

Moving ideas, pursuing solutions



International Centre for Trade
and Sustainable Development

Bioenergy, Trade and Sustainable Development

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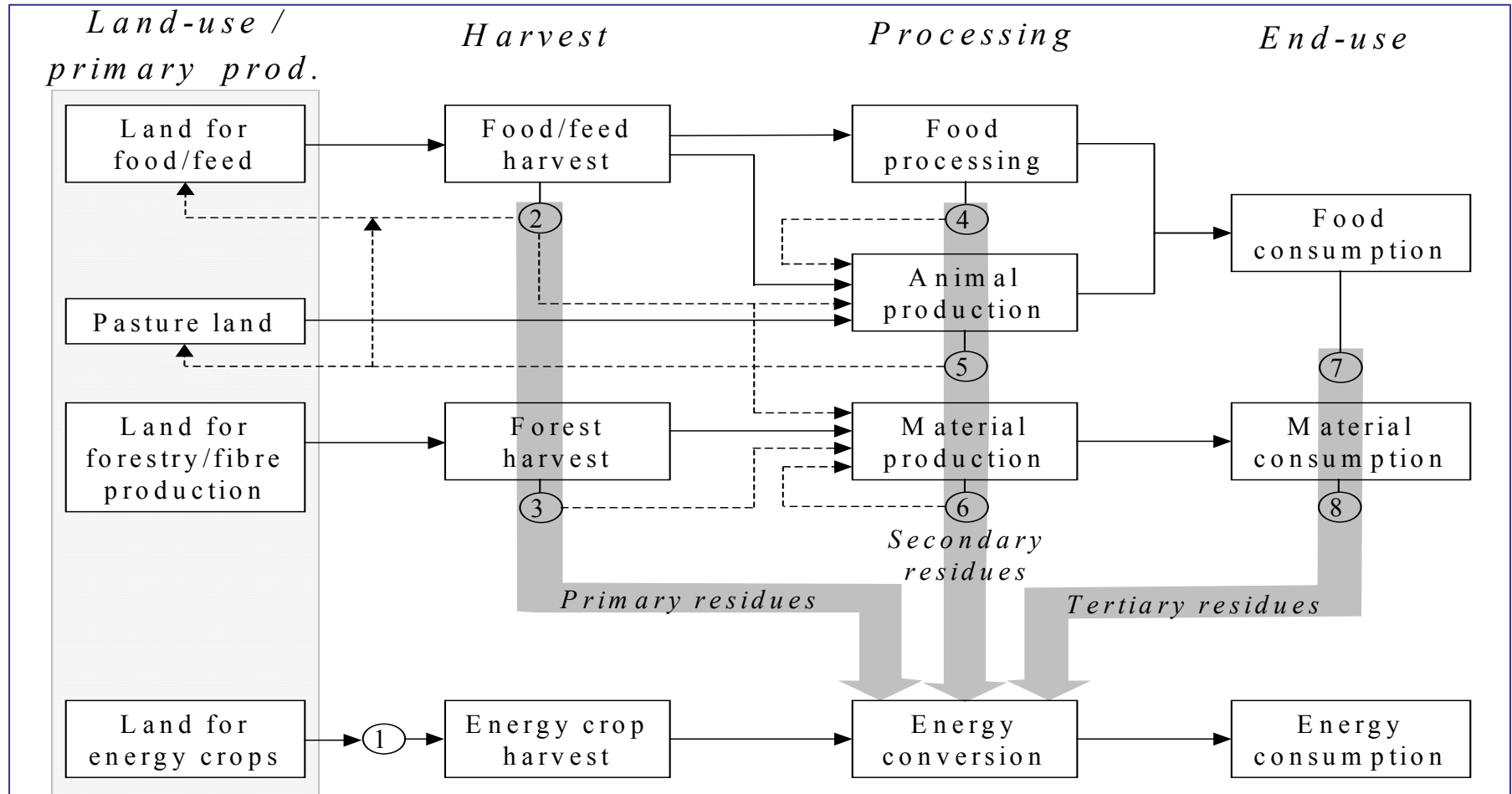
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Outline

- 1. Sustainable development opportunities and challenges in developing countries**
- 2. International trade of biomass**
- 3. Standards and certification of biomass**

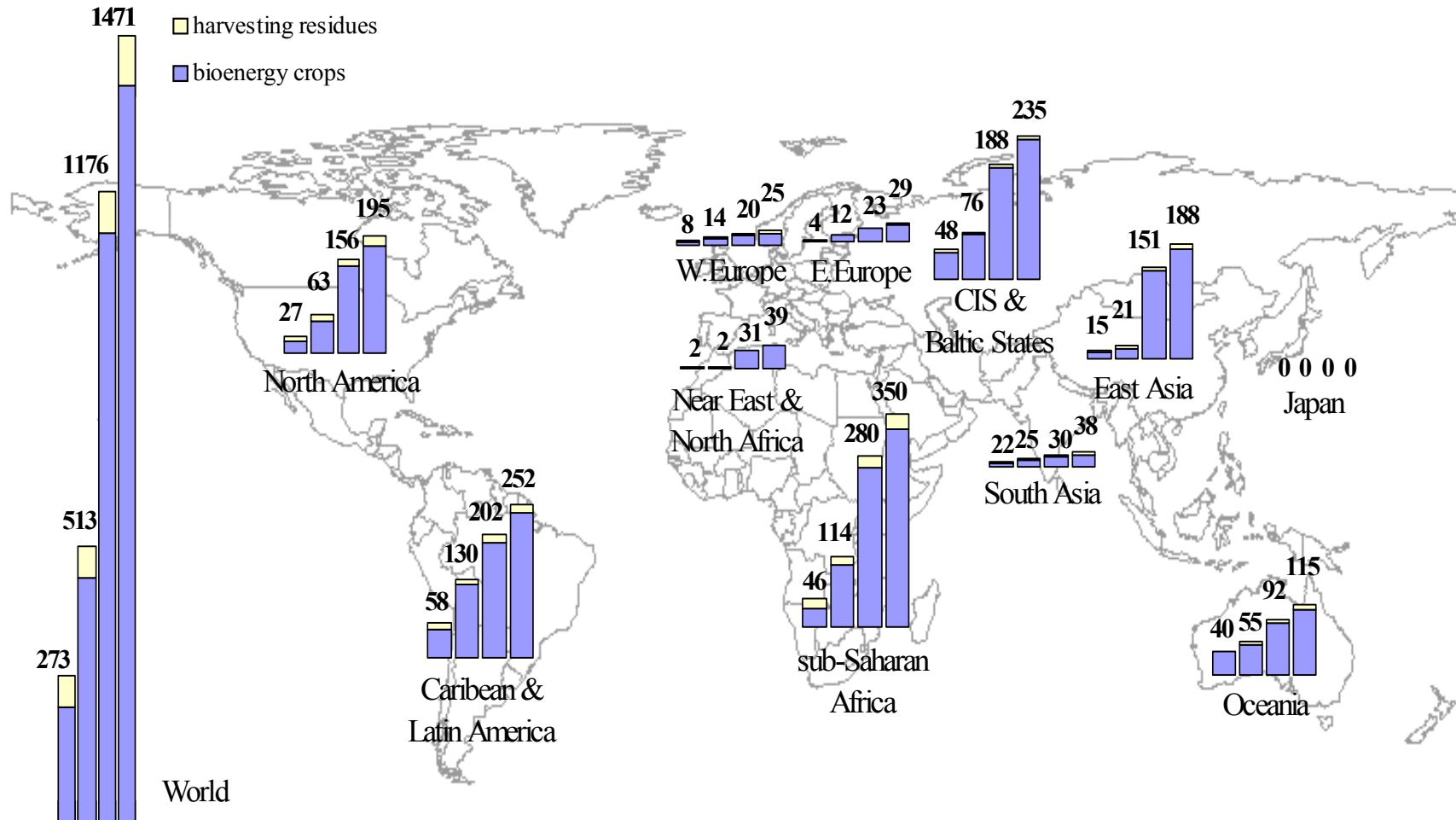
1. Sustainable development opportunities and challenges in developing countries

The potential of biomass for energy and material



The grey arrows denote: 1) energy crops, 2) agricultural residues, 3) forest residues, 4) food residues, 5) manure, 6) non-food organic waste, 7) food consumption waste, 8) non-food consumption waste.

Estimated long-term technical production potential



Source: Copernicus Institute

Example energy cropping systems for different conditions determined by climate and land quality

	Tropical regions	Semi arid conditions	Temperate climate
Arable land	Sugar cane High yielding woody crops and grasses	Cassava Woody crops energy grasses.	Miscanthus Willow Energy maize Cereals
Pasture land	Energy grasses	Managed grasslands	Switchgrass Miscanthus
Degraded/ marginal land	Oil palm Longer rotation trees.	Jathropa oilseeds Longer rotation trees (Eucalyptus)	Poplars grasses

2. International trade in biomass

International trade issues

- ❖ *Domestic supply vs exports*
- ❖ *Technical standards (quality standards)*
- ❖ *HS classification and its implications*
- ❖ *Tariffs and quotas*
- ❖ *Market access*
- ❖ *Subsidies*
- ❖ *Sustainability criteria and certification*

International trade in biomass and bioenergy

- ❖ International trade concerns three different categories of biomass:
 - ❖ Products that are traded for energy use (e.g. wood pellets and fuel ethanol)
 - ❖ Raw materials that are used in the production of biofuels (e.g. palm oil)
 - ❖ Raw materials of the forest industry (raw wood)

Direct and indirect trade

Indirect trade	0.54
• Industrial round wood	0.41
• Wood chips and particles	0.13
Direct trade	0.22
• Ethanol	0.09
• Biodiesel	0.02
• Fuel wood	0.03
• Charcoal	0.02
• Wood pellets	0.02
• Palm oil	0.04
In total	0.76

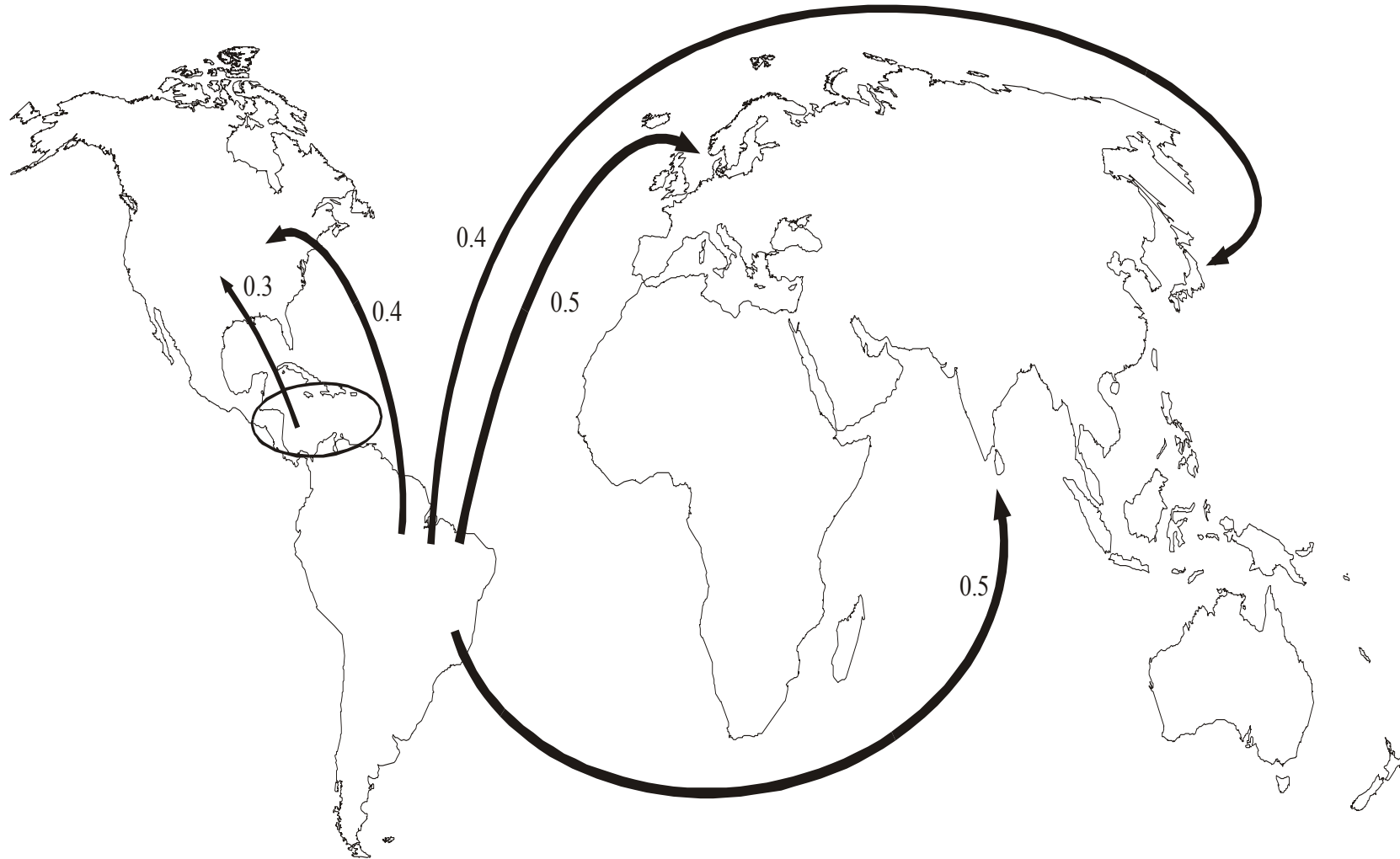
Note: An estimate on the scope of international trade of biofuels in 2004, (EJ). Tall oil, ETBE and wastes excluded.

Source: Faaij, ICTSD 2007 (forthcoming)

Biofuel Demand from Major Export Markets

- ❖ EU import requirements:
 - ❖ Bioethanol: EU production not cost-competitive with sugar cane based ethanol (2010 cost of € 900 / Toe vs € 680 /Toe cheapest import source). Without import duties, 100% EU ethanol market supplied by imports.
 - ❖ Biodiesel: without barriers of standards, about 50% of EU biodiesel market could be supplied by imports (mainly for feedstocks to EU industry).
 - ❖ In total: about 70% of EU biofuels market would be supplied by imports (Van Houtte, European Commission, DG Development, 2006)

Major ethanol trade streams in 2004, in Bt. The total volume of the trade was approximately 4 Gt in 2004.



Ethanol exporting/importing countries in 2005

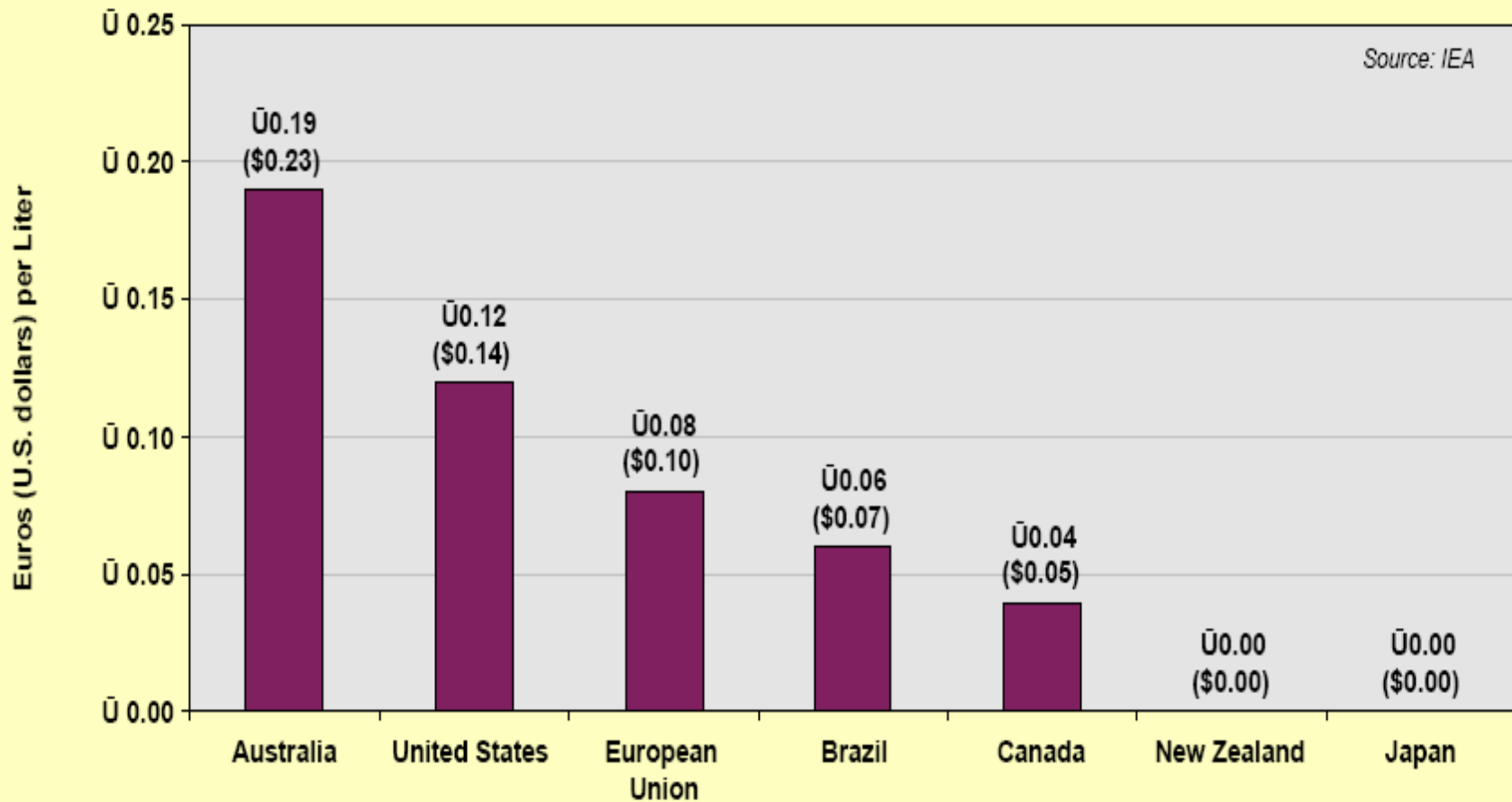
Import	%	Export	%
USA	18	Brazil	48
Japan	11	USA	6
India	8	France	6
Germany	8	S. Africa	6
Netherlands	8	China	5
UK	6	UK	5
Korea	5	Netherlands	4
France	4	Germany	2
Others	32	Others	18

Source: Walter et al., 2007

Biofuel imports into the EU under Preferential Trading Arrangements, 2002–2004

Trade Agreement	2002	2003	2004	Average 2002-04	Share of Total Biofuel Trade 2002-04
	(million liters)				(percent)
GSP normal	227	183	288	233	9
GSP plus	553	1,569	1,413	1,178	47.5
ACP	291	269	155	238	9
EBA	30	86	19	45	1.5
Others	107	104	123	111	4
Total preferential	1,208	2,211	1,998	1,805	70
Total MFN	657	495	1,125	759	30
Grand Total	1,865	2,706	3,123	2,564	100

Ethanol import duties in selected countries



Ethanol Import Duties in Selected Countries, 2004

Market Access

- ❖ Doha Declaration Para 31 (iii):
 - ❖ *reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.*
- ❖ Biofuels included in the OECD list of environmental goods.
- ❖ Biofuels as environmentally-preferable products (EPPs) - products “that cause significantly less environmental harm at some stage of their life cycle than alternative products serving the same purpose” (UNCTAD, 1995).
- ❖ Much of developing countries’ gains in EGS liberalisation would come from market access on EPPs, including biofuels (ICTSD, 2006).

Considering Biofuels as Environmental Goods: The Issues

- The classifications: Ethanol as agricultural product; biodiesel as industrial (due to manufacturing process).
- EGS mandate does not exclude agricultural products but Members so far only proposed industrial items.
- Non-tariff measures (e.g. subsidies) are part of the mandate on EGS.
- HS Issues: Both ethanol and biodiesel are ex-outs- the question is whether to liberalise only ex-out or broader 6-digit category, which would also include dual use products.
- Defining environmental benefit: How far should PPM issues be considered (e.g. production process and GHG/energy balance of biofuels)?

Considering Biofuels as Environmental Goods: State of Play in the EGS Negotiations

- So far 'low' profile. Methanol, biodiesel proposed in submissions by New Zealand, Canada.
- Brazil (TN/TE/W/59) proposed EG definition to cover ethanol and biodiesel and also cleaner technologies using these fuels (eg: flex-fuel engines).
- In revised list (Job 07/54) methanol and biodiesel dropped with whole chemicals category (of which they were part).
- Latest proposal by Brazil JOB (07/146) seeks to include ethanol as environmental good.

3. Standards and sustainability criteria for biomass

Will standards and certification help achieve sustainable production and trade?

- ❖ Non compulsory standards including labeling not problematic.
- ❖ Mandatory standards or tax concessions linked to conditions based on environmental sustainability:
 - ❖ Not problematic if related to end use or environmental impact in importing countries and if non discriminatory, based on objective, transparent criteria
 - ❖ More uncertainty if related to overall life cycle analysis. (Could be justified since carbon emissions is global environmental problem)
 - ❖ More problematic if related to methods of production in exporting country (deforestation, use of fertilisers, habitat protection). Issues of objectivity and judgement of domestic policies

Will standards and certification help achieve sustainable production and trade?

- ❖ Experience with forest and agricultural certification not very conclusive
- ❖ Making certification simple, fair and cost effective
- ❖ Making the WTO Agreement on Technical Barriers to Trade work for bioenergy
- ❖ Managing the multiplicity and complexity of private standards

Conflicting views on standards and certification

- ❖ Both Brazil and the US have expressed opposition to discussions on sustainability criteria at the international level.
- ❖ Brazil has started a national "Social Fuel Seal" which has become law, guaranteeing that biodiesel is produced in a way that benefits poor farmers and their families.
- ❖ Some of the international processes taking place include the Roundtable on sustainable biofuels coordinated by EPFL in Lausanne University, and the Global Bioenergy Partnership.
- ❖ Several initiatives are under consideration within the EU and its individual member countries.

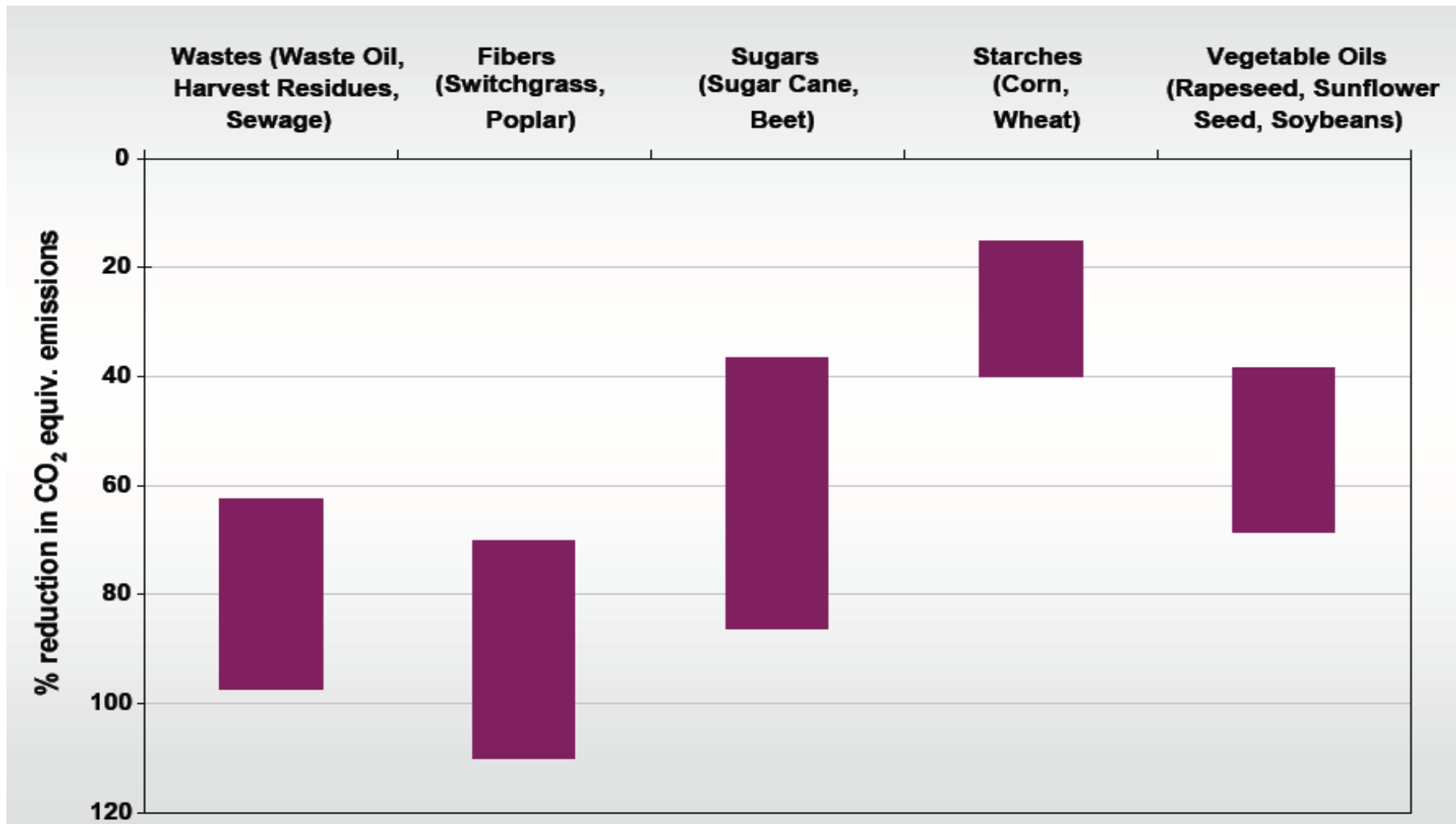
Elements considered in ongoing initiatives

- ❖ **Cramer Commission criteria:**
- ❖ The Cramer report defines a testing framework for sustainable biomass to be applied at the company level. It proposes that Dutch companies who import biomass materials such as grains, sugar and cellulose must prove, via a certifiable track and trace system, that the products comply with the following criteria (for the period between 2007-2010):
- ❖ Sustainability criteria relate to the following themes:
 - ❖ Greenhouse gas emissions
 - ❖ Competition with food and local applications biomass
 - ❖ Biodiversity
 - ❖ Environment
 - ❖ Prosperity
 - ❖ Social well-being

Cramer Commission criteria

- ❖ **'CO2 balance of the biofuel'**: the balance is calculated across the entire chain (field to fuel tank/power plant, including CO2 released during transport from the South to the Netherlands).
- ❖ For biofuels used for electricity production, a minimal CO2 reduction of 50% must be obtained; for liquid biofuels a minimal reduction of 30%.

GHG Reduction Potential of First and Second Generation Technologies

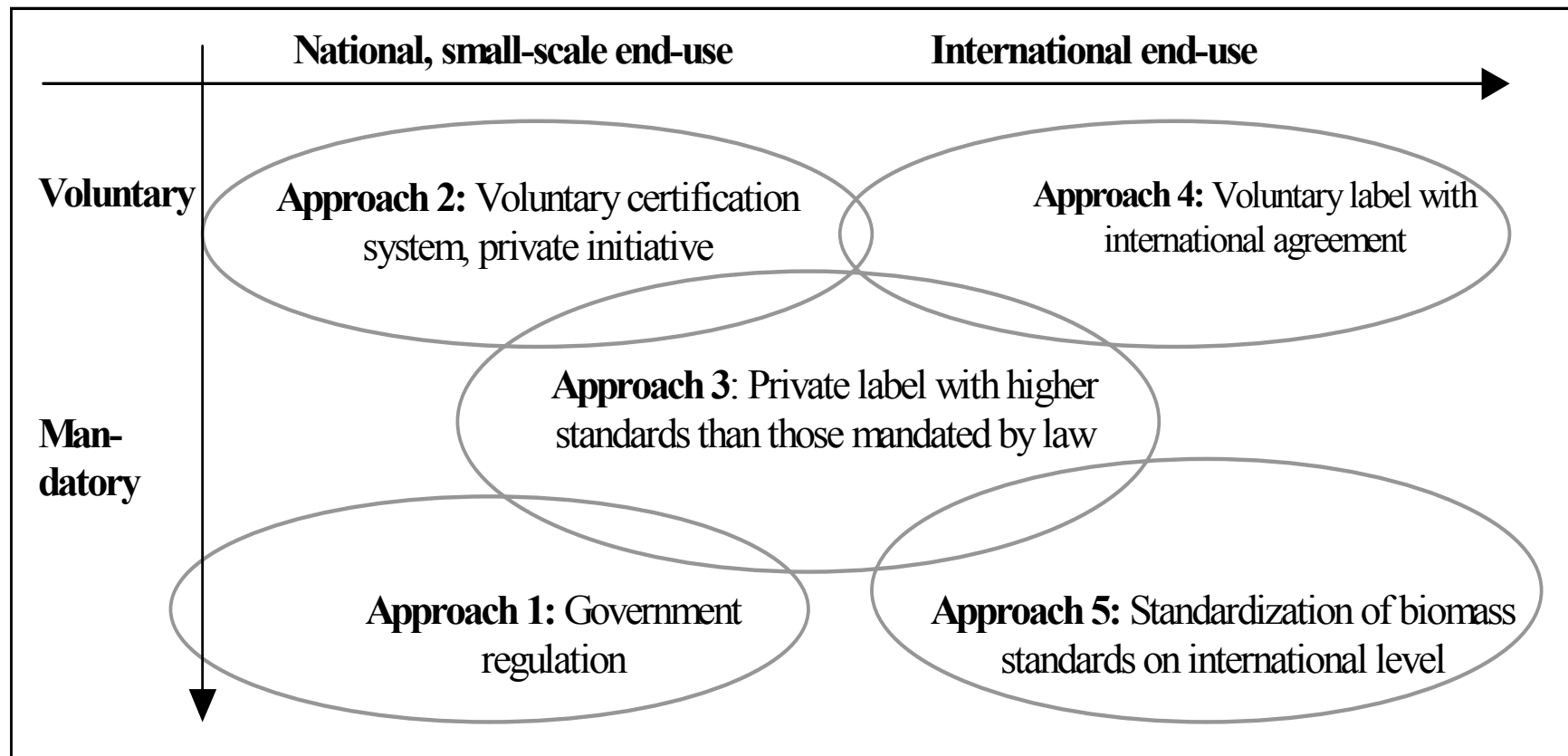


Reductions in Greenhouse Gas Emissions per vehicle-kilometre, by feedstock and associated refining technology IEA, 2005.

Impact on developing countries

- ❖ Increase in production cost:
 - ❖ Total production costs of bioethanol in Brazil would increase by between 35 and 88 per cent
 - ❖ Ethanol production cost in the São Paulo region would rise by 24–56 per cent (Smeets *et al.* 2006)

Possible approaches for implementation of biomass certification



Sustainability criteria and certification of biomass in the context of the WTO

Criteria in line with WTO when:	Remarks
Related to post-import impacts	Visible in physical characteristics of the product
Referring to a global scale with no to limited interference with local policies	E.g. GHG levels
Based on consumer preference, unspecified to a specific product and translated to voluntary standards	These can include environmental or socio-economic criteria
Needed to protect human, animal or plant life or health or relating to conservation exhaustible natural resources (GATT Art XX)	Criteria applicable are e.g. air emissions or GHG balance
Internationally agreed upon with broad consensus	More complicated for criteria with impacts on local / regional level
No international provisions exist within WTO for linking trade with social issues and labour standards	Socio-economic criteria through voluntary standards (e.g. as FSC) possible at this stage

Sustainable development considerations in the development of biomass certification

- ❖ Stakeholder consultations and participation
- ❖ Assessment of costs of compliance especially for small producers
- ❖ International cooperation in facilitating compliance
- ❖ Making certification simple, fair and cost effective
- ❖ Making the WTO Agreement on Technical Barriers to Trade work for bioenergy
- ❖ Managing the multiplicity and complexity of private standards

Possible roles of stakeholder groups in development of biomass certification

Stakeholders	Possible roles
International bodies	<ul style="list-style-type: none"> • Assist in developing international framework conditions or agreements for bioenergy • Initiate debate on the role of the WTO in the biomass certification process • Coordinating role in stakeholder debate from various stakeholder groups • Provide Support to promote sustainable biomass (financially, expertise, sharing knowledge) • Provide specific assistance to developing countries
Regional bodies	<ul style="list-style-type: none"> • Policy or legal framework on biomass certification on regional level, integrating standards certification system into regional policy • Promoting coherent national policies at the regional level • Refinement standards to local and regional conditions, further specification of set biomass standards • Support to build up expertise in implementing biomass certification system • Provide specific assistance to developing countries
Government bodies	<ul style="list-style-type: none"> • Policy framework for biomass certification, set of biomass minimum standards possibly with more extended set of private standards • Policy measures (subsidies, regulations) to promote sustainable biomass • Support to build up expertise in implementing biomass certification system • Provide specific assistance to developing countries

Possible roles of stakeholder groups in development of biomass certification

Stakeholders	Possible roles
Companies	<p>Key activities with the focus of initiatives depending on interests of the company:</p> <ul style="list-style-type: none"> •Build experience in certification through (pilot) studies over the complete biomass chain; gradually learning and expanding the system over time •Promoting coordination and cooperation between companies on development certification system, e.g. energy companies in Europe may stimulate coherence in the development of biomass certification systems, at least on regional level, and form a strong incentive to other producers in the world. •Technical improvements of biomass related products •Financial assistance (especially for banking sector).
NGOs	<ul style="list-style-type: none"> •Keep watch over the reliability of the system in development •Representing and involving the less powerful in discussion on biomass certification •Build up experience through pilot studies and work in the field, mainly on the biomass production side •Trigger the discussion proposals by the development of principles and pathways for implementation of a biomass certification system.
Roundtables	<ul style="list-style-type: none"> •Facilitate discussions on biomass certification among stakeholder groups, at this time mainly on biomass production side •Promote initiatives on biomass certification (via biomass production side) in coordination with other initiators on biomass certification systems •Implementation of pilot studies



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Thank you

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