

Overview of World Bioenergy Trade: IEA Task 40

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IEA Bioenergy ExCo65, Nara, JAPAN

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5 cm

Task Management



Agentschap NL
Ministerie van Economische Zaken



Utrecht University





- A Dutch government agency promoting **sustainable innovation**
- Our main clients are the Dutch ministries of:
**Economic Affairs (EZ),
Spatial Planning &
Environment (VROM),
Transportation (V&W),
European Commission**
- We **implement programmes** on innovation, energy, climate change, environment, and spatial planning

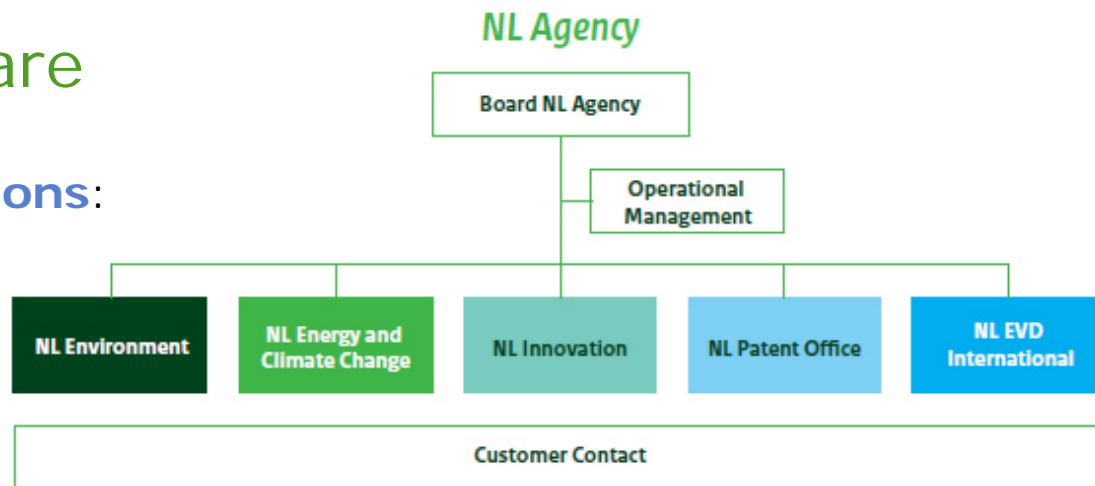
Agency NL

Professionals in
sustainability and
innovation



Who we are

Five **divisions**:

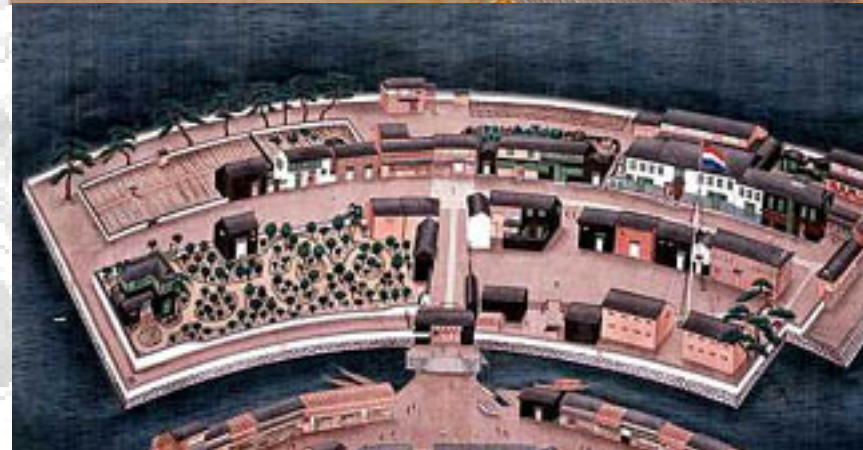
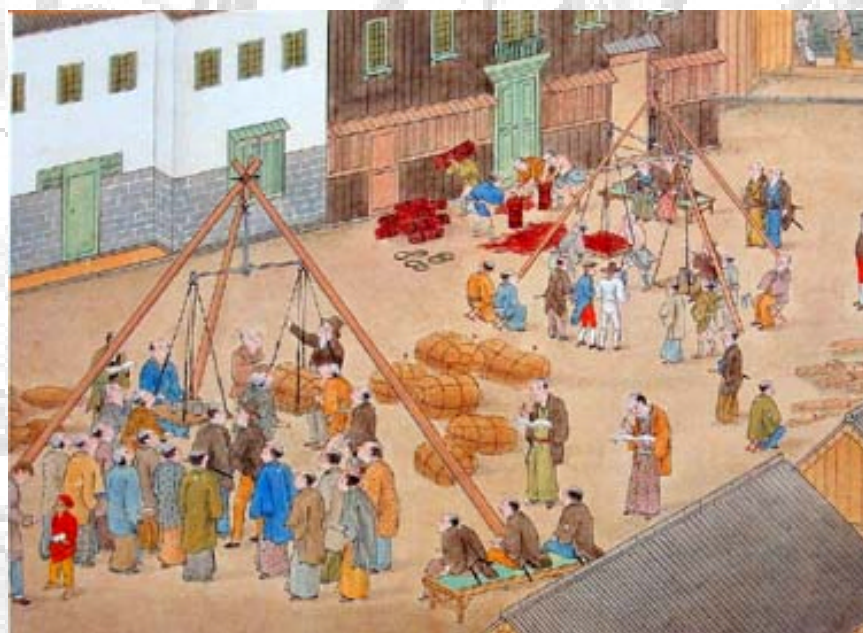



More than **1,500 staff members** at **6 offices**:
? The Hague (2)
? Rijswijk
? Zwolle
? Sittard
? Utrecht





History of Trade since 1600





 廣長松平十七日首

 杉山守船自中波海所付

 浦陸の番将五五相讓

 白後守以自之定以中波海所

 新味定之五五相讓也

長平の船

Biomass Market anno 2010

- Sustainable biomass **resources** and supplies the **foundation** for the biobased economy.
- Biomass & Biofuel Markets HAVE **globalized**
- Strong **policy** efforts: strategies, certification.
- Major **market activity**: supplies from DC's, new generation fuels, power generation activity and biomaterials.
- Many impacts (food supplies, land use, social) and interactions (development, markets) poorly understood.

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core objective IEA Task 40: *“to support the development of a sustainable, international, bioenergy market, recognising the diversity in resources, biomass applications”*

Key working fields

- Securing sustainable biomass supplies
- Sustainability & certification
- Trade, market and demand dynamics
- Transport, logistics and trade
- Outreach and dissemination

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Current Member Countries IEA Task 40

- Netherlands (T.L.)
- Austria
- Belgium
- Brazil
- Canada*
- Denmark
- European Commission
- Finland
- Germany
- Italy
- Japan
- Norway
- Sweden
- UK
- US

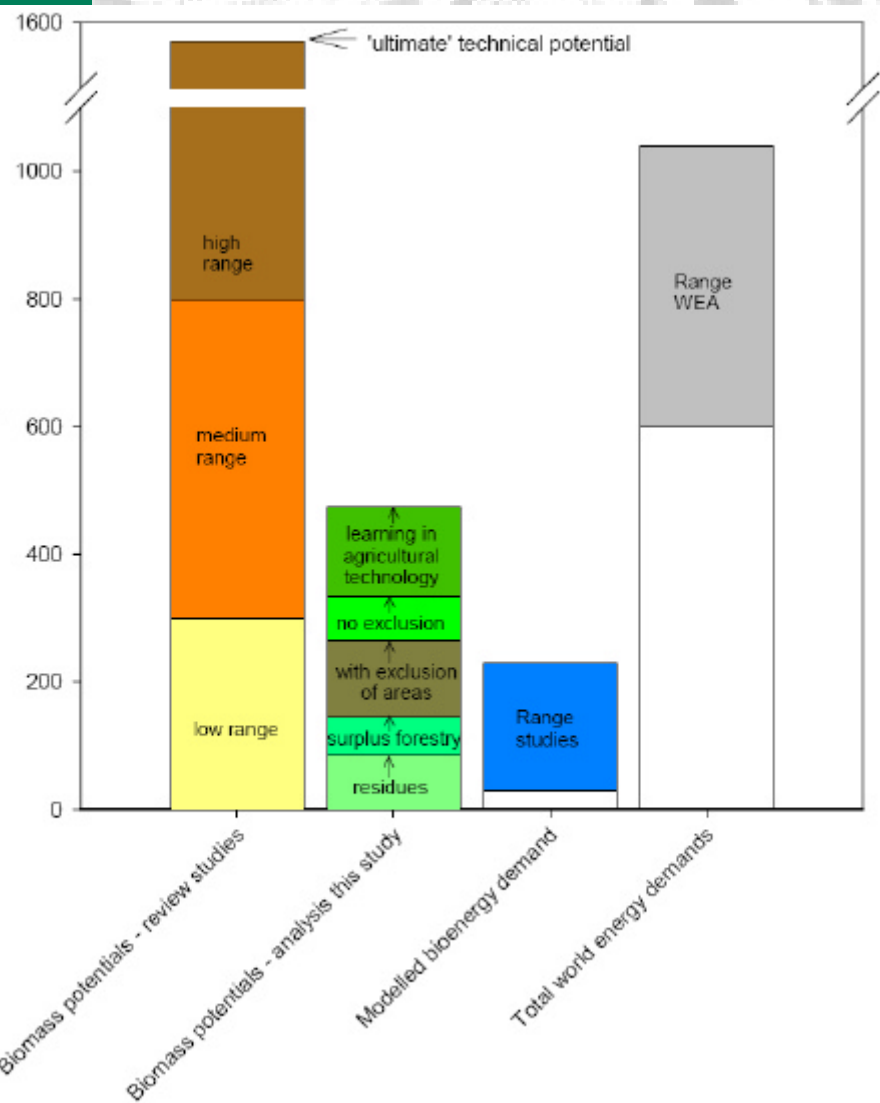
Explored:

- Australia
- S. Korea
- South Africa

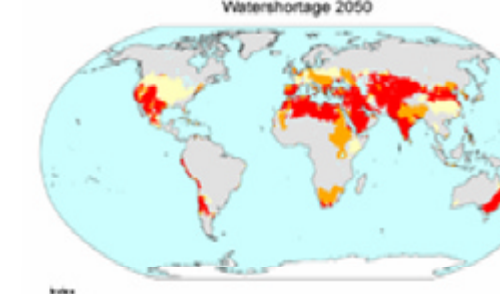
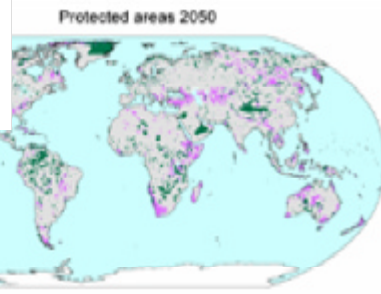
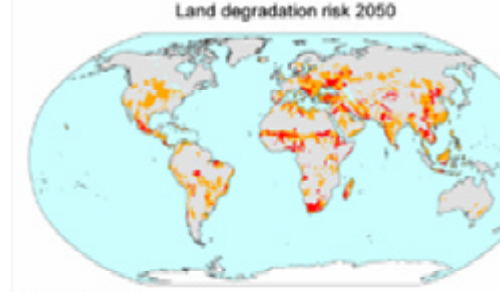
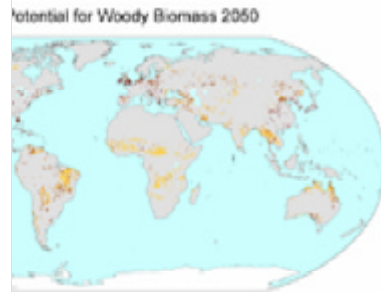
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* Confirmation of 2010 still to be confirmed

Good involvement of market parties!

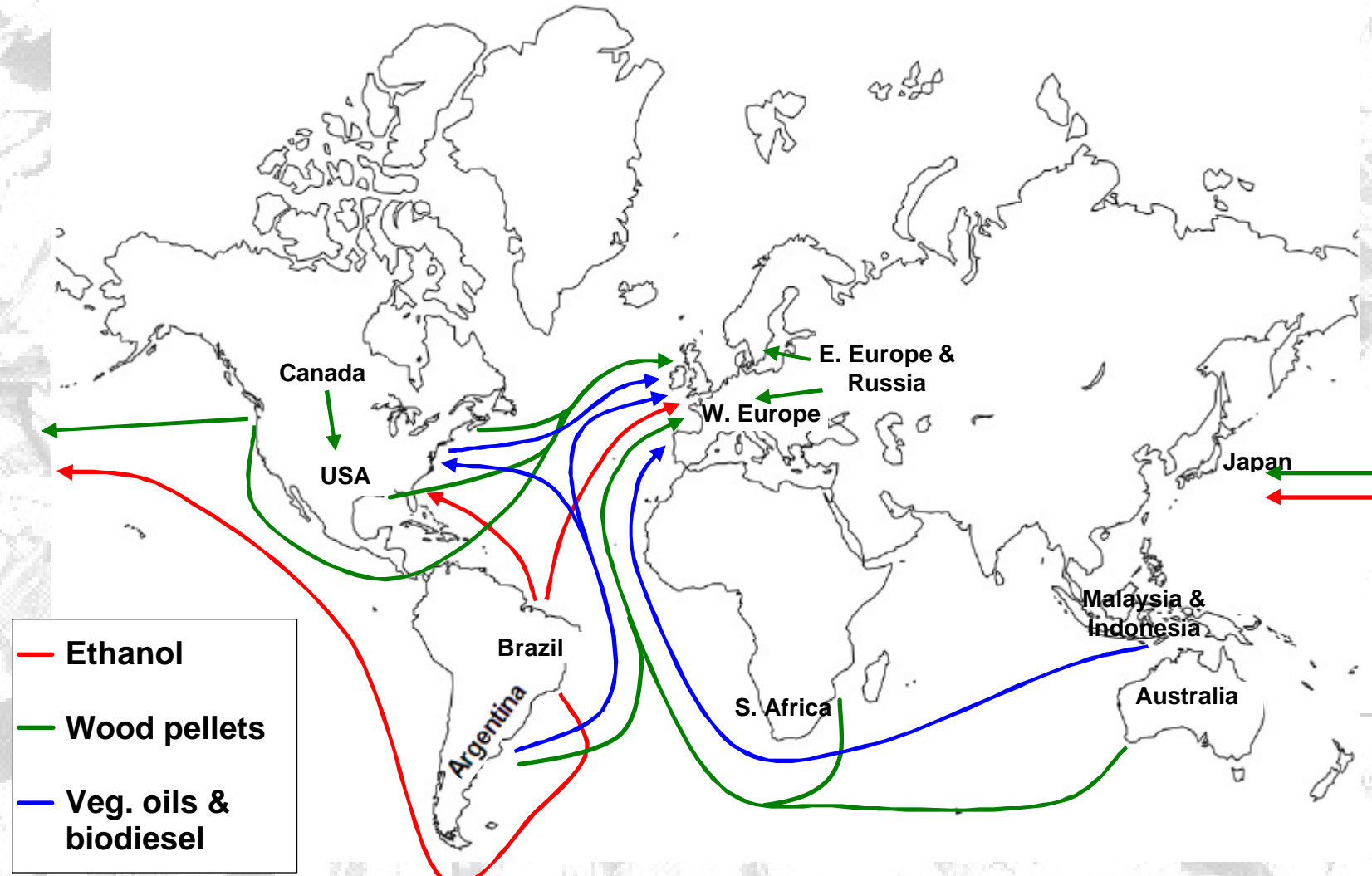


Global potentials are large...; but need to be developed.
Biomass potentially 1/3 of global energy supplies halfway this century....



Dornburg et al., 2008
www.bioenergytrade.org

Current main Shipping Lanes for biomass and biofuels for energy



Global production and trade of the major biomass commodities (2008)

	Bioethanol	Biodiesel	Wood pellets
Mton in 2008			
Global production	52.9	10.6	11.5
Global net trade	3.72 (*)	2.92	Approx. 4
Main exporters	Brazil	US, Argentina, Indonesia Malaysia	Canada, USA, Baltic countries, Finland, Russia
Main importers	USA, Japan, EU	EU	Belgium, Netherlands, Sweden, Italy

Key trends bio-ethanol (status 2008)

- two leading *ethanol* producers: United States (26.8 million tonnes) and Brazil (21.3 million tonnes): 91% of the world production.
- US largest consumer: 28.4 million tonnes; 4.6% imported.
- Brazilian consumption amounted to approximately 16.5 million tonnes.
- EU consumption 2.6 million tonnes, the largest users being France, Germany, Sweden and The Netherlands.
- Data related to fuel bioethanol trade imprecise due to various potential end-uses of ethanol (i.e. fuel, industrial use, and beverage use) and also because of the lack of proper codes for biofuels.

Key trends biodiesel (2008)

- World *biodiesel* production increased six-fold from 1.8 million tonnes in 2004 to 10.6 million tonnes in 2008.
- EU produces about two-thirds of this (7.8 Mton); Germany, France, Italy and Spain top producers.
- However, EU production declined 7% in 2009 because of strong competition from abroad.
- EU Biodiesel consumption 9.2 Mton (Germany 2.9 Mton)
- Other main biodiesel producers include the United States, Argentina and Brazil.
- International *biodiesel trade* has been increasing strongly since 2005.
 - US gross exports increased from negligible levels in 2005 to about 1.4 million tonnes in 2008
 - Argentine exports to EU increased from 70 000 tonnes in 2008 to ~ 1 million metric tonnes in 2009

Key trends wood pellets

- Strong growth production, consumption and trade of wood *pellets* since late 90-ies.
- In 2008 ~ 8 million tonnes pellets produced in 30 European countries, 1.8 million tonnes in the US and 1.4 million tonnes in Canada.
- *Consumption* is high in many EU countries and the US.
- European consumption for 2009 ~ 8.5 million tonnes.
- The largest EU consumers are Sweden (1.8 million tonnes), Denmark, the Netherlands, Belgium, Germany and Italy (all roughly one million tonnes).

A photograph showing a pile of wood chips and pellets. A scale bar in the bottom right corner indicates a length of 5 cm. The background is a light, textured surface, possibly a pile of wood chips.

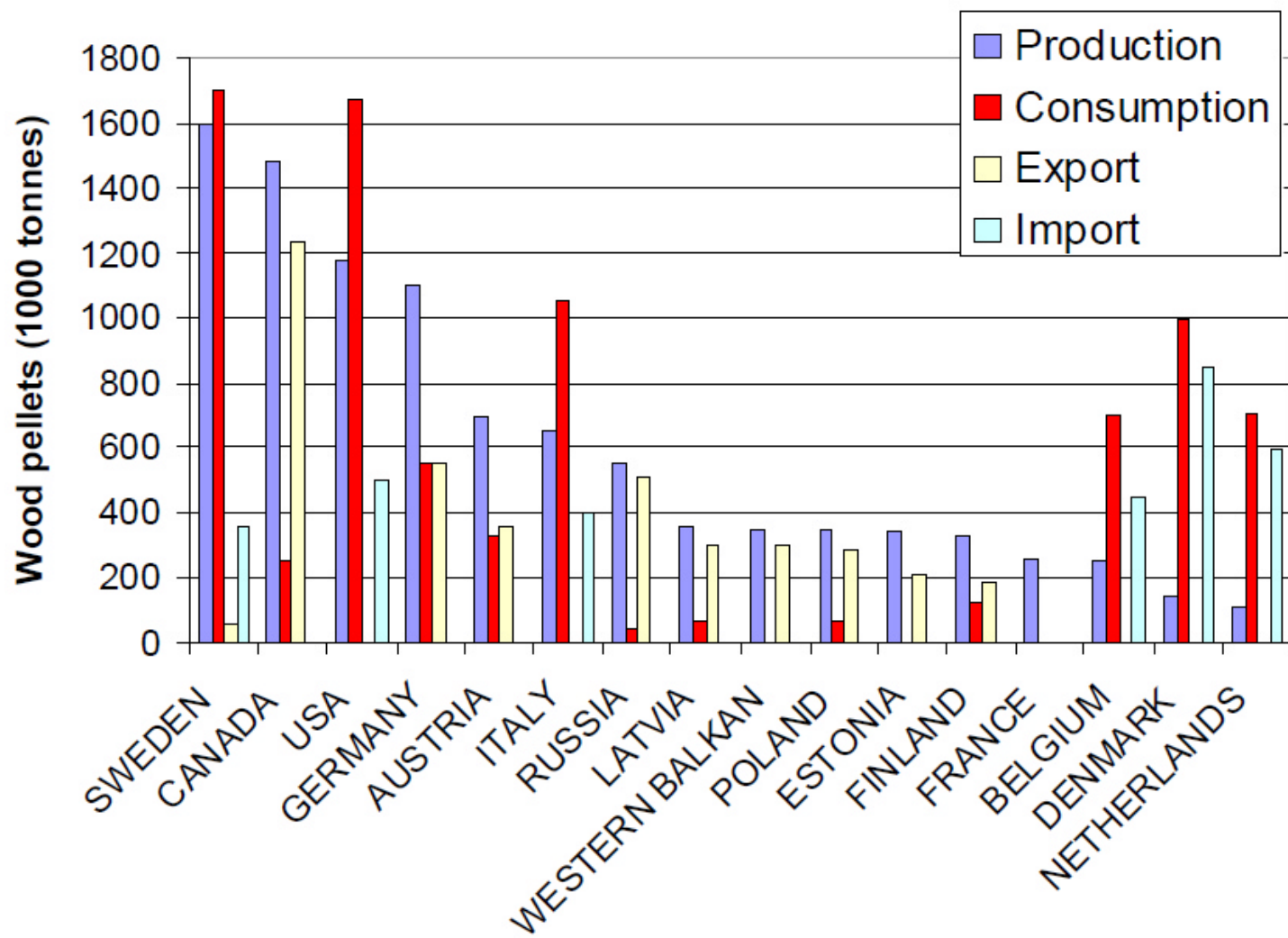
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Wood pellet trade

- First wood pellet *trade* in 1998: British Columbia (Canada) to Sweden.
- Canada major exporter to Europe (especially Sweden, the Netherlands and Belgium) and to the US.
- 2008: US starts export wood to Europe, Canadian to Japan.
- Total imports EU 2009 ~ 3.4 million tonnes; about half intra-EU trade.
- Total export ~ 2.7 million tonnes, predominantly intra –EU trade.



Key pellet production, consumption and trade flows (2007).



Barriers and opportunities for bioenergy trade (to be published)

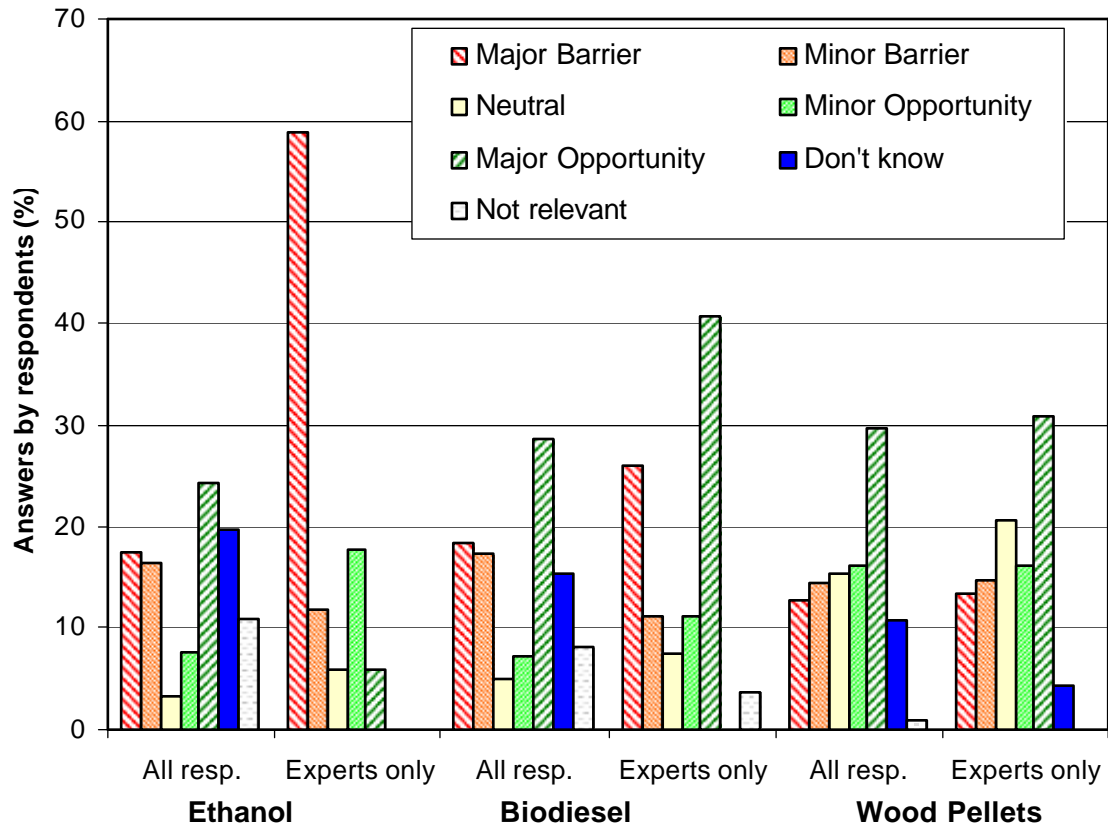
Investigates for wood pellets, ethanol and biodiesel the role of:

- Tariff barriers
- Technical standards
- Sustainability criteria
- Logistical barriers
- Phytosanitary measures, statistics etc.

5 cm



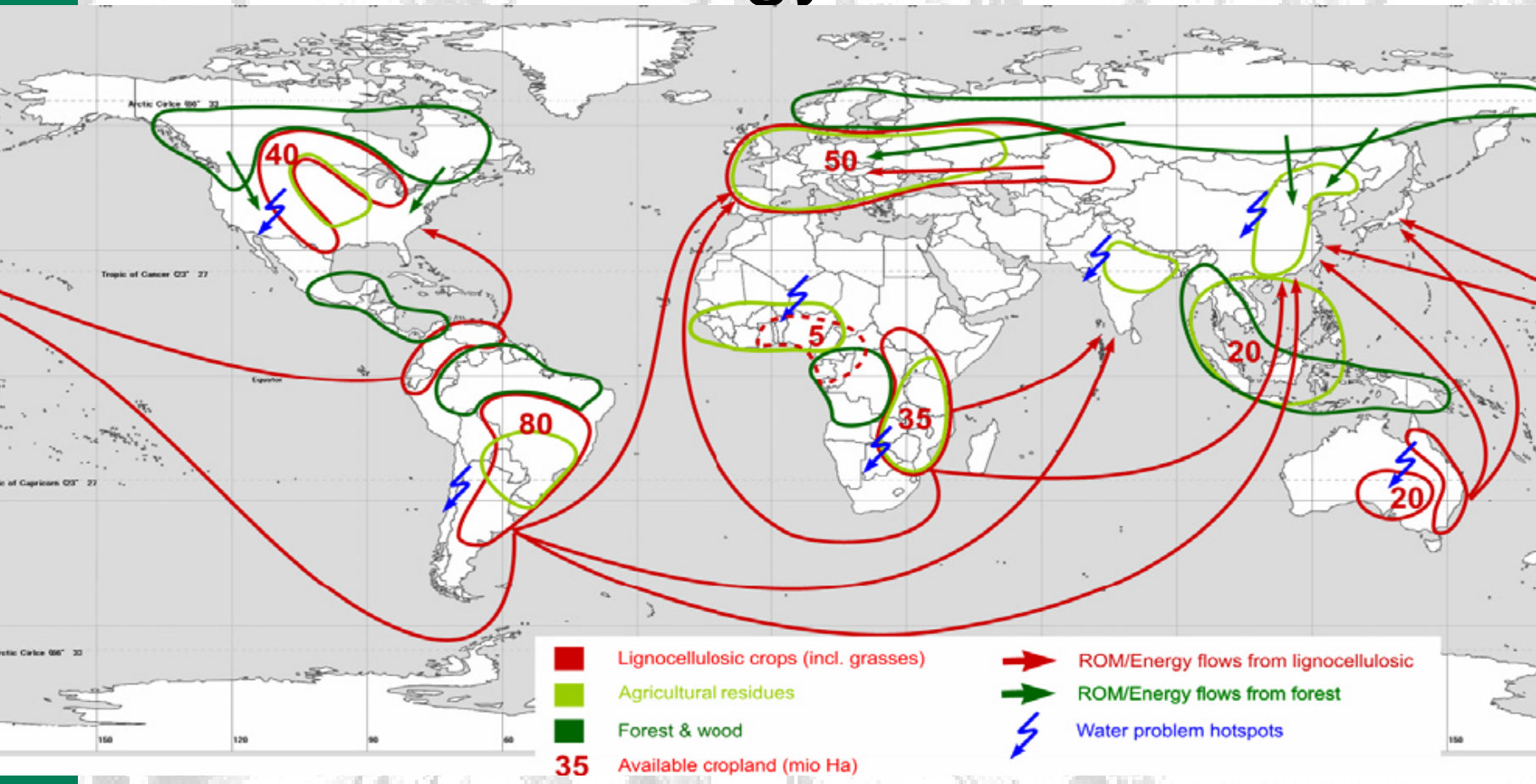
Barriers and opportunities for bioenergy trade (to be published)



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Questionnaire responses on sustainability criteria

A future vision on global bioenergy...



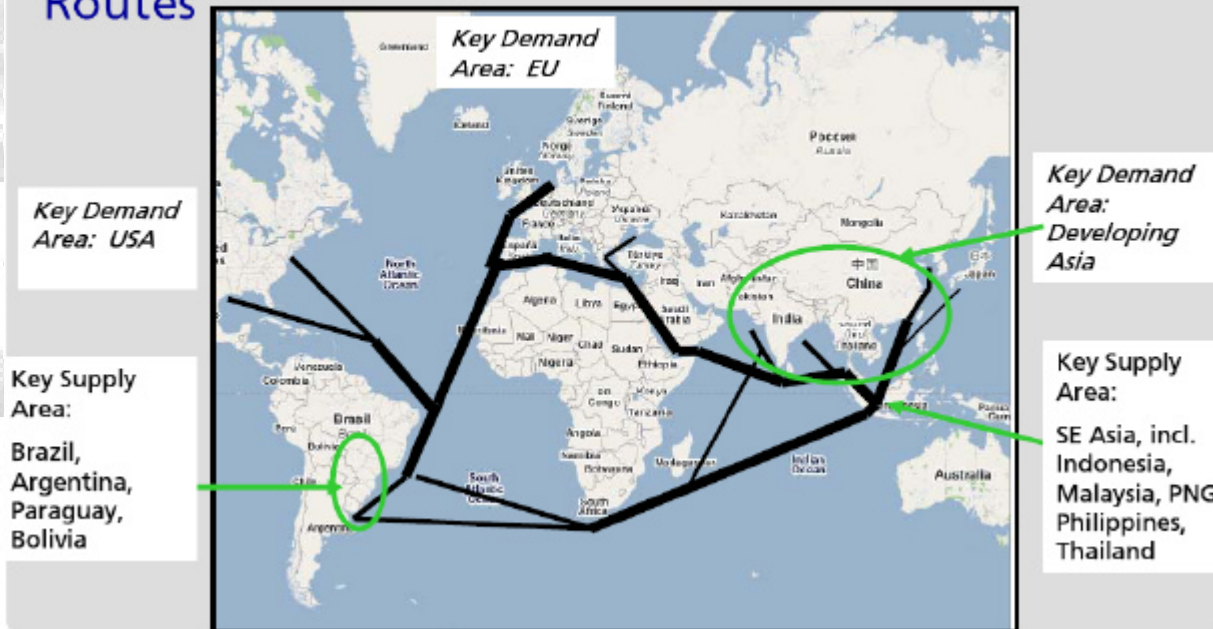
How?: Biomass Shipping study

Investigates current and future shipping lanes

Scrutinizes pro's and con's of different biomass/biofuel types for shipping

Discusses implications of large scale bioenergy trade on global fleet

Key Production Areas and Shipping Routes



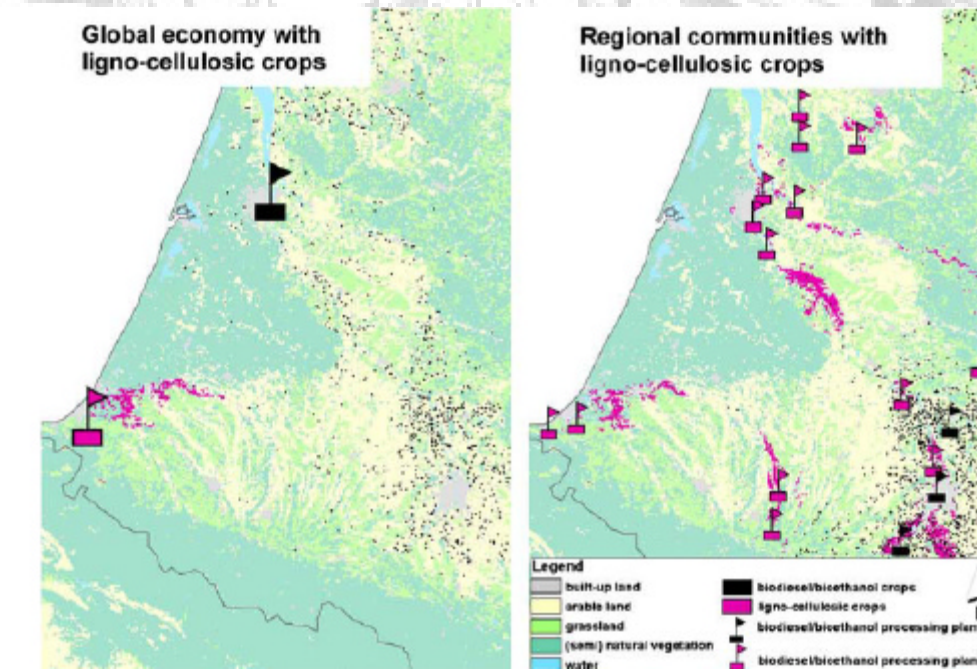
What?: 2nd Generation Biofuels and Trade

-an exploratory study

- new conversion technologies
- development of production costs

Analyses potential competition with other cellulose consuming industries

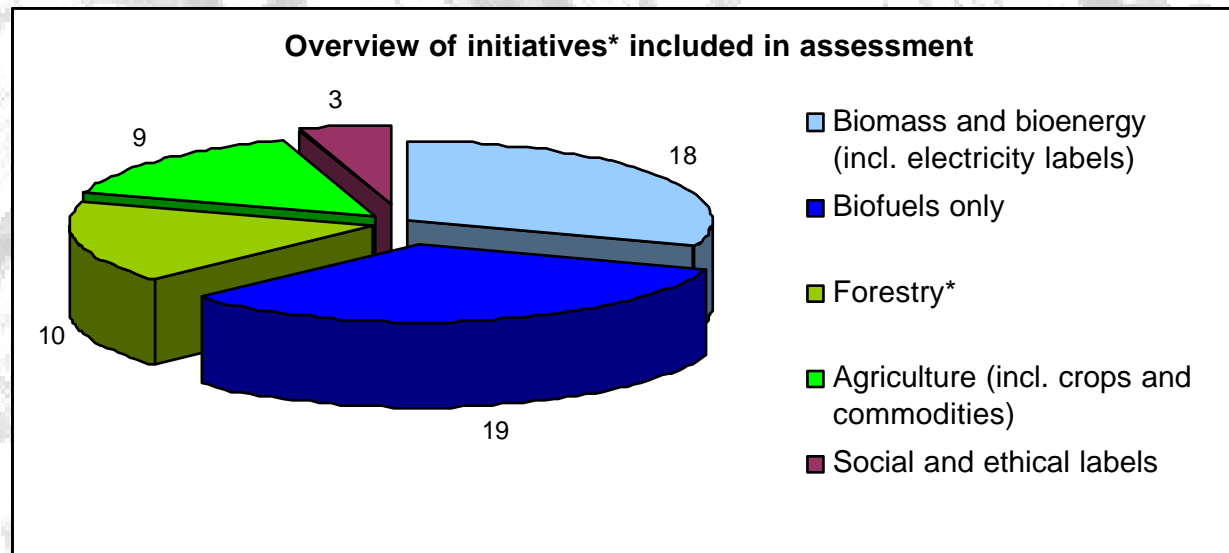
- what will be most likely?
 - trade of raw materials,
- or:
- intermediate product,
 - for the final fuel



sustainability certification schemes

Overview study: **59** initiatives (regulation + systems) included

- All relevant for (some) sustainability issues and/or
- Various parts of the bioenergy value chain



* Substantially more forestry certification systems exist

EU-Sustainability requirements

- For biofuels and other bio liquids for energy purposes:
- CO₂: \geq 35% better than fossil equivalent
- Biodiversity: no go areas
- Carbon sinks: preservation of status of areas
- EU: Cross compliance requirements (not for companies?)
- *NB: For waste and residues (not from agriculture, aquaculture, fishery, forest): only CO₂-requirement*

5 cm

1. CO₂-requirement

- $\geq 35\%$ better than fossil equivalent
 - Temporary exception existing installations
 - In 2017 second step: 50% (depending on review)
 - From 2017 60% for new installations
- Outside EU: CO₂-calculation with Annex V
- Defaults for biofuels
- Within EU: cultivation defaults required



2. Biodiversity: no go areas

- Forest
 - Primary forest and other wooded land
 - Areas designated for nature protection purposes /
 - for protection of rare, threatened, endangered species
 - Unless evidence for no interference with these purposes
- Highly bio diverse grassland
 - Commission shall establish criteria and geographic ranges

A photograph of a pile of wood chips, likely from a forest or a wood processing facility. The wood chips are light-colored and vary in size and shape. A scale bar is visible in the bottom right corner, indicating a length of 5 cm.

5 cm

3. High carbon stock (preservation of status)

- Wetlands
- Continuously forested areas
- Canopy cover between 10 and 30%

4. Peatland (preservation of status)

- Unless evidence for no drainage of previously undrained



Market Support



NL Govt. subsidy


Certified Sustainable Biomass

	Sustainable Biomass Mondial	Sustainable Biomass Import
Goal	Support Developing Countries in sustainable biomass production for energy to obtain access to worldmarket.	Support the increase of sustainable biomass for energy in major producing countries to the Netherlands
Subsidy Budget	12.5 M€	7.5 M
Supporting program	2.75 M€	1.5 M€
1st tender	< 25 May 09; 4.9 M€	< 15 oct 09; 3.5 M€
2nd tender	12 Jan 2009; 3.5 M€	6 August 2010; 4.0 M€
Focus countries	Indonesia, Vietnam, Colombia, Nicaragua, Mali, Tanzania, Mozambique en Zuid-Afrika	Canada, Brasil, Ukraine, Baltic States, Rusland,

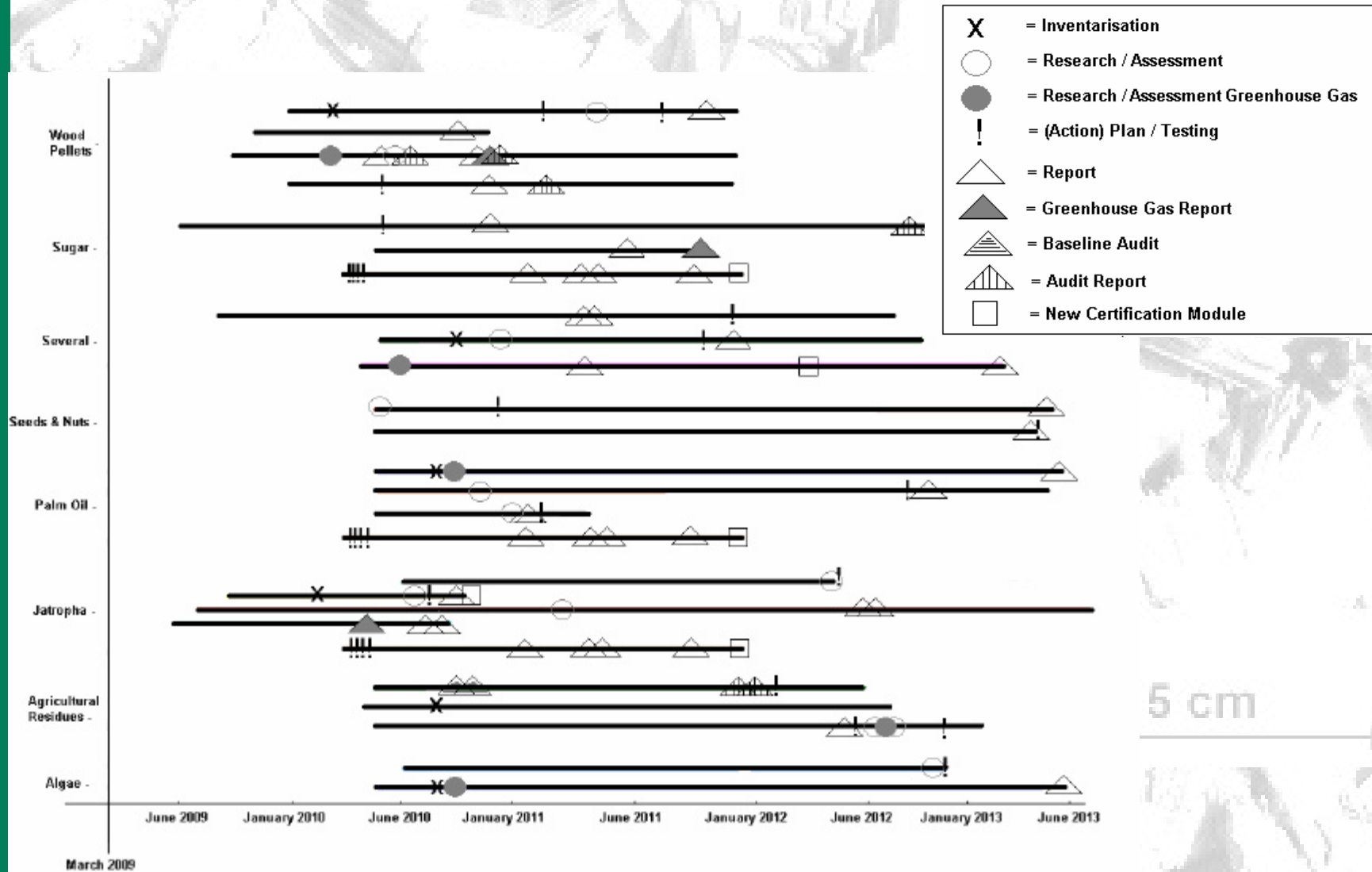


Budget 21 M€

Projects contracted

Crop	Number		projects by continent	
Algae	2		Africa	21
Agricultural Residues	3	Asia	11	
Jatropha	14	Europe	3	
Palm Oil	7	North America	1	
Nuts	4	South America	10	
Oilseed	2			
Sugar (Cane, Sorghum & Palm)	5			
Wood Pellets	4			

Testing Certification systems



Conclusions

- Biomass Trade substantial
- Sustainability standards and certification being implemented
- Trade can increase and contribute to global sustainable growth
- Carefull expansion required

The background of the slide is a grayscale image of wood chips. A scale bar is located in the bottom right corner, consisting of a horizontal line with vertical end caps, labeled "5 cm".

5 cm

Thanks for your attention

For more information, see:

www.bioenergytrade.org

- Detailed activities
- Background information
- Results
- Events
- Subscribe to the newsletter (2x per year)

5 cm

