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Biomass trade for energy: history & future expectations

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International workshop:
Towards sustainable international biomass trade strategies

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History of bioenergy trade

- In the last century, the vast majority of bioenergy use was a local or regional form of energy
- Main reasons were (sufficient) local demand, but most importantly difficulties of transporting raw biomass over longer distances (due to high moisture content, difficulties with storage, no existing supply chains, etc. etc.)
- But…

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- The first load of industrial pellets was shipped on the *Mandarin Moon* from Prince Rupert, Canada to Helsingborg, Sweden in 1998

(Source: J. Swaan, WPAC)

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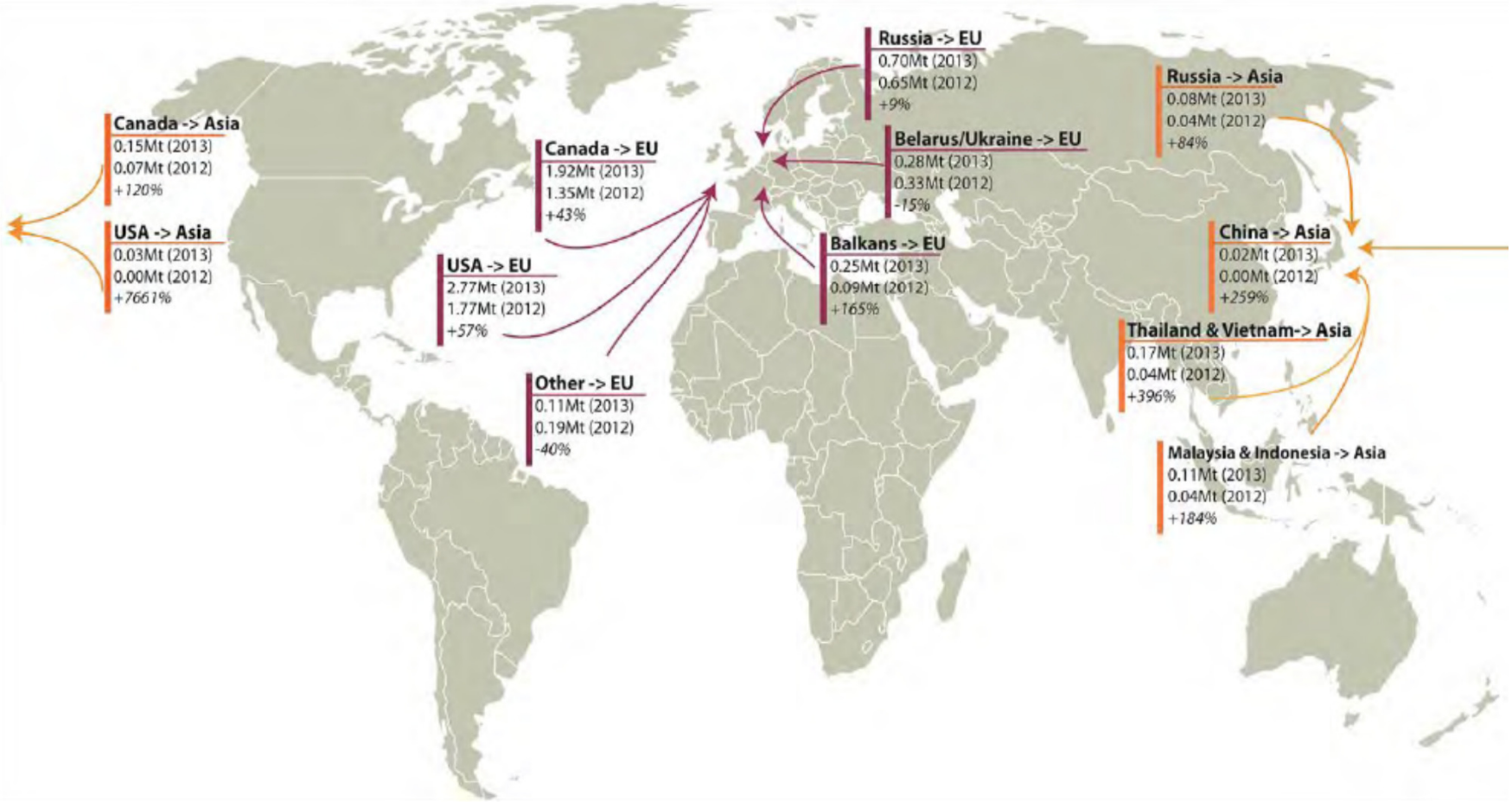
Global wood pellet trade 2010-2013



HAWKINS WRIGHT

Total traded volume over long-distance:
>6 million tonnes

(Source: Lamers et al., Chapter 3 In Junginger et al. International Bioenergy Trade, Springer 2013; John Bingham, Hawkins Wright, October 2014, USIPA conference)

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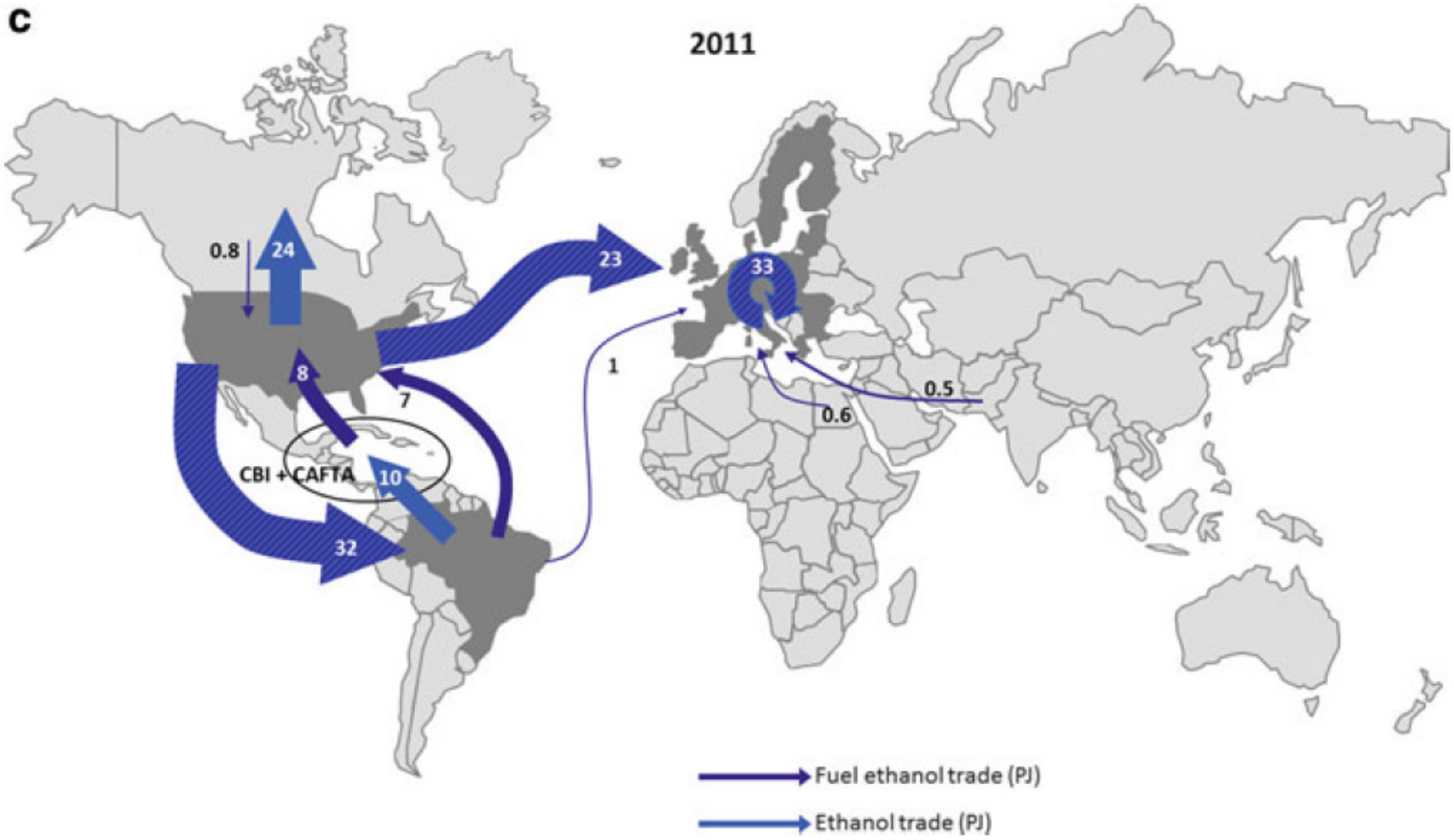
Global bioethanol trade 2008-2011



(Source: Lamers et al., Chapter 2 In Junginger et al. International Bioenergy Trade, Springer 2013)

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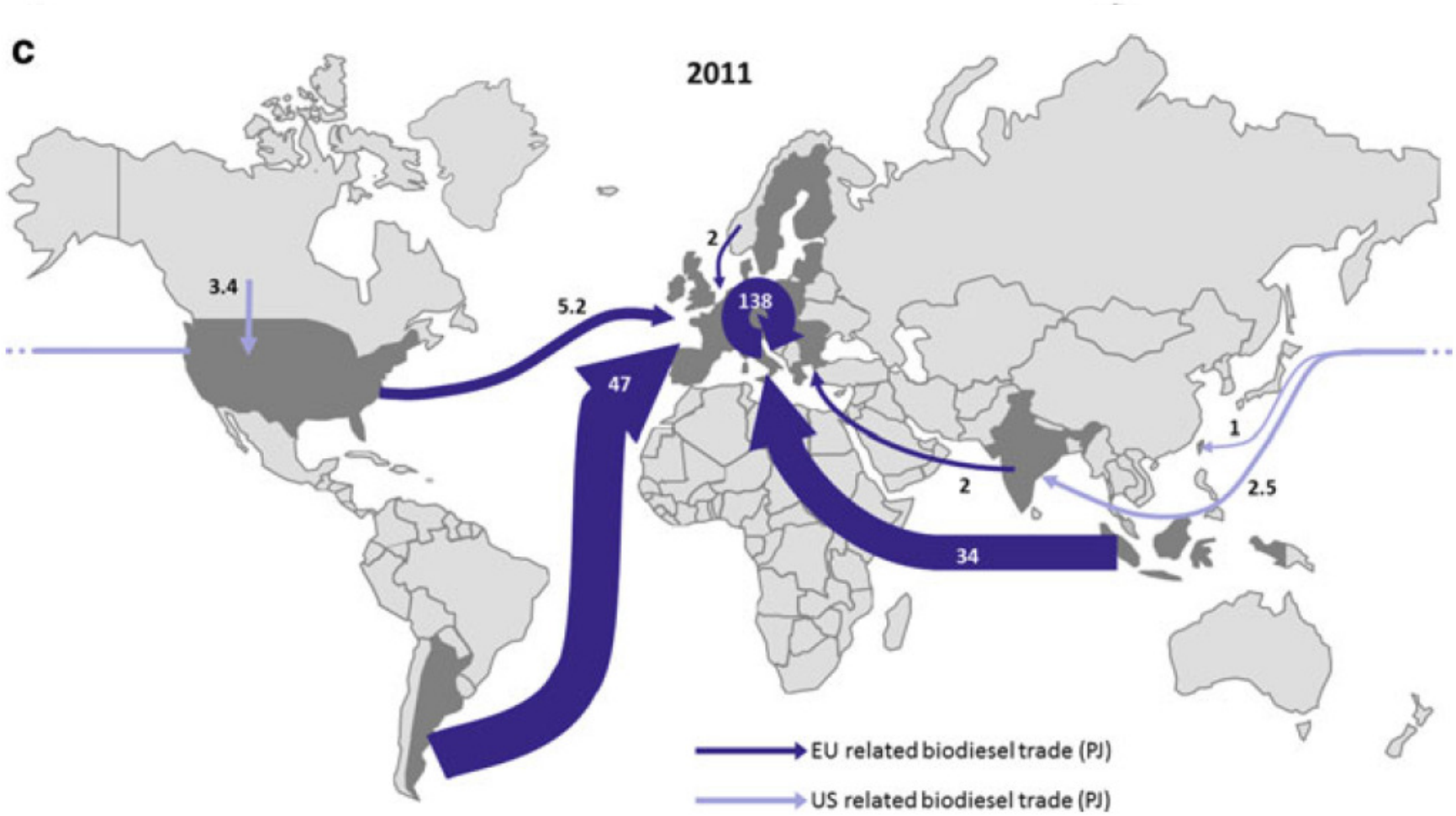
Global biodiesel trade 2008-2011



(Source: Lamers et al., Chapter 2 In Junginger et al. International Bioenergy Trade, Springer 2013)

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Trends and drivers

- International bioenergy trade of biodiesel, bioethanol and wood pellets have all increased by a factor of 10 between 2000-2010
- Volumes around several million tonnes
- Main drivers are: availability of abundant, cheap biomass, pretreatment technologies, RE / climate targets of industrialized countries (Europe, US, Korea), security of supply and others
- But: is this enough?

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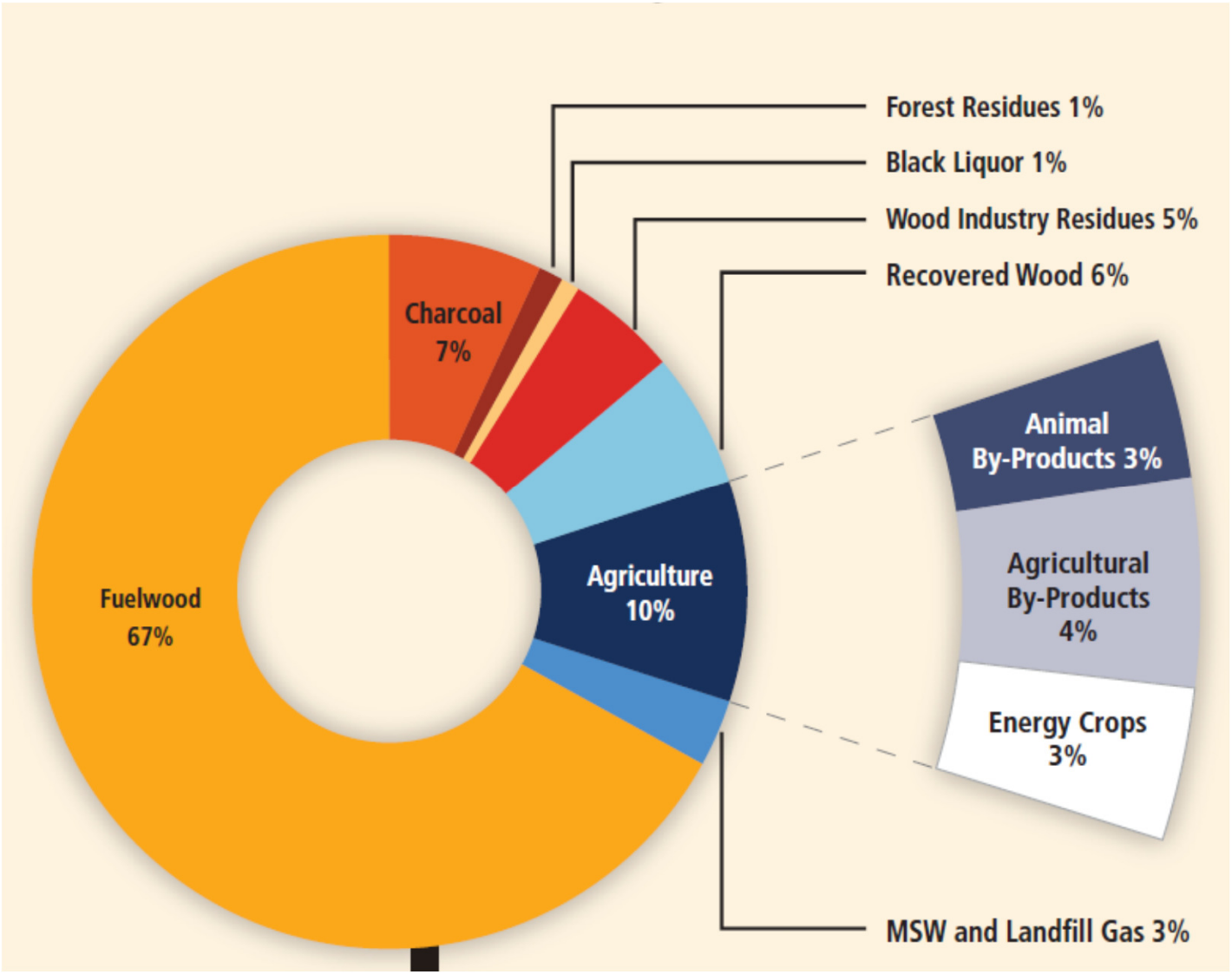
Current bioenergy feedstock use



[IPCC-SRREN, 2011]

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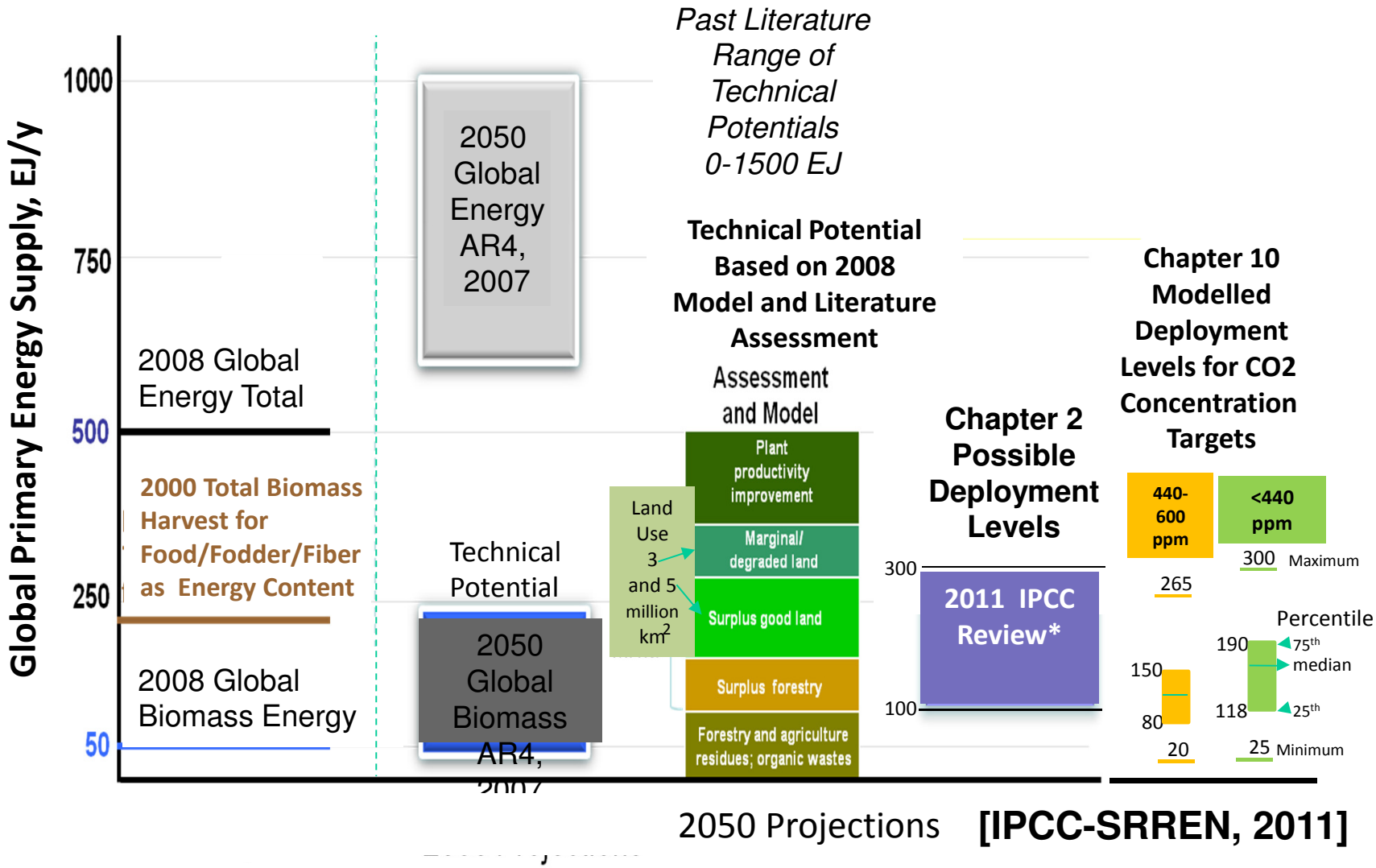
2050 Bioenergy Potentials & Deployment Levels



[IPCC-SRREN, 2011]

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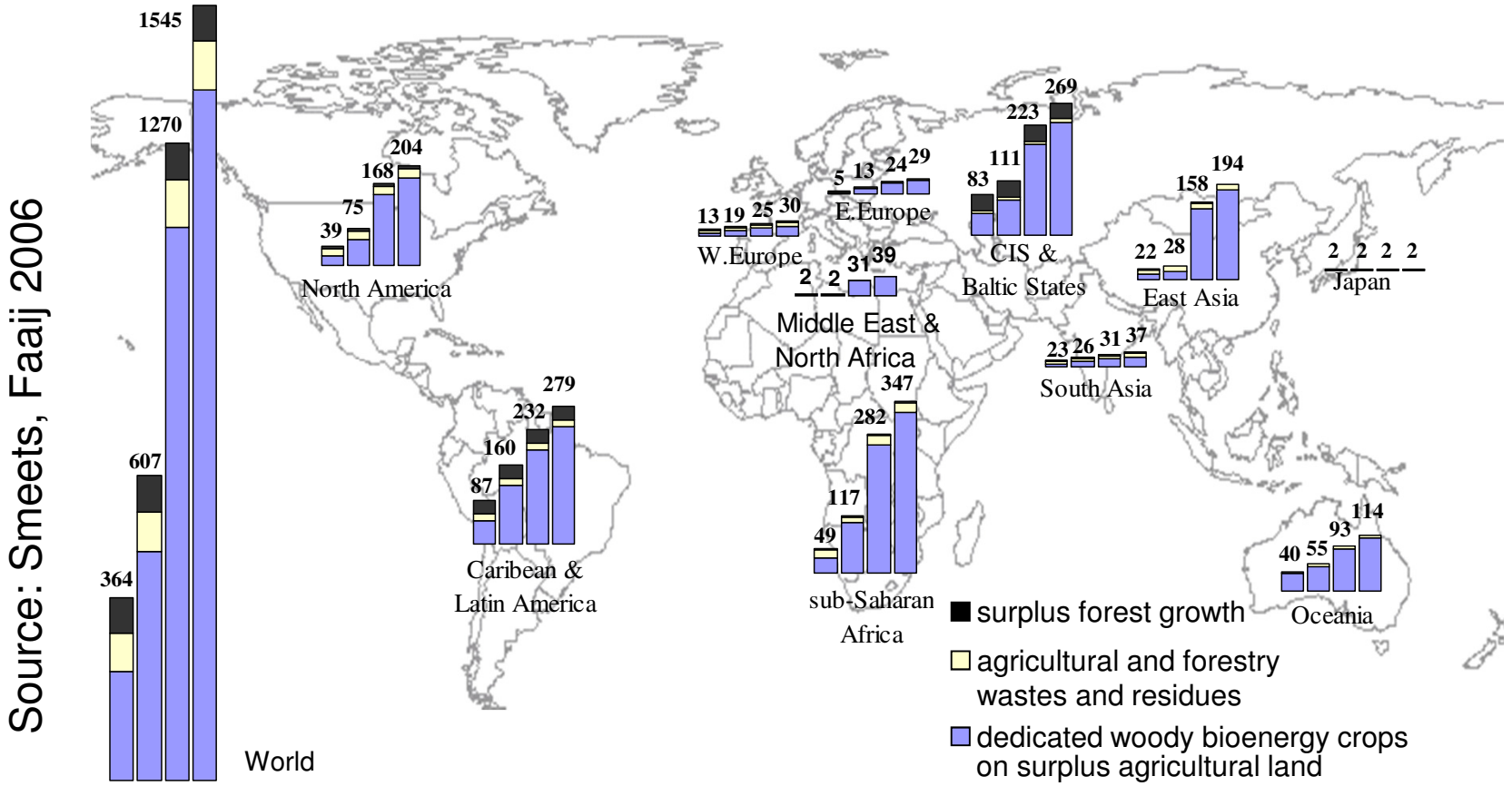
Bioenergy production potential In 2050 for different levels of change in agricultural management



Total bioenergy production potential in 2050 based on different agricultural production systems (efficiency increasing form left to right)

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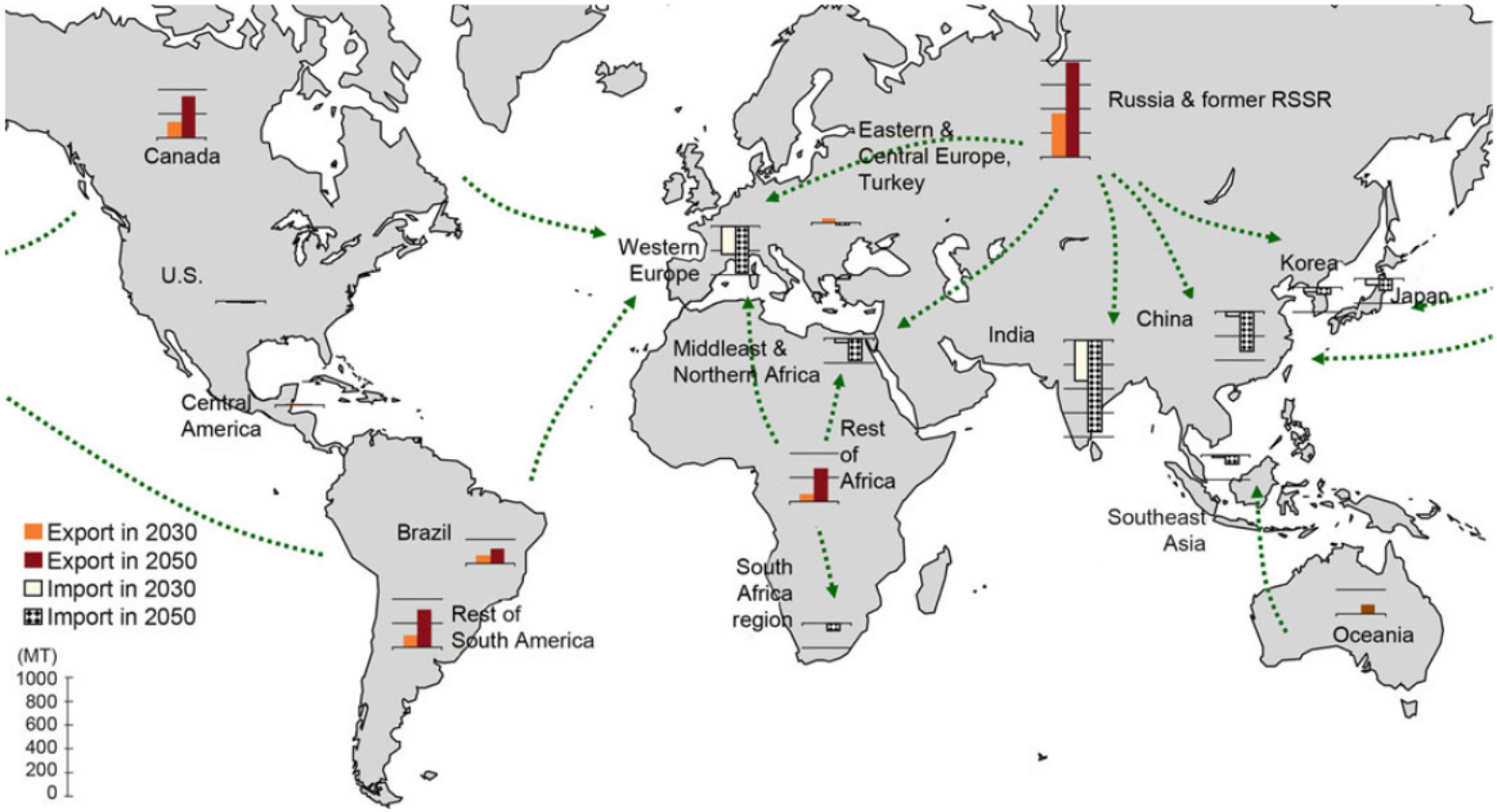
Global solid trade by 2030/2050?



(Source: Kranzl et al., Chapter 8 In Junginger et al. International Bioenergy Trade, Springer 2013)

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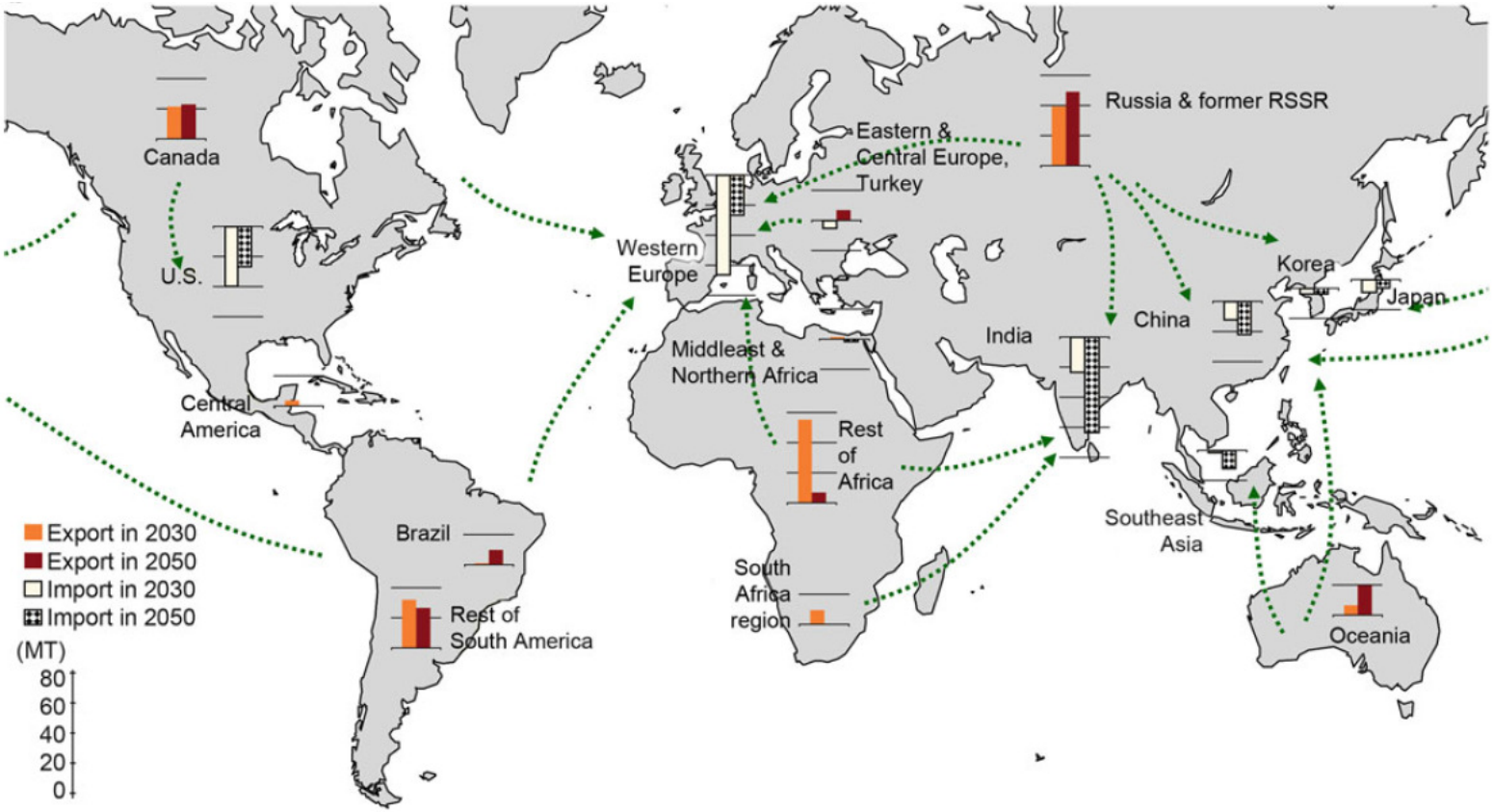
Global liquid biofuels trade by 2030/2050?



(Source: Kranzl et al., Chapter 8 In Junginger et al. International Bioenergy Trade, Springer 2013)

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Future of bioenergy trade…

- Main demand expected in OECD, China, India; main supply *potential* in Russia, Latin America and Sub-Saharan Africa
- To make future supply and demand meet, significant further growth in biomass trade is needed.
- But: how to govern sustainable production and sourcing of biomass? How to deal with current and future demand for food, fuels and materials in the exporting regions…

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To be discussed today…

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IEA Bioenergy Task 40

Core objective:

'to support the development of sustainable, international bioenergy markets and international trade, recognising the diversity in resources and biomass applications'

IEA Bioenergy **TASK 40**

Sustainable International Bioenergy Trade - Securing Supply and Demand

Triennium 2013 – 2015

Task members:

Task Leaders

Martin Junginger
(Academic)

Peter-Paul
Schouwenberg
(Industry)

IEA Bioenergy TASK 40

Sustainable International Bioenergy Trade - Securing Supply and Demand

- 10 chapters
- Summarizing the lessons of three triennia
- Solid & liquid biomass trade, logistics, sustainability, country case studies, barriers & opportunities for trade, outlook on future trade flows & required investments, and more…
- With contributions from all Task 40 member countries
- Available both as hardcopy and as e-book
- www.bioenergytrade.org