Agriculture beyond Food

Interdisciplinary research programme on technology and impact of biomass production for a green economy in Indonesia

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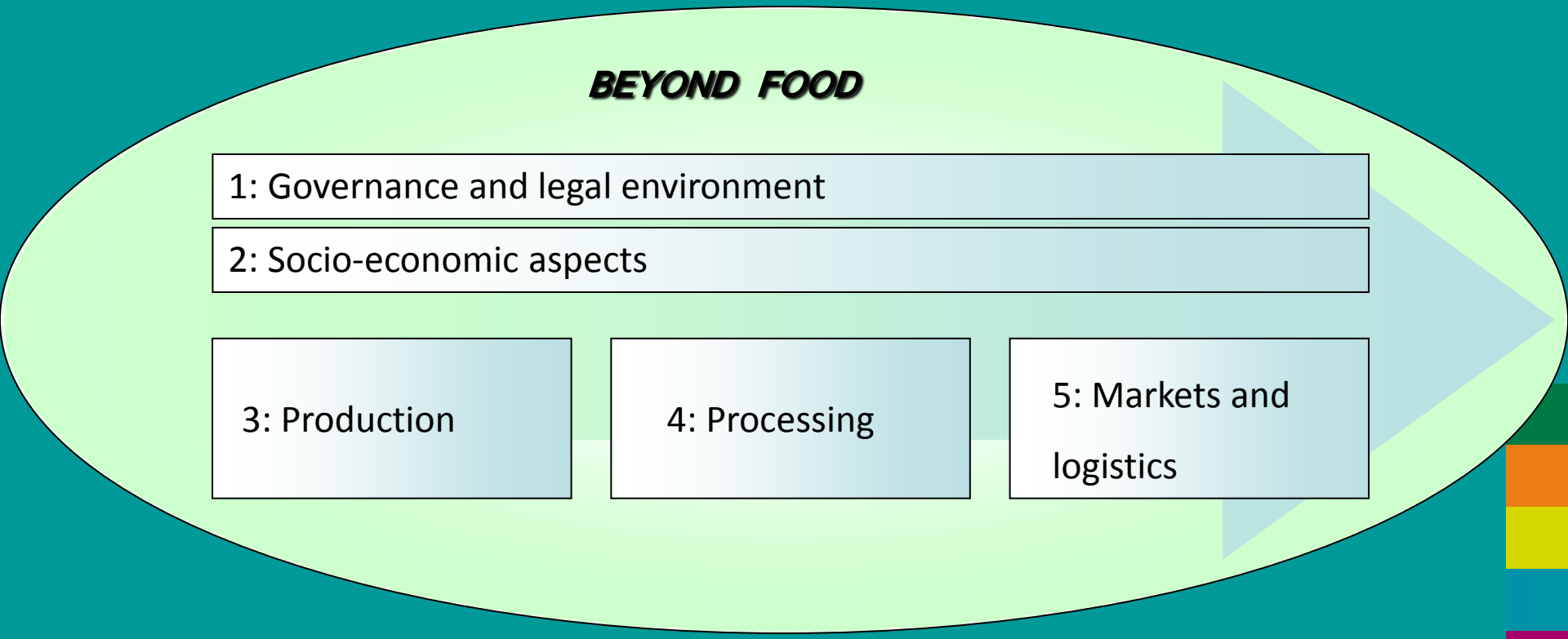
Keywords Agriculture beyond Food

- Biofuels
- Bio-based economy – green economy
- Technological challenges
- Grounded realities in Indonesian society
- Social impacts – agrarian transformations

Research areas:

- Central Kalimantan, NTT, Riau, Berau
- Along the value chain: South Sulawesi, Central Java, Jakarta and the Netherlands

Research Domains



KNAW + NWO

- Preparation since 2007/8

- KNAW: SPIN （regional）
- NWO: Sustainable Earth （thematic）

- 2.5 million E for AbF in Indonesia

- 3 research clusters + co-ordination part

3 Clusters in AbF funded by KNAW-NWO (1-1-2010):

- Process technology:
  - Break-throughs in biofuels; mobile technology for biodiesel production from Indonesian resources
  - Groningen – ITB

- Social geography and geo-science:
  - Sliding from greasy land? Migration flows and forest transformation caused by oil palm expansion
  - Utrecht - UGM

- Social science, law, history, agronomy :
  - JARAK: the commoditization of an alternative biofuel crop in Indonesia – (socio-political dynamics of biomass production in marginal landscapes)
  - Leiden + KITLV, WUR – UI , UGM, UNPAR

Perspectives

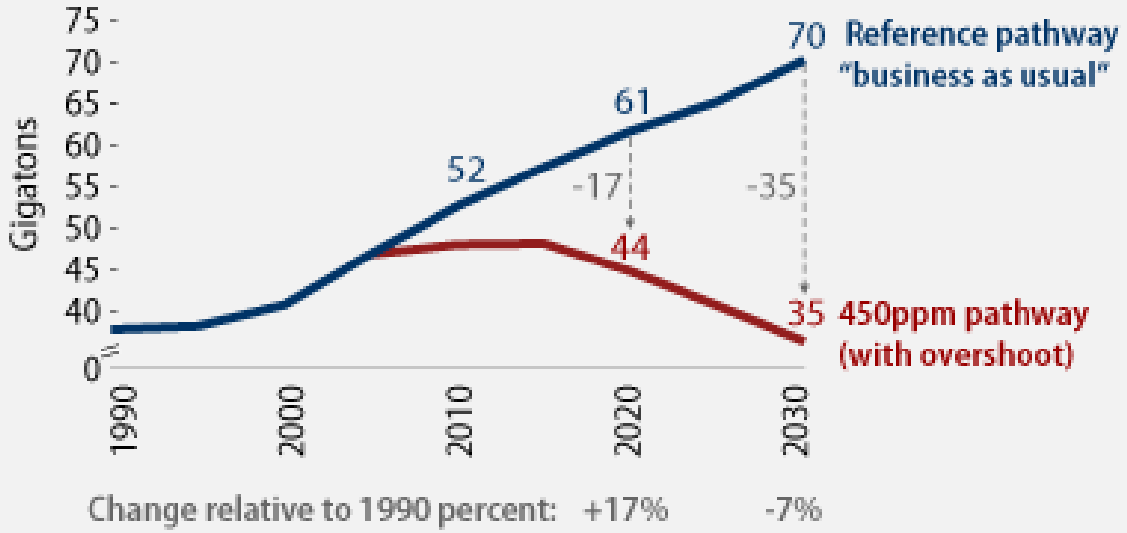
- Technical sciences – social sciences
- Future scenario's and (theoretical) options versus grounded experiences in recent past
- Dutch versus Indonesian elaborations of global debates/challenges
- Actors/ stakeholders and their interests

Climate change

FIGURE 1

Revised global greenhouse gas emissions

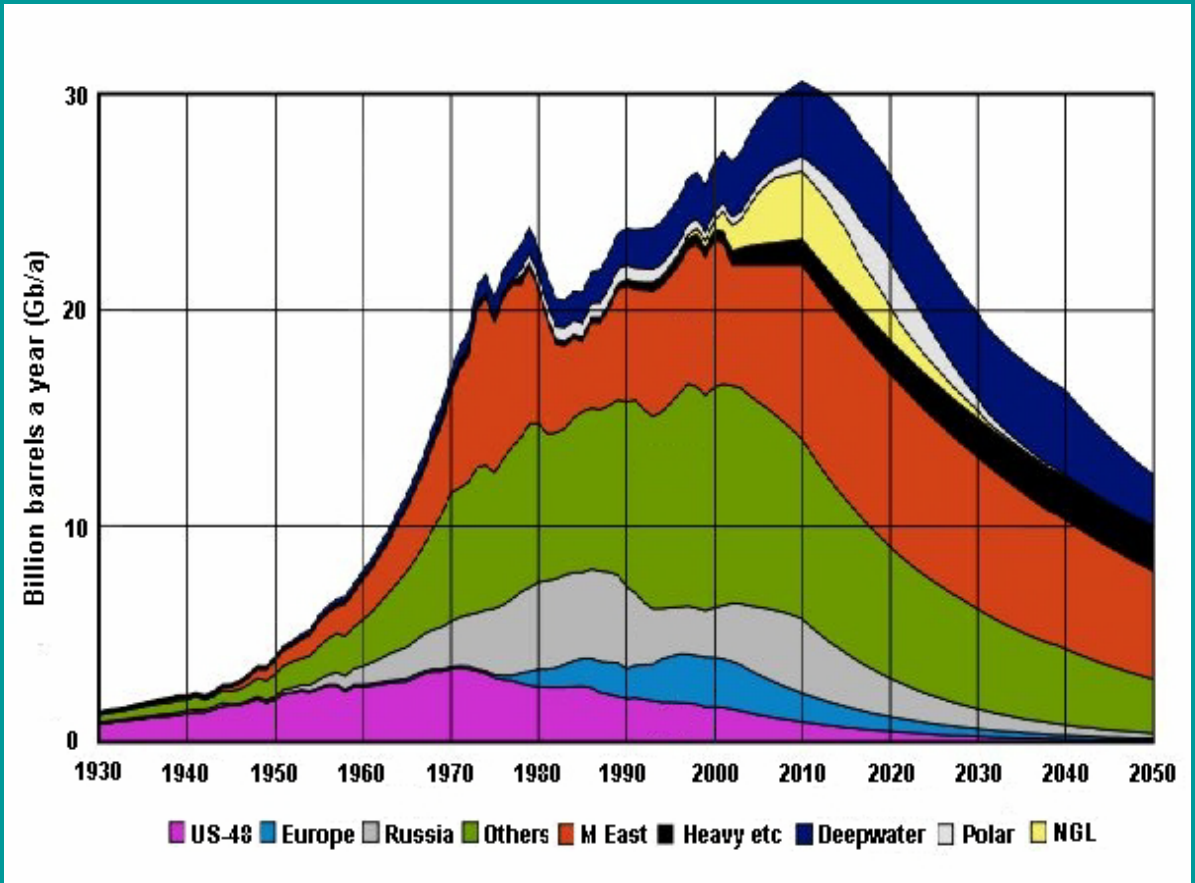
Gigatons of CO_2 equivalent emissions, per year

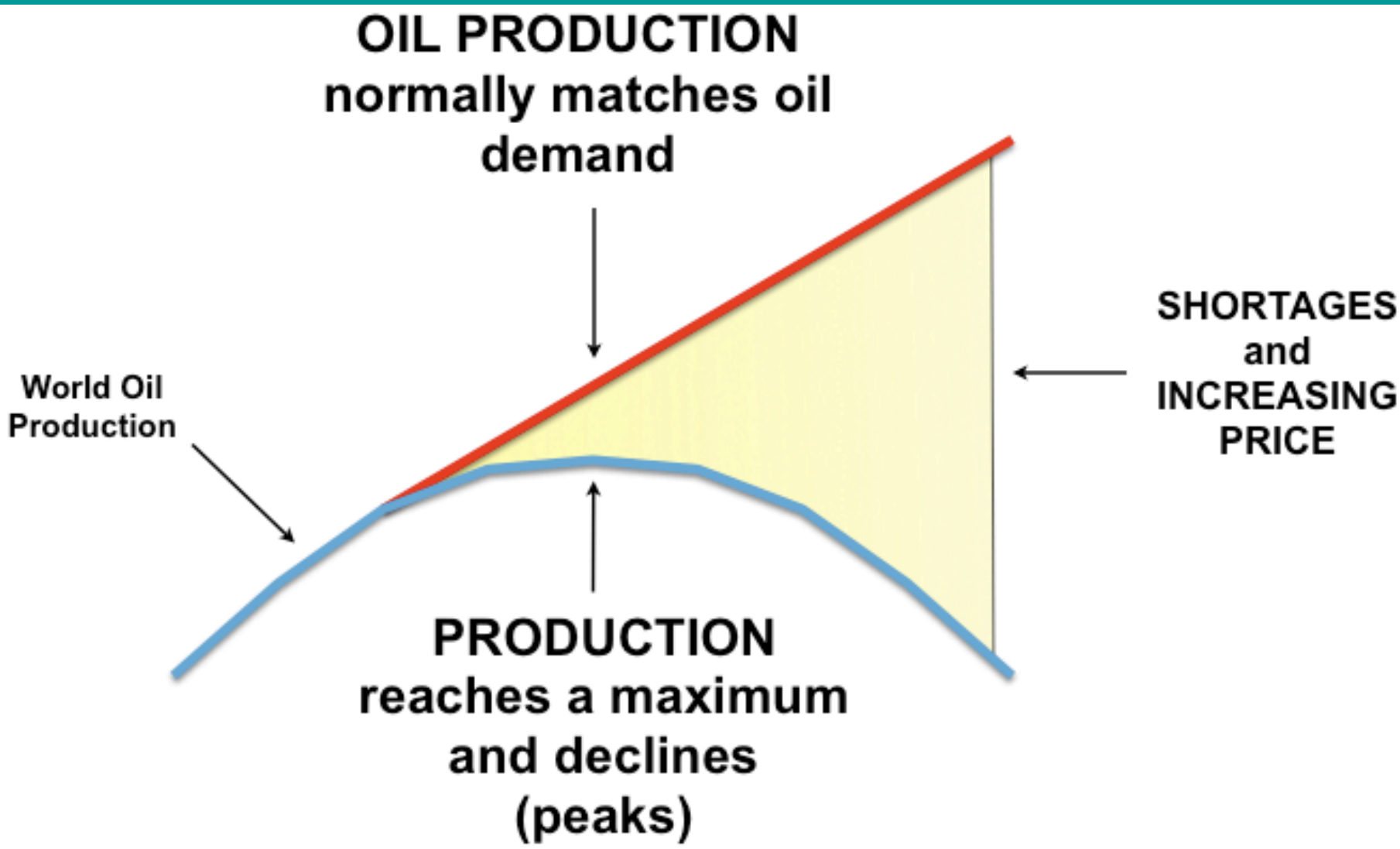


Source: McKinsey Global GHG Abatement Cost Curve v2.0; Houghton; IEA; US EPA; den Elzen, van Vuuren; Project Catalyst analysis.

Climate change

Peak oil


Billion barrels a year (Gb/a)
30
20
10
0
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
US-48
Europe
Russia
Others
M East
Heavy etc
Deepwater
Polar
NGL


OIL PRODUCTION
normally matches oil
demand
World Oil
Production
SHORTAGES
and
INCREASING
PRICE
PRODUCTION
reaches a maximum
and declines
(peaks)

BBM subsidy: from Rp 140,000 billion in 2010 to Rp 256,000,000,000,000 in 2011

Three options

- Reduce energy consumption
- Produce energy from renewable sources
- Make more efficient use of available resources

“The biobased economy”

- Vision of future society no longer wholly dependent of fossil fuels for energy and industrial raw materials, but instead uses bio mass to fulfill these needs
- Preconditions: people, planet and profit

- General background question for AbF research:

… How can we stimulate the Biobased Economy within the PPP preconditions by developing and mobilizing the best science and technology…

Biobased economy in the Netherlands

- Low potential for biomass-production
- Focus on
  - processing technology
  - high-added value
  - “Knowledge-based bio-based economy” (
- Political debate

- Investments in a.o. Indonesia
- Import of sustainably produced biomass





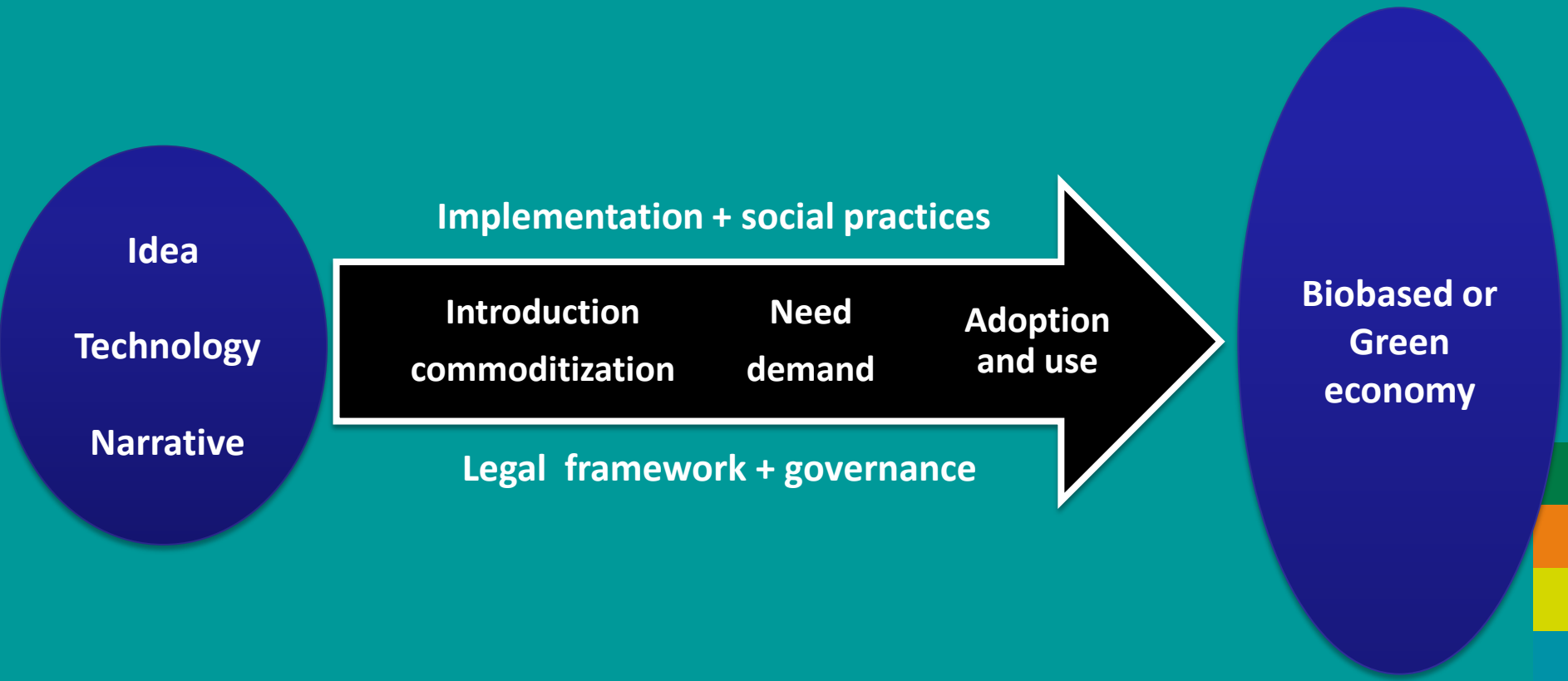



“Green economy” in Indonesia

- Millions of hectares of ‘idle’ land
- Population 248 million people, rural poverty alleviation
- Commitment: 26% GHG emission reduction (2020) and 7 % annual economic growth
- Reducing large domestic subsidized fuel consumption

Energy saving, making use of renewable alternatives for fossil energy resources

From idea to end goal



“Breakthroughs in Biofuels”

- Developing a technology for local production of biofuels in remote areas
- Mobile processing units
- Economically feasible
- Instead of using jatropha seeds （only）, use “waste”: rubber seeds
- Application in Palangka Raya （Central Kalimantan）

“Sliding from greasy lands”

- How does the oil palm boom affect local land use in Riau （Sumatra） and Berau （East Kalimantan）?
- Increasingly small holders convert their rice fields into oil palm plantations
- Spontanous migration to oil palm areas
- Impact: small scale deforestation
- Planning for more sustainable land use? Decision support model for local governments

JARAK

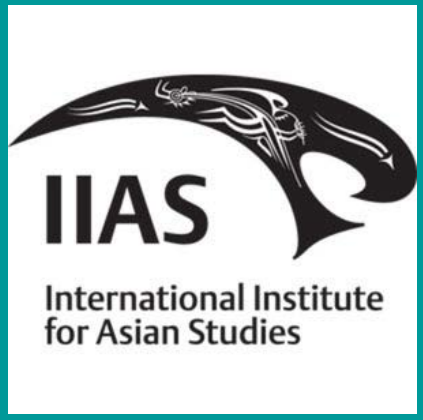
- Commoditization of jatropha was based on multiplication of optimistic narratives – very little implementation
- Global green agenda's create discursive context in which small scale, short term opportunities for domestic actors emerge, often without any lasting benefit as had been promised.
- Window for studying changing landscapes in "marginal areas" of Indonesia
- Important lessons for (future) bio-energy policies

Debates

- （Beyond？）Food versus Fuel

- Pathways to a green economy
  - Socially sustainable production of biomass for non-food purposes
- Impacts of commodification and financialization of nature

- Emerging “energy citizenship”?



Terima kasih!

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