

Introduction to Open Session on Biofuels and Sustainability in Asia アジアにおける持続可能なバイオ燃料 - はじめに

International Forum for Sustainable Asia and the Pacific ISAP 2009, Hayama, Japan

Mark Elder

Institute for Global Environmental Strategies (IGES)

26 June 2009



What are biofuels? バイオ燃料とは？



Biofuel

- A generic term referring to fuel produced from biomass such as plants or waste.
- Can substitute for fossil fuels
- Two main types
 - **Ethanol** (substitute for gasoline)
 - **Biodiesel** (substitute for diesel)

First generation

- Feedstocks: mostly agricultural crops

Second generation

- (based on advanced technology)
- Mostly non-food feedstocks,
- Plant & wood waste (cellulosic biofuels)
- Microalgae, etc.



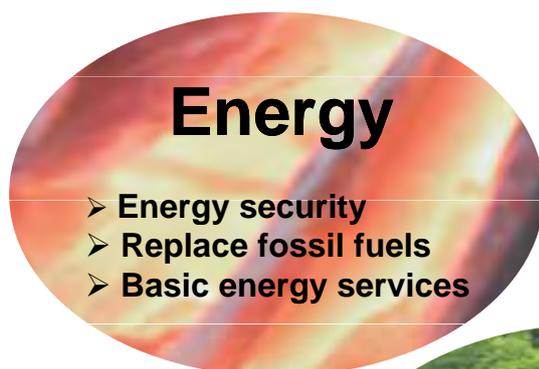
Biofuels for Sustainable Development (BforSD)

- **Goal:** develop policy recommendations to ensure that biofuels are produced and consumed in a sustainable manner, focusing especially on Asia.
- The research is funded by the Global Environment Research Fund of the Ministry of Environment, Japan (BforSD)
- **Joint research** with the Integrated Research System for Sustainability Science (IR3S) of the University of Tokyo, Osaka University, UN University / Institute of Advanced Studies (UNU/IAS) , and National Agriculture and Food Research Organization (NARO) supported by the MOE, Japan
- **IGES research focuses on economic, social, and environmental impacts of biofuels in the Asian region**
 - **Case studies: China, India, Indonesia, Japan**
 - **Modelling analysis**



Expected benefits of biofuels

バイオ燃料から期待される 便益

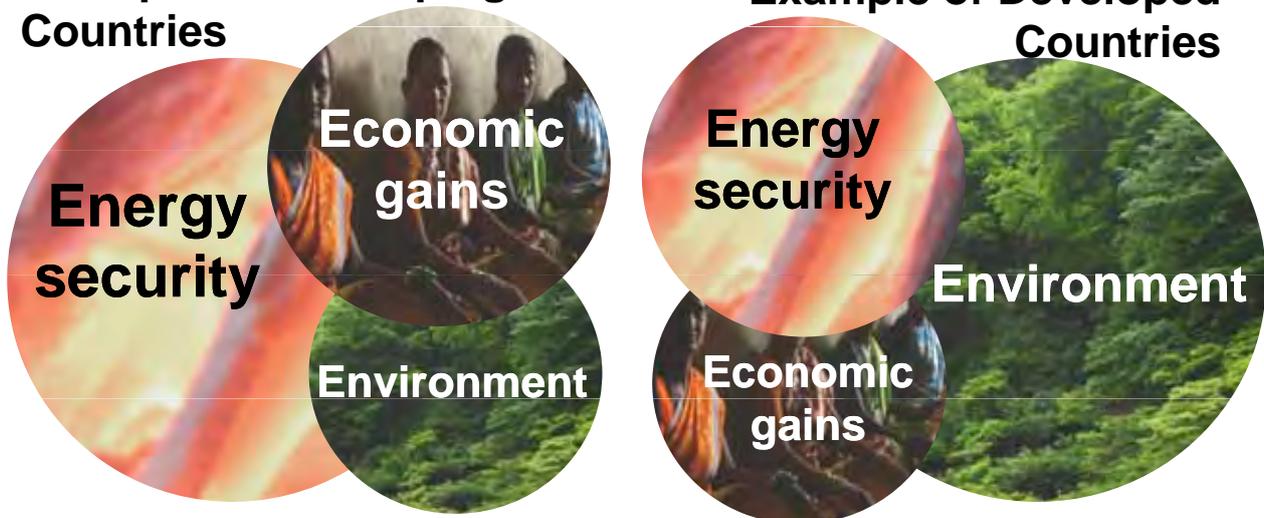


Can these benefits be achieved?

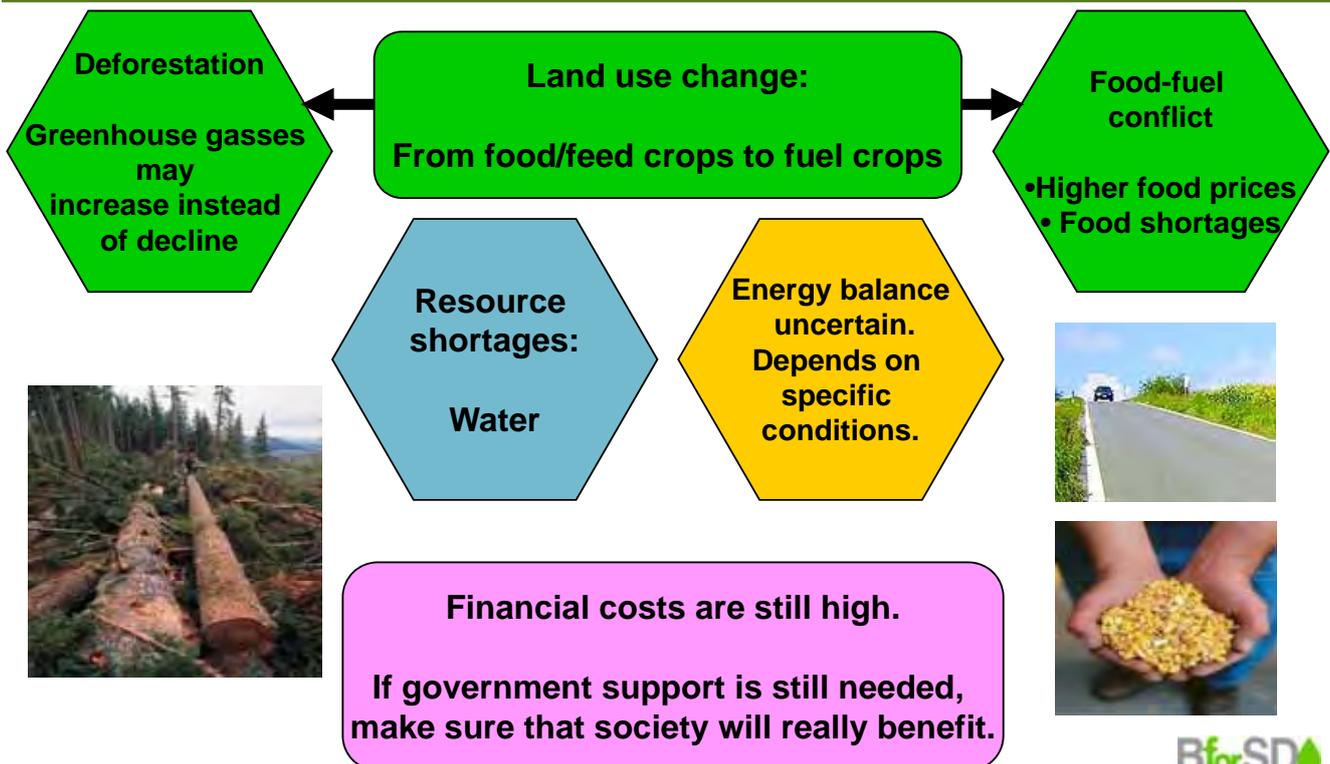


Example of Developing
Countries

Example of Developed
Countries



- Energy security & economy are often higher priorities than environment, especially in developing countries
- Strategies & policies are country specific



Widely proposed solutions and some difficulties

一般的な解決策とその問題

Some proposed solutions	Potential difficulties
<p>1. Use “nonfood” crops like jatropha</p>	<ul style="list-style-type: none"> • Farmers have more economic security with multiuse crops • Jatropha can grow on wasteland without much water, but then yield will be low & cost high. Better results with irrigation & fertilizer.
<p>2. Use “unused wastelands,” “unproductive forest land”</p>	<ul style="list-style-type: none"> • These lands may be actually used, especially by poor people, e.g. for livestock • Land may be providing ecosystem services, not “wasted” • Unclear legal definition of ‘wasteland’ or land tenure systems • Wasteland may not be productive
<p>3. “Second generation” (algae, cellulosic biomass, etc.)</p>	<ul style="list-style-type: none"> • Subject to same issues as other agricultural crops: land use change, ecosystem services • High costs; waiting for new technology



Jatropha replantation (1 yr), in Uttarakhand, India, Dec. 2008

Biofuel sustainability initiatives

バイオ燃料の持続可能性に関するイニシアチブ

“Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.”
– Bruntland Commission

- Initiatives to establish sustainability standards could help resolve questions about biofuels’ environmental and social sustainability.
- **Examples** based on multistakeholder initiatives
 - Roundtable on Sustainable Biofuels (**RSB**)
 - Roundtable on Sustainable Palm Oil (**RSPO**)

Limitations:

Difficult for stakeholders to agree on standards.

- RSB’s “zero draft” still contains broad agenda

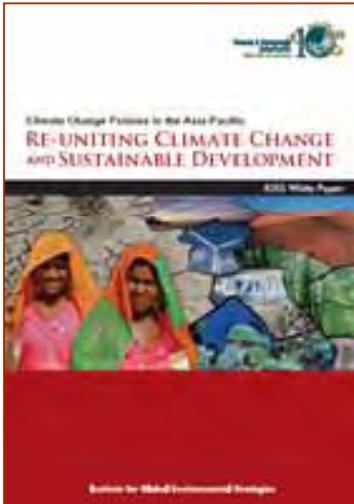
Difficult to attract participation by producers and consumers

- Transaction costs could be high (e.g.) paperwork; standards could be difficult to meet.
- How to encourage consumers to participate

Difficult enforcement and monitoring; credibility issues.

- Participation is voluntary
- Monitoring is costly

- Chapter 5, IGES White Paper “Prospects and Challenges of Biofuels in Asia: Policy Implications”
<http://www.iges.or.jp>



- IGES sponsored the “Research Workshop on Sustainable Biofuel Development in Indonesia: Progress so far and future applied research” held on 4-5 February 2009 at the Sultan Hotel in Jakarta, Indonesia; co-organized by Co-operation for Development-Europe and the Indonesian Renewable Energy Society (METI)
<http://www.iges.or.jp/en/bf/activity20090204.html>



How to make biofuels in Asia sustainable?

アジアでバイオ燃料を いかに持続可能にするか？

- Are biofuels a smart choice?

- It is still *uncertain* how much biofuels can contribute to a *low carbon society* in Asia and other goals.

- What should be the *policy direction* to encourage *sustainable production methods* and careful consideration of *land use change*?

- How could we be better involved in shaping the *sustainability standards*?

- Are there issues *unique to Asian biofuel development* relating to their sustainability?

