

# SAKODA LAB.

## Sustainable Biomass Utilization Development and Application of Nano-carbon Materials

Department of Materials and Environmental Science

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

Chemical  
System  
Engineering

### Environmental Chemical Engineering

#### Sustainable Biomass Utilization

A sustainable biorefinery system based on the concept of local production of biofuels and bio-based materials for local consumption are designed, developed and demonstrated. Also, the key technologies for the biorefinery system are studied and developed.

##### ① Integration of Local Agriculture and Biomass Industries In an Area of Southern Viet Nam

(JICA-JST joint project with Ho Chi Minh City University of Technology (Viet Nam) : 2009-2014)

- Material and energy flow analysis of traditional farming VAC
- Design of biomass town based on bioethanol production from rice straw and biogas production from livestock excrement
- Investigation of environmental load and sustainability of the system

##### ② Development and Management of Biomass Facility and Plant In an Area of North-east Chiba Prefecture

- Separation, purification, adsorptive Storage of biogas, and its use for vehicle fuel and people's livelihood
- Use of methane fermentation residue as a compost and production of valuable resource from the residue
- Production of solid fuel and industrial materials from biomass by steam-explosion and superheated steam dry distillation
- Development and application of supportive tool for design of sustainable biomass town



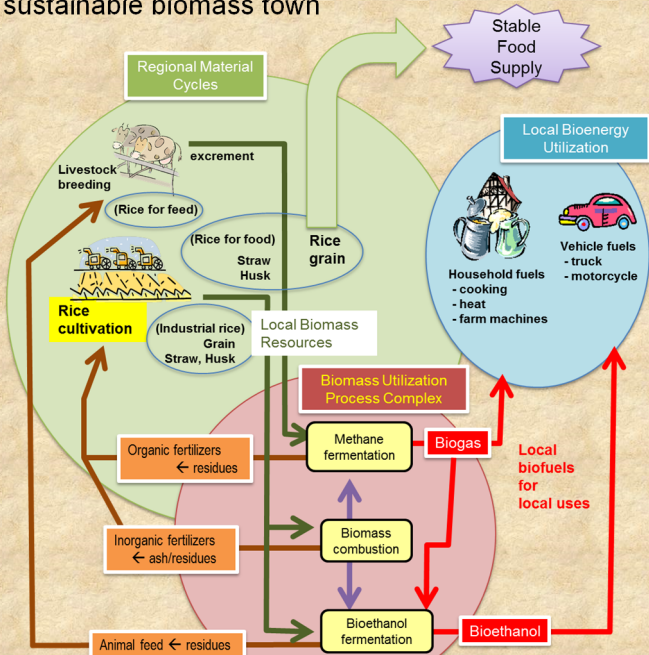
Biomass Facility and Plant in HCMUT



Biogas Plant



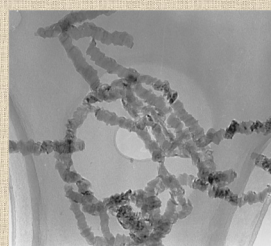
Biomass Facility and Plant in Katori City, Chiba Prefecture



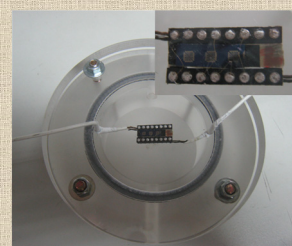
An Example of Sustainable Biomass Towns in Asia

#### Development and Application of Nano-carbon Materials

Large-scale synthesis of platelet Carbon nano-fiber with high functionality and its application to gas sensor and bio-sensor are investigated.



Platelet Carbon Nanofiber



NH<sub>3</sub> Gas Sensor using Platelet Carbon Nanofiber