FINAL PRESENTATION

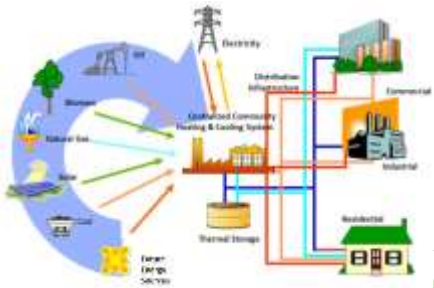
International Winter Course Program 2015
Practical Agricultural Sciences towards Regional Sustainability

BIORESOURCE AND RISK MANAGEMENT

Group A

Akinori Hirano
Shoko Namekawa
Sangrani Annisa Dewi
Rizky Rajabillah Purwoko
Daneeya Hengphum
Natthapakorn Suk-osot
Brigitta Lydia
Wismayanti Ginasari

INTRODUCTION



Bioresource

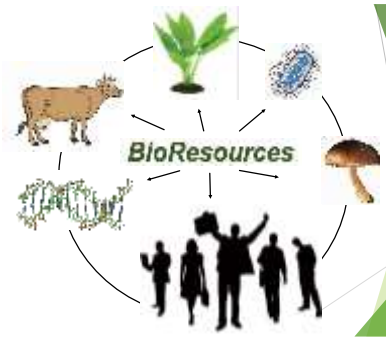
Nonfossil biogenic resources which can be used by human or multiple purposes: to produce food, substantial product, and / or energy carriers

Economic activities exceeding the environmental capacity

Climate change

Overuse of resource

Depletion of nonrenewable resource



PROBLEM

Japan
- Limited area
- Lack of bioresource

Thailand
Excessive pesticides used

Indonesia
Fossil fuel extinction

Common issue

Biodiversity | Biofuel

Biodiversity

Soil

Microorganism live
Base for food production
Human have induced soil degradation and natural inheritance of fragility

Soil disturbance
- Tillage and compaction
- Salinization
- Drought
- Erosion

Agrochemical use
- Application pesticide, herbicide

Decrease bioresource

◆ If biodiversity decrease…?

human
- Some organism has unknown function.
  →Specific function will be lost in the future.
  →We can not make new medicines.
- If organism extinct, it will be not able to recover again.

earth
- Break environment
- Inequality organic valance

We can not adapt environment change in the future

Risk management about Biofuel

NIAES
Measurements for erosion or flood

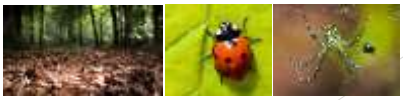
Ashita and Valentia fram
- cover crop
- Bio pesticide
- Training center for next generation

Tsukuba Botanical garden
Preservation endangered plant species
Establish institute of preservation and research center

Spread and share knowledge and value of organism species and biodiversity to tell widely
- **Develop and rethink technique included oldway**
- **Develop application or database**
- **Held workshop or congress for ordinary people**

ORGANIC FARMING

Advantages
- The soil is more fertile with nutrient and habitat of earthworms.
- Natural enemies are biological factors that can control the amount of pests.
- Utilization of humus as a fertilizer.



Biofuel

World Trending Issue

World consumes 31,791.5 million barrels

Source: www.dailymail.co.uk (2015)

World Fuel Storage is Available until 2041

Source : www.businesstimes.com.sg (2015)

What will we use then as alternative fuel ?

Biofuel

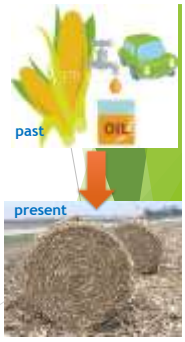
Alchole fuel, synthesis gas made from biomass energy
ex. bioethanol, bio diesel fuel, bio gas

Good point

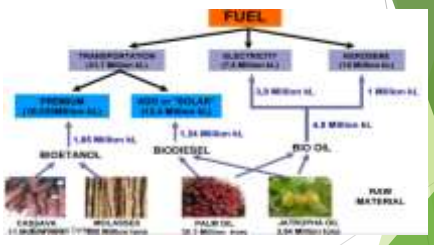
- Total discharges of carbon dioxide (CO2) do not increase
- Recyclable resources instead of exhaustible resources

Why Biofuel???

- **Fossil energy resource limitation**
  but we need energy for our life
- **Air pollution**
  a cause of global warming
- **Abundant raw material**
  focus on crop residue to not compete with food
  We have used plants conventionally to make



Biofuel as 1st Alternative

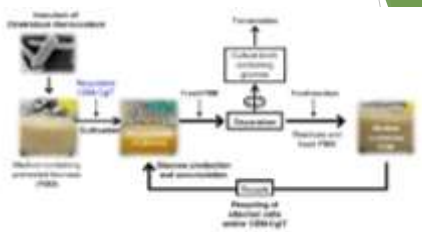


Source: Agency for the Assesment and Application of Technology (2006)

Bioethanol Production

Source: Agency for the Assesment and Application of Technology (2006)

Using Microbe for Effective Bioethanol Production



Source: JIRCAS (2015)

Risk management about Biofuel

- Competition with the food
  using plant residue, using waste
- Production cost is high
  combine or skip some process
- Carbon dioxide is exhausted by construction and the operation of the production factory
  but we can not estimate income and outgo
  pre-operation

Conclusion

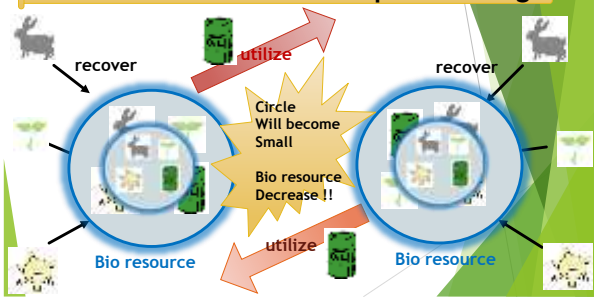
Biodiversity

Preserving

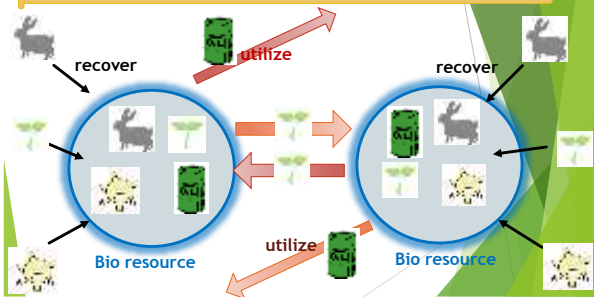
Biofuel

Utilizing

Schema of bio resource at present stage



Schema of bio resource for sustainable



Thank you
For your attention !!