



Sustainability assurance standards & certification schemes. Considerations for biomass trading



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- Current initiatives on biomass for biofuels
- Supply chains
- Stakeholders
- Environmental, socio-economic issues and considerations
- Current international assurance systems
- Examples
- Conclusions



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Main drivers for biomass trading

- Energy security
- Kyoto agreements
- Climate change
- Rural development
- Market opportunities for crops, by-products, waste



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Expected biofuels in the market in 2010

Fuel	Feedstock (s) and feedstock type (wet / solid biomass, sugar rich crop, oil crop)	Conversion technology	Cost of production ^a (euros per energy-equivalent litre)	Key characteristics, pros / cons
Biodiesel	Oil crops, and waste: rapeseed, sunflower, soybean, palm oil, jatropha, waste vegetable oil, waste animal fats	Extraction & esterification	US, soy – 0.50 EU, rapeseed – 0.56 Brazil, soy – 0.52	-energy density about 0.9 that of petroleum diesel -conventional diesel engines can operate on up to 100% biodiesel -minor modifications required on blends above 20% -sensitive to cold conditions
Bioethanol	Starch and sugar crops: wheat grain, sugar beet, sugar cane, sorghum, corn	Fermentation, gasification, pyrolysis	US, corn – 0.36 EU, wheat – 0.70 Brazil, sugar cane – 0.27	- energy density about two-thirds that of petrol -easily blended into petrol at low blend levels - high octane
Biogas	Organic waste, wet energy crops	Anaerobic conversion	-----	Advantage: It can be integrated within the infrastructure designed for natural gas, LPG and LNG; good performance on GHG emissions. Disadvantage: Limited market (buses)



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First umbrella for EU

- Sustainable transport agenda
- Climate strategy
- Directives EU
 - **The Biofuels Directive** (Directive 2003/30/EC) indicative targets (non compulsory) of 2% by 2005 to 5.75% by 2010 (by energy content).
 - **The Fuel Quality Directive** (98/70/EC), amended 2003, currently limits biofuels to a maximum of 5% by volume (less than the Biofuels Directive target of 5.75% by energy).
 - **Biofuels Strategy** (COM 2006:34) aims to further promote biofuels in the EU and developing countries, and prepare the EU for the large-scale use of biofuels in an environmentally sustainable manner,.
 - **Biomass Action Plan** (COM 2005:628), revision of the Biofuels Directive. i) give favourable treatment to second generation biofuels in biofuels obligations; and ii) bring forward a legislative proposal promoting public procurement of clean and efficient vehicles, including high blends of biofuels.



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DGAgri EU Commission

- 18 Mha of agricultural land to meet 5.75% of transport sector 2010
- Mixture of imported and locally derived
- Sugar cane, soya bean, palm oil, rapeseed/oil, wood products
- 2nd generation biofuels

(DGAgri, 2007)



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Some initiatives for considering sustainability standards for biofuels

- Renewable Transport Fuel Obligation (UK) Low Carbon Vehicle Partnership (2006)
- Oko Institute and the WWC “Sustainability standards for bioenergy” (2006)
- Cramer Report (2006)
- World Wildlife Foundation WWF
- Roundtable on Sustainable Palm Oil (RSPO)
- Roundtable on responsible Soya (RTRS, 2007)
- Global Roundtable on Sustainable Biofuels (EPFL, 2007).



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Renewable Transport Fuels Obligation (RTFO) Criteria (2006)

Low Carbon Vehicle Partnership

- Conservation of carbon stocks
- Conservation of biodiversity
- Sustainable use of water resources
- Maintenance of soil fertility
- Good agricultural practice
- Waste management



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Oko Institute and WWC Sustainability standards for bioenergy” (2006)

Criteria for bioenergy

- Priority for food supply and food security
- Rights to use land for bioenergy cropping
- Workers rights and shares of proceeds
- Health impacts



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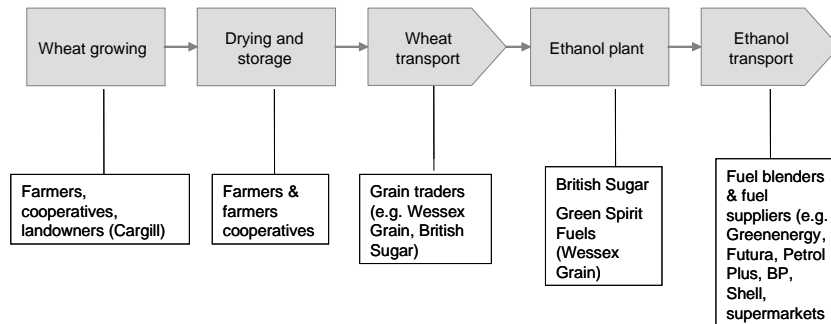
Cramer Report 2006 (The Netherlands)

1. Greenhouse balance
2. Competition with food, local energy supply, medicines and building
3. Biodiversity
4. Economic prosperity
5. Well-being
6. The Environment



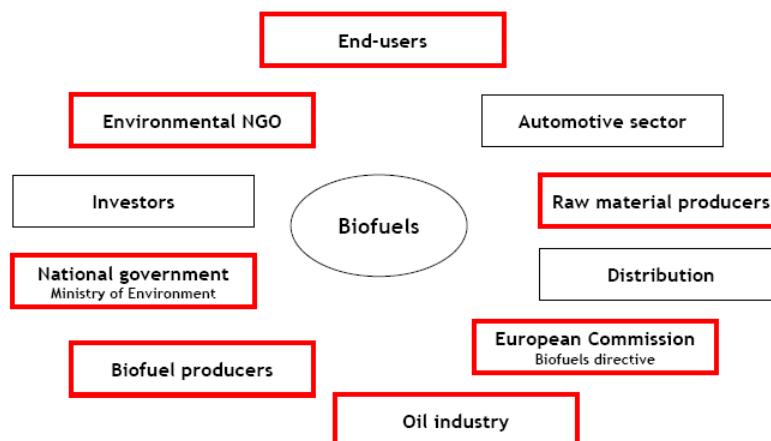
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Production chain Wheat to ethanol



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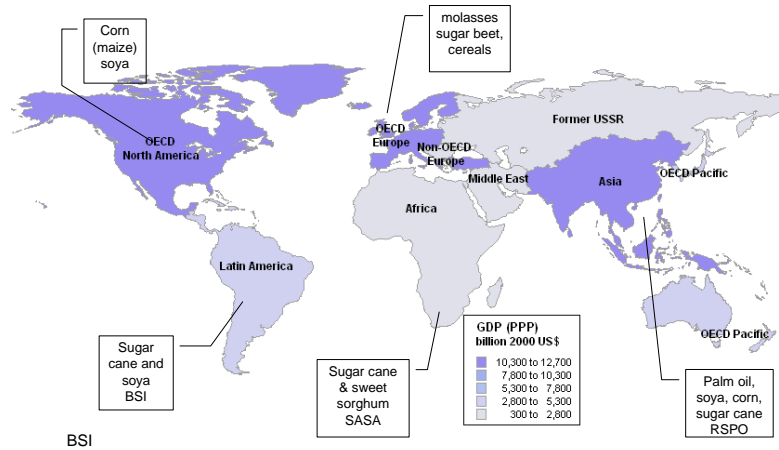
Overview of stakeholders in biofuels systems



(Senternovem, 2005)

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Biofuel regions by energy crops and available certification and standard systems.



BSI
SASA South African Sugar Association
RSPO Round Table on Sustainable Palm Oil

(Modified from IEA, 2003)



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A comparison of indicators of main International Standard Systems with respect to the LowCVP proposal

	MAIN THEMES	BIODIVERSITY	CARBON STOCKS	WATER	SOIL FERTILITY	CROP MANGT	WASTE MANGT	OTHERS
STANDARDS								
1	LowCVP proposal	Y	Y	Y	Y	Y	Y	No Transport, GMO
2	Assured Combinable Crops	Y	N	Y	Y	Y	?	Climate, Community
3	Climate, Community and Biodiversity	Y	Y	Y	Y	N	N	
4	Forest Stewardship Council	Y	N	Y	Y	Y	Y	Maintenance of high conservation value forests, indigenous people's rights
5	Green Gold Label Program General Standard	N	N	N	N	N	N	Chain of custody and processing
6	Green Gold Label Program (Agriculture)	Y	Y	Y but not clear	Y	Y	Y but not clear	Pollution control, monitoring
7	Green Gold Label Program (Forest)	Y	Not specific (yields)	Y	Y	N	N	Tenure and use rights of land
8	EUREPGAP	Y (very general)	N	Y (pollution)	Y	Y	Y	Crop protection and storage, produce handling
9	ISEAL	NA	NA	NA	NA	NA	NA	NA
10	PEFC	Y	N	Y	N	N	N	Legal/regulatory framework; recreational services; significance of forest sector (NGP)
11	Rainforest Alliance Sustainable Agriculture	Y	N	Y	Y (conservation)	Y	Y	Ecosystem conservation, social issues
12	Rainforest Alliance FSC /Smartwood	Y	Y	Y	Y	Y	Y	Compliance with laws and FSC principles, Tenure and use rights
13	RSPO	Y	Y	Y	Y	Y	Y	Commitment to transparency; compliance with applicable laws and regulations; responsible consideration to employees and responsible development of new plantings.
14	UK Forestry Standard	Y	Y (very general)	Y	Y	N	N	Includes criteria on workforce, rural development and heritage



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Ecofys / LowCVP Environmental criteria Meta-standard

Principles for RTFO Base and RTFO Plus standard

1. Carbon storage [stocks]
2. Biodiversity
3. Soil quality
4. Water quality and quantity
5. Air pollution

- Based on ECCM report + Dutch criteria + existing standards



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A comparison of some available EU Standard Systems with the social criteria suggested by Ecofys (2007).

	Standards	Cross Compliance GAECs	Cross Compliance SMRs	LEAF	ACCS	Eurepgap
P6	Compliance with applicable law (social issues)	NA	NA	Y	N	Y
P7	Contracts and subcontractors	NA	NA	P	P	N
P8	Freedom of association and right to collective bargaining	NA	NA	N	N	N
P9	Working hours	NA	NA	N	N	N
P10	Child labour	NA	NA	N	N	N
P11	Health and safety	NA	NA	N	P	Y
P12	Wages/compensation	NA	NA	N	N	N
P13	Discrimination	NA	NA	N	N	N
P14	Forced labour	NA	NA	N	N	N
P15	Land right issues	NA	NA	P	N	N



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WTO position

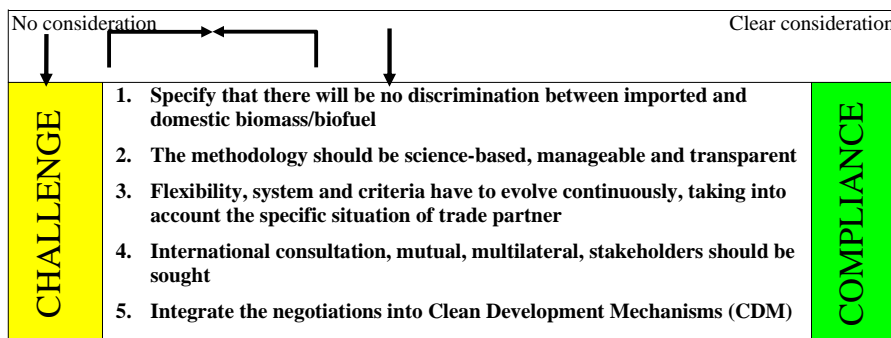
- No specific position on biofuels
- Three scenarios* (interpretation?):
 - Addressing environmental impact in country of import
 - Life cycle
 - Beyond Carbon emissions for sustainable agriculture

* International Policy Council & Renewable Energy and International Law (2006)



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General points considering challenge of international trade rules



(WIP, 2007)



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SUGAR CANE

Sugar cane worker's and farmers conditions.



©Ricardo Teles

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Soya South America



Deforestation in Argentina



Soya crops are closer to urban areas



Deforestation in Brazil for soya



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PALM OIL



Workers, Congo.



Malaysia



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Ethanol from corn The "Tortilla effect"



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Current situation

- United States is the major producer and exporter of maize
- USA produce 295 millions of tons of maize/year
- 35 millions tons are dedicated to ethanol
- There are 74 ethanol plants and 15 under construction
- The price of corn has doubled even before Bush announced new policy

Boletín UNAM-DGCS-029
Ciudad Universitaria



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Mexican case

- Genetic origin of maize
- Over 50 subspecies and varieties
- Current cost of corn
\$3,500 MX/ton 2007
- 2006 \$1,700 - \$2,000
- Current cost of tortilla
\$8.50 MX/kg
- 1 USD = 12.00 MX



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Cont.

- Mexico consumes 39 millions tons of maize per year
- The white variety is for human consumption
- Yellow variety is for feedstock
- Mexico produces 21.3 millions of maize
- The deficit of 17.7 millions of tons is imported from USA

(Paredes, O. La Cronica. Lunes 29 de Enero de 2007)



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Cont.

- Historic issues (Green Revolution '70s)
- Monopoly: national market for corn flour is of nine thousand millions USD
- Subsidies
- One single company has 70 - 80 % of the market
- Imports (yellow variety)
- No protection from NAFTA for farmers
- GMO



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Conclusions

- Environmental, social and economic issues must be considered in the production and use of ethanol
- A standard assurance or certification system must be implanted, currently under design at different levels in the EU but considering local issues/participation in the process
- Biofuels production and use must be sustainable (economic, environmental and social issues)



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- Biofuels production may be seen as an additional form to help reduce poverty in developing countries
- Problems with certification or standard assurance lay within implementation, additional costs, audit and compliance.
- Promotion of trade and not barriers



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I thank you!



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