Global Bioenergy Policy Implementation Frameworks

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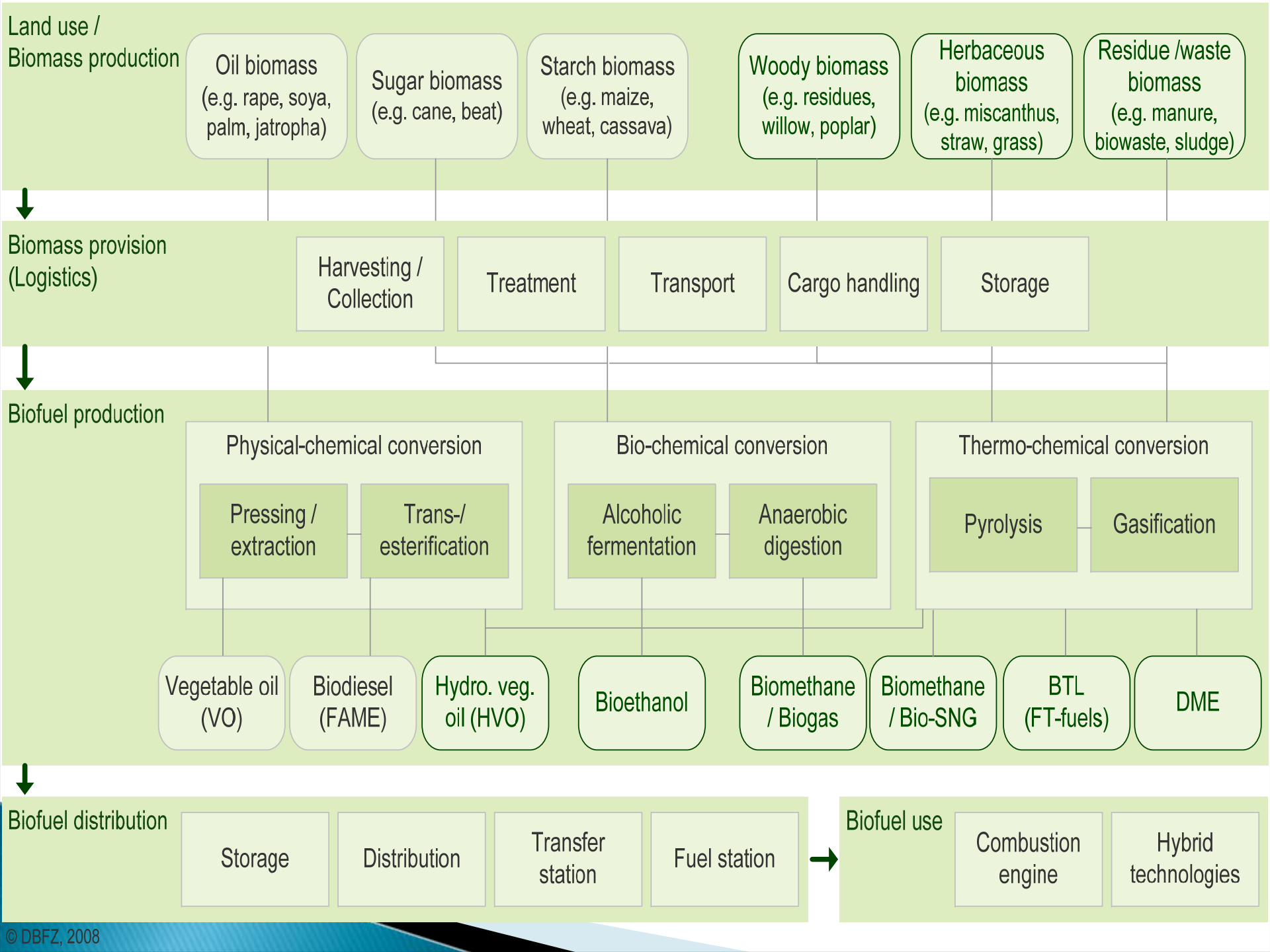
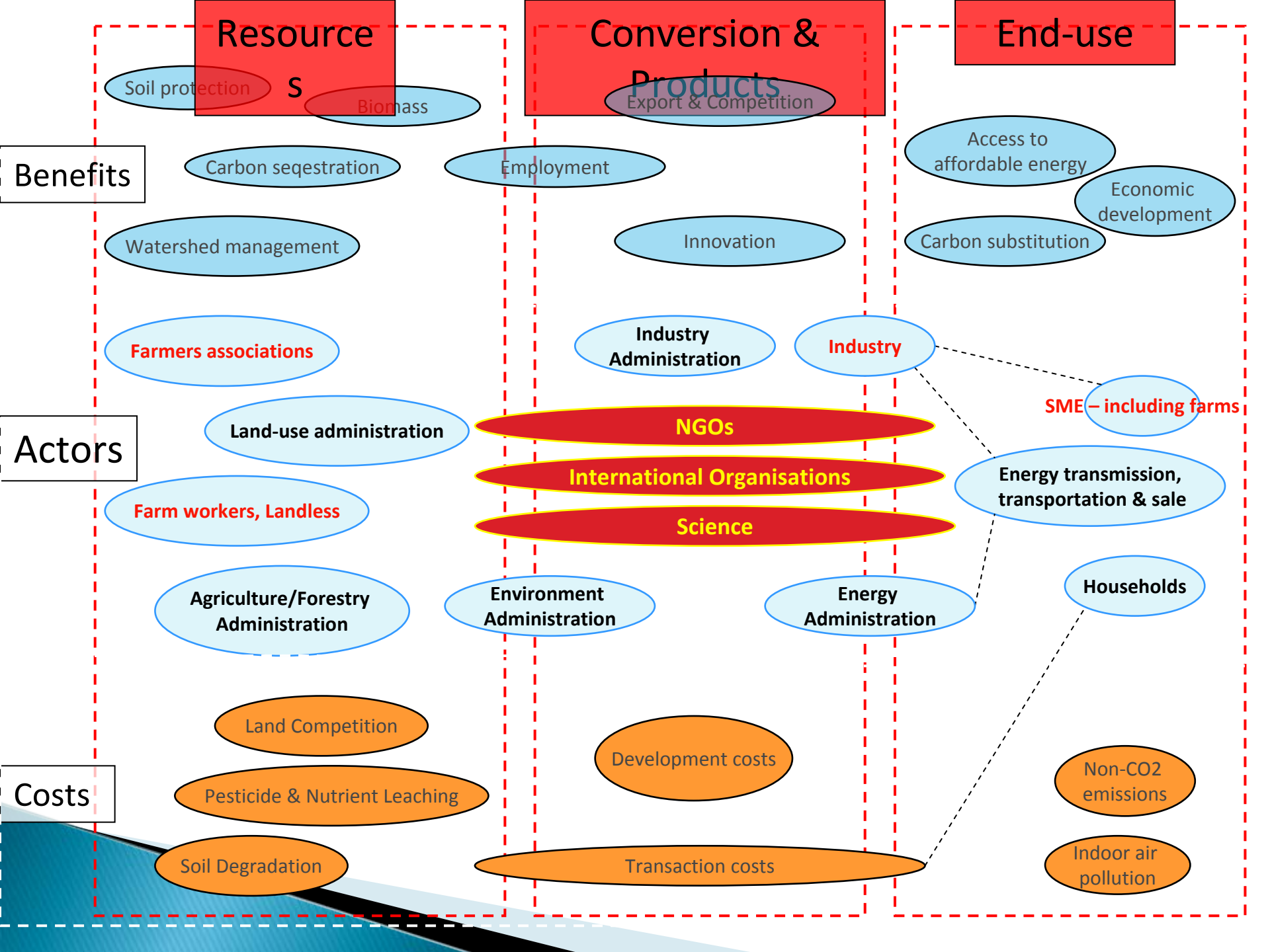

Land use / Biomass production
Oil biomass (e.g. rape, soya, palm, jatropha)
Sugar biomass (e.g. cane, beat)
Starch biomass (e.g. maize, wheat, cassava)
Woody biomass (e.g. residues, willow, poplar)
Herbaceous biomass (e.g. miscanthus, straw, grass)
Residue /waste biomass (e.g. manure, biowaste, sludge)
Biomass provision (Logistics)
Harvesting / Collection
Treatment
Transport
Cargo handling
Storage
Biofuel production
Physical-chemical conversion
Pressing / extraction
Trans-/ esterification
Bio-chemical conversion
Alcoholic fermentation
Anaerobic digestion
Thermo-chemical conversion
Pyrolysis
Gasification
Vegetable oil (VO)
Biodiesel (FAME)
Hydro. veg. oil (HVO)
Bioethanol
Biomethane / Biogas
Biomethane / Bio-SNG
BTL (FT-fuels)
DME
Biofuel distribution
Storage
Distribution
Transfer station
Fuel station
Biofuel use
Combustion engine
Hybrid technologies


Resources
Conversion & Products
End-use
Soil protection
Biomass
Export & Competition
Benefits
Carbon seqestration
Employment
Access to affordable energy
Economic development
Watershed management
Innovation
Carbon substitution
Actors
Farmers associations
Industry Administration
Industry
SME – including farms
Land-use administration
NGOs
International Organisations
Science
Energy transmission, transportation & sale
Farm workers, Landless
Agriculture/Forestry Administration
Environment Administration
Energy Administration
Households
Costs
Land Competition
Development costs
Non-CO2 emissions
Pesticide & Nutrient Leaching
Soil Degradation
Transaction costs
Indoor air pollution

We really need a *framework* !!

- it makes it easier to work with complex issues

- it ties together a group of discrete objects/components into something more useful

A ***framework*** is a basic conceptual structure used to solve or address complex issues.

It is a sets of principles and long-term goals that form the basis of making rules and guidelines, and to give overall direction to planning and development .

Table 2.1 - Main Objectives of Bioenergy Development[A]

Country	Objectives						
	Climate Change	Environment	Energy Security	Rural Development	Agricultural Development	Technological Progress	Cost Effectiveness

No country highlights less than three key objectives.

This renders

successful bioenergy development a challenge as it

tries to reach multiple goals, which are not always compatible.

Table 2.3 - Key Policy Instruments[A]

Country	Energy Policy							
	Binding Targets/Mandates[1]	Voluntary Targets[1]	Direct Incentives[2]	Grants	Feed in tariffs	Compulsory grid connection	Sustainability Criteria	Tariffs
Brazil	E, T		T					Eth
China		E,T	T	E,T	E, H	E,H		n/a
India	T, (E*)		E	E,H,T	E			n/a
Mexico	(E*)	(T)	(E)			(E)		Eth
South Africa		E, (T)	(E),T					n/a

Bioenergy markets are further influenced by policies from:

- ***general energy***
- ***agriculture and forestry***
- ***climate change***
- ***environmental policies.***

Regional and Subregional approaches

MERCOSUR – BR-AR-UR-PA-------CH-BO-VN

In 2006 MERCOSUR signed an MoU creating a working group on biofuels to:

- **Stimulate**
  - **the production and consumption of biofuels**
  - **the structuring of integrated biofuels production chains**
  - **technical cooperation regarding biofuels**
  - **research and information programs regarding the production and use of biofuels**
- **Conduct a comparative assessment of the regulatory frameworks for biofuels**
- **Promote capacity building for the sustainable production of biofuels, including the evaluation of the environmental impact, land use, use of residuals, elimination and recycling of residues, distribution infrastructure, logistics, among other aspects.**

Caribbean Basin Initiative – CBI

• CBI permits up to 7 percent of the United States bioethanol production to be derived **duty-free** from a foreign feedstock if it is produced in a CBI nations

• CAFTA (**Central America Free Trade Agreement)**allows for 132.5 million litres of bioethanol to be imported duty-free into the United States provided that at least 30 percent of that bioethanol is derived from a local or Caribbean region.

• Above that, imports are duty-free if at least 50 percent of the bioethanol is extracted from feedstock of the Caribbean Basin.

ASEAN – Association of South East Asian Nations

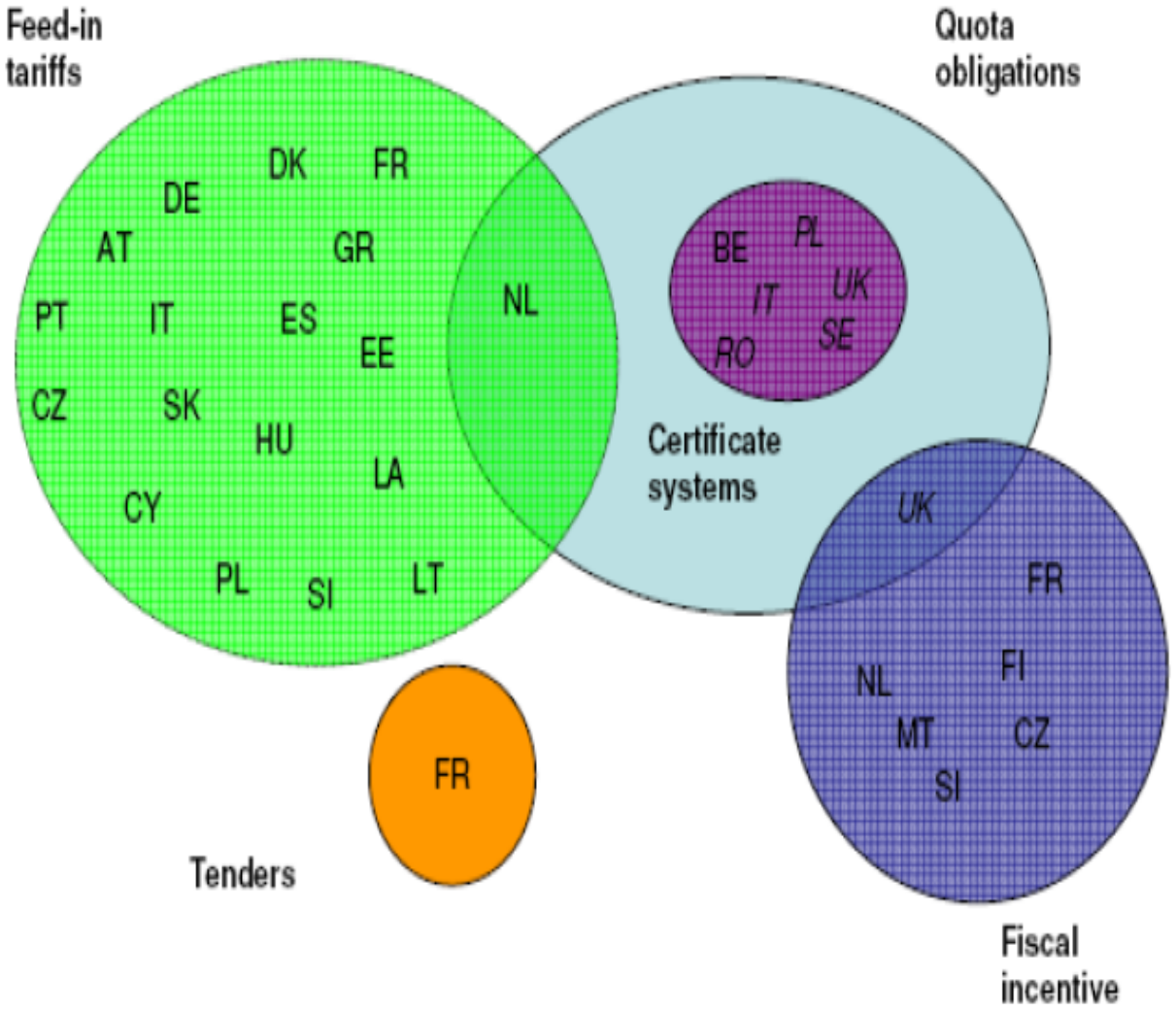
- In January of 2007, ASEAN and its six regional partners, including China and India signed the Cebu Declaration on East Asian Energy Security.

- It acknowledges “the need to strengthen renewable energy development such as in biofuels, and to promote open trade, facilitation and cooperation in the sector and related Industries and calls for the creation of “a common standard for the use of biofuels in engines and motor vehicles

G-8 +5 - principal policy mechanisms to encourage bioenergy

- Feed-in tariffs
- Taxes
- Guaranteed markets (i.e. renewable energy and fuel mandates, and preferential purchasing)
- Compulsory grid connections
- Other direct supports (i.e. grants, loan guarantees, subsidies, construction incentives, etc.)
- R,D&D

Figure 1.1 - Supporting schemes for RES-E in EU-27 countries



Source EC, from "State of Play at EU-Level, current initiatives and legislative measures" presented at the Europen Photovoltaic Industry Association Roundtable Brussels 14/05/2007

Global approaches

UN Efforts

- UN Energy :
- Sustainable Bioenergy
  - A Framework for Policy Makers (2007)
  - Planning Strategically and Managing Risks in Investment Choices (2009 in preparation)

Global Bioenergy Partnership

- Sustainability criteria
- GHG emission methodologies
- Trade

www.globalbioenergy.org

2008 State of Food and Agriculture – SOFA (FAO)

Areas for policy action
in the energy and
agriculture
fields

Protect the poor

• high energy prices initiate or exacerbate price volatility of agricultural commodities, and hence on food security.

• Therefore, safety nets are required to protect poor net food buyers either through food subsidies, food distribution, or targeted cash transfers via social programmes

Take advantage of opportunities

- **Biofuel demand is the largest source of new demand for agricultural commodities and developing countries, in particular, should be well-positioned to respond and benefit.**

Lowering trade barriers to biofuels

• Border protection in the form of tariffs on ethanol, has provided a protective barrier and affected farmers. Brazilian exporters face tariffs that add at least 25 percent to the price of their product in the United States and over 50 percent in the European Union.

• Some governments have granted exemptions from fuel excise taxes that are available only to domestic biofuel producers.

Ensure environmental sustainability

• Further research is needed to verify the environmental benefits for each biofuel production pathway, feedstock and location.

• Compared to current generation biofuels, cellulosic ethanol is far more advantageous from a GHG point of view, because it is nearly carbon neutral.

• Future support for biofuels is likely to be assessed against sustainability criteria.

•Some countries have taken an interest in the environmental sustainability of the products they would like to import.

The Sustainable Biofuels Consensus – 2007

- Integrated and better coordinate policy frameworks
- Assessment of benefits of biofuels (trade, use and production)
- Address negative effects of biofuels (trade, use and production)

- Reward positive impacts and investments

- Use informed stakeholders' dialogues to build consensus for new projects
- Increase investment in research, development and demonstration
- Build capacity of enable producers to manage carbon and water and move towards conversion

- Make sure that trade policies and climate change policies work together.

Source: Sustainable Biofuels Consensus (2

There is a need for an international forum in which sustainability criteria can be determined without creating unnecessary barriers to trade.

All efforts lead to

SUSTAINABILITY CRITERIA

I selected the sustainability criteria of the

Ecole Polytecqnique Federal de Lausanne

Version Zero –

Roundtable on Sustainable Biofuels

RSB

Ten Principles for sustainable biofuels

Legality

1. Biofuel production shall follow all applicable laws of the country in which they occur, and shall endeavour to follow all international treaties relevant to biofuels' production to which the relevant country is a party.

Consultation, Planning and Monitoring

2. Biofuels projects shall be designed and operated under appropriate, comprehensive, transparent, consultative, and participatory processes that involve all relevant stakeholders.

Climate Change and Greenhouse Gas

3. Biofuels shall contribute to climate change mitigation by significantly reducing GHG emissions as compared to fossil fuels.

Human and Labour Rights

4. Biofuel production shall not violate human rights or labour rights, and shall ensure decent work and the well-being of workers.

Rural and Social Development

5. Biofuel production shall contribute to the social and economic development of local, rural and indigenous peoples and communities.

Food Security

6. Biofuel production shall not impair food security.

Conservation and Biodiversity

7. Biofuel production shall avoid negative impacts on biodiversity, ecosystems, and areas of High Conservation Value.

Soil

8. Biofuel production shall promote practices that seek to improve soil health and minimize degradation.

Water

9. Biofuel production shall optimize surface and groundwater resource use, including minimizing contamination or depletion of these resources, and shall not violate existing formal and customary water rights.

Air

10. Air pollution from biofuel production and processing shall be minimized along the supply chain.

Final comments – linking : sustainability criteria, potential and global biofuel development

Multifunctionality

Key Functions of agriculture

- **Social function**
- **Food production function**
- **Environmental function(+ / -)**
- **Energy function**

International Community should

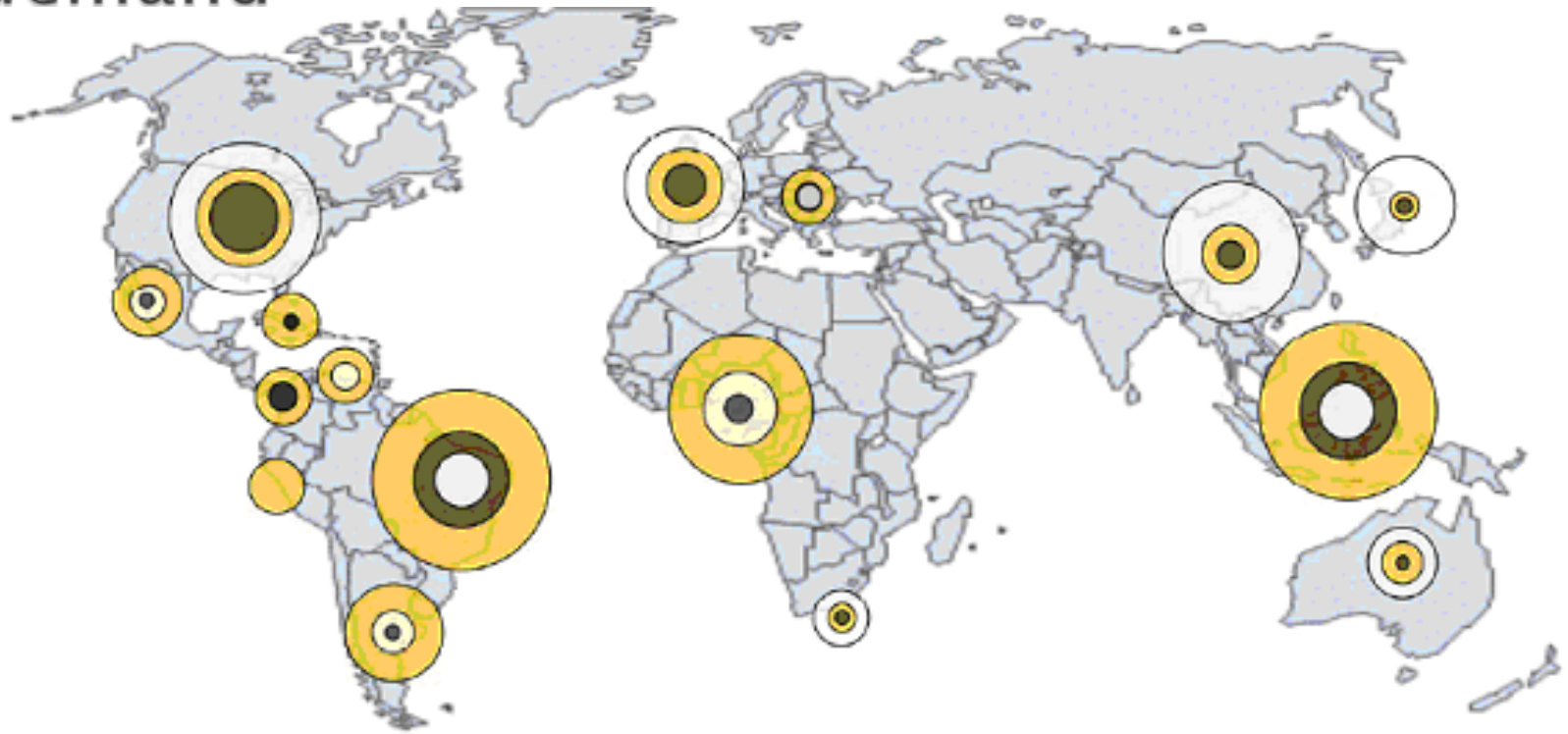
support countries with natural production advantage

to meet the (local and global) demand for biofuels

in a sustainable

way

Towards a better balance between sites with high potential for production and sites with high demand



- Feedstock potential based on land available for devotion to first generation biofuel feedstocks.
- Theoretical biofuel demand, assessed to be ~30% of liquid transport fuel consumption in 2006.
- Biofuel production capacity in place at year end 2006.

- Feedstock potential exceeds biofuel demand and surplus production capacity - so export.
- Capacity less than biofuel demand so investment in infrastructure warranted to encourage export potential.
- Feedstock constrained and capacity less than demand - so import.

Source: New Energy Finance www.newenergyfinance.com

Africa !!!

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The End !!