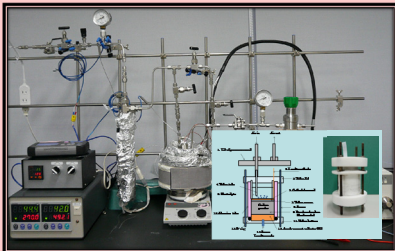
We are conducting researches on the development of key technologies and their fundamentals, based on chemical engineering, as follows.

- Combination of saccharification, fermentation and separation for bioethanol production
- Behavior of nitrogen and phosphorus in carbonization process
- Electrochemical oxidation of charcoals
- Biomass storage and its effects on the saccharification/fermentation

Fundamentals of biorefinery technologies  
 > Saccharification and fermentation of lignocellulosics



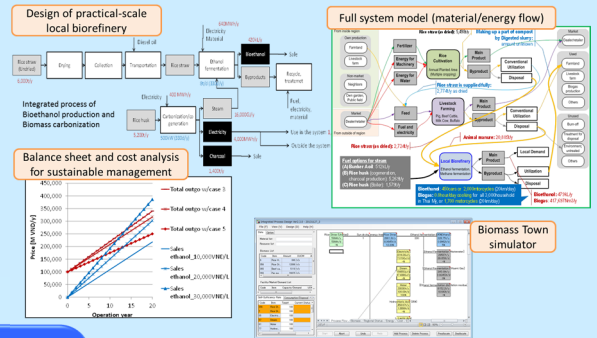
Electrochemical oxidation of charcoal  
 > Direct carbon fuel cell



Laboratory works  
 > Technological developments

Focusing on reasonable scenarios for the regional biomass utilization system, we have drawn up a plan of "Biomass Town" to meet the actual situation of local communities. We have examined methods to design and analysis of the biomass utilization systems based on the concept of Biomass Town. The methods involved analyses algorithms to deal with the following units: i.e., biomass availability, biomass collection/transportation, biomass utilization process design and environmental impact.

Design of Biomass Town for Vietnam



Computer works  
 > Establishment of reasonable biomass utilization systems

Key Technologies

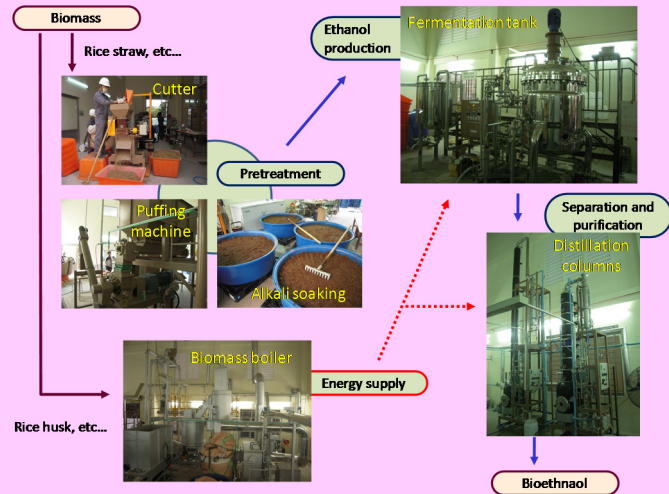
Design and evaluation

Process engineering

Demonstrations

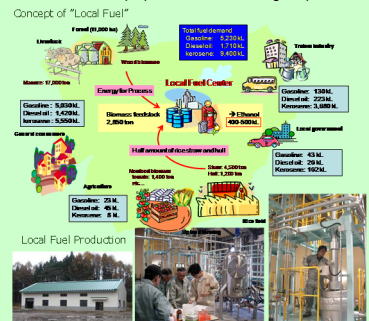
Pilot plant works  
 > Towards practical productions

Engineering research on small-scale bioethanol process for Biomass Town



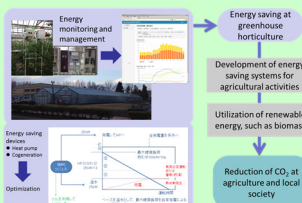
Demonstration of local biogas utilization (Katori-shi, Chiba)

Development of small-scale bioethanol system based on "Local Fuel" concept (Shinano-mach, Nagano)



Field works  
 > Comprehensive evaluations

Energy monitoring/management of agricultural activities  
 Evaluation of energy saving devices



Demonstration of Biomass Town system in South-east Asia (Thai My Village, Vietnam)

