CEE

MOCHIDZUKI LAB.

[Biomass Energy]

Collaborative Research Centre for Energy Engineering

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

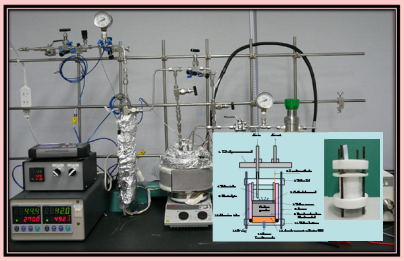
Local Energy Chemical Engineering

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

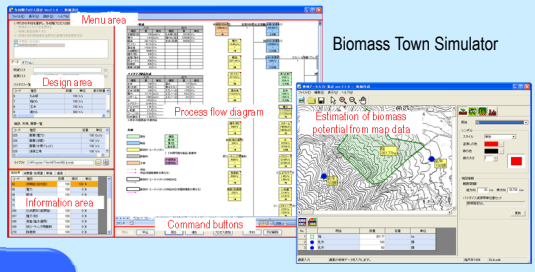
Fundamentals of bioethanol technologies

Electrochemical oxidation of charcoal (Direct carbon fuel cell)



Laboratory works
➢Technological developments

The final goal of this project is to promote the biomass-orientated regional material and energy circulations, to nurture the growth of the sustainable society. In order to create 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. Integrating the algorithms, we developed a Biomass Town Simulator.



Biomass Town Simulator

Computer works
➢Establishment of reasonable biomass utilization systems

Key Technologies

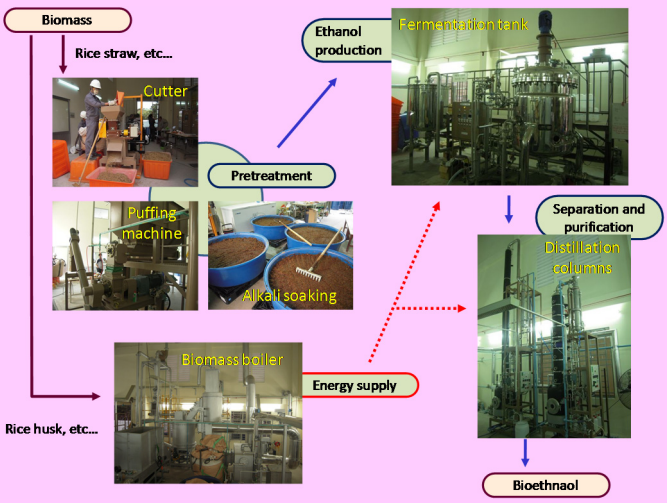
Design and evaluation

Process engineering

Demonstrations

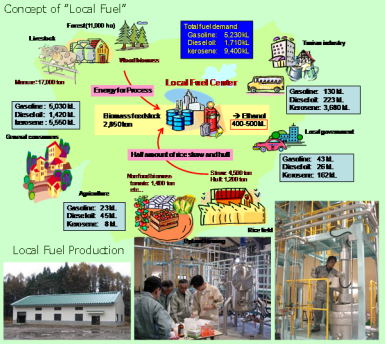
Pilot plant works
➢ Towards practical productions

Small-scale bioethanol system for biomass town

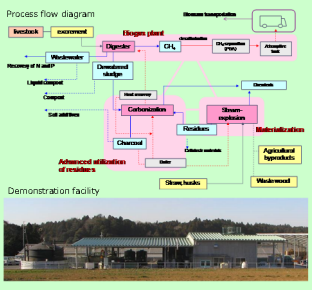


Field works
➢Comprehensive evaluations

Development of Small-scale Bioethanol System Based on "Local Fuel" Concept (Shinano-mach, Nagano)



Demonstration of Local Biogas Utilization (Katori-shi, Chiba)



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