# 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 and Chemical Engineering

## Sustainable Biomass Utilization

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

### ① Sustainable Integration of Local Agriculture and Biomass Industries In Southern Vietnam

**（JICA-JST SATREPS with Ho Chi Minh City Univ. of Tech., 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
- Environmental impacts and sustainability of the system

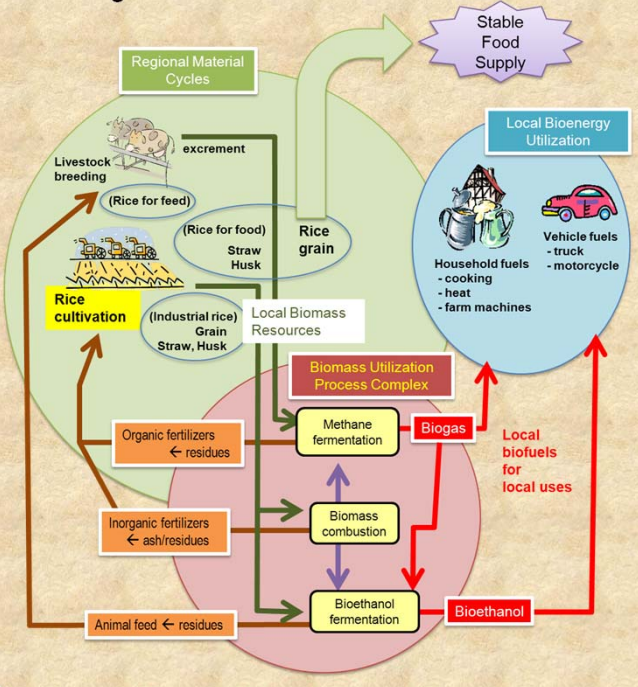
### ②Development and Management of Biomass Facility and Plant In north-eastern Chiba Prefecture

**（MAFF Project with National institute for Rural Engineering, 2004–2011）**

- Separation, purification, adsorptive storage of biogas, and its use for vehicle fuel and people's livelihood
- Use of methane fermentation residue as compost and production of valuables from the residues
- Production of solid fuel and industrial materials from biomass by steam-explosion and super-heated steam pyrolysis
- Development and application of supportive tool for design of sustainable biomass town

Biomass Facility and Plant in HCMUT


Biomass Facility and Plant in Katori City , Chiba Prefecture



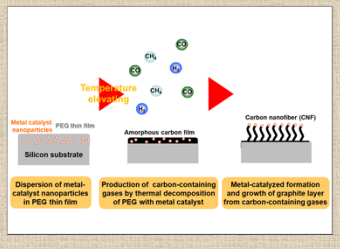

An Example of Sustainable Biomass Towns in Asia

## Development and Application of Nano-carbon Materials

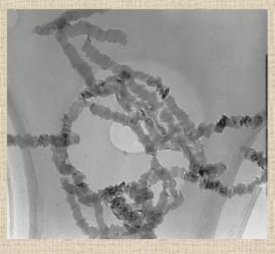
**Large-scale synthesis of carbon nanofiber (CNF) with high functionality and its application to gas sensor and bio-sensor are investigated.**

**（NSC–JST project with Chung-Cheng University：2009–2011）**

- **Synthesis of CNFs by thermal decomposition of polyethylene glycol (PEG) with metal catalyst**
- **Novel CNF gas sensor**
- **Novel CNF bio-sensor**




Growth mechanism of CNF



Platelet CNF