

# Global Bioenergy Partnership

*Working together to promote bioenergy  
for sustainable development*

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Bioenergy in a globalized world:  
perspectives and barriers on the bioenergy emerging market

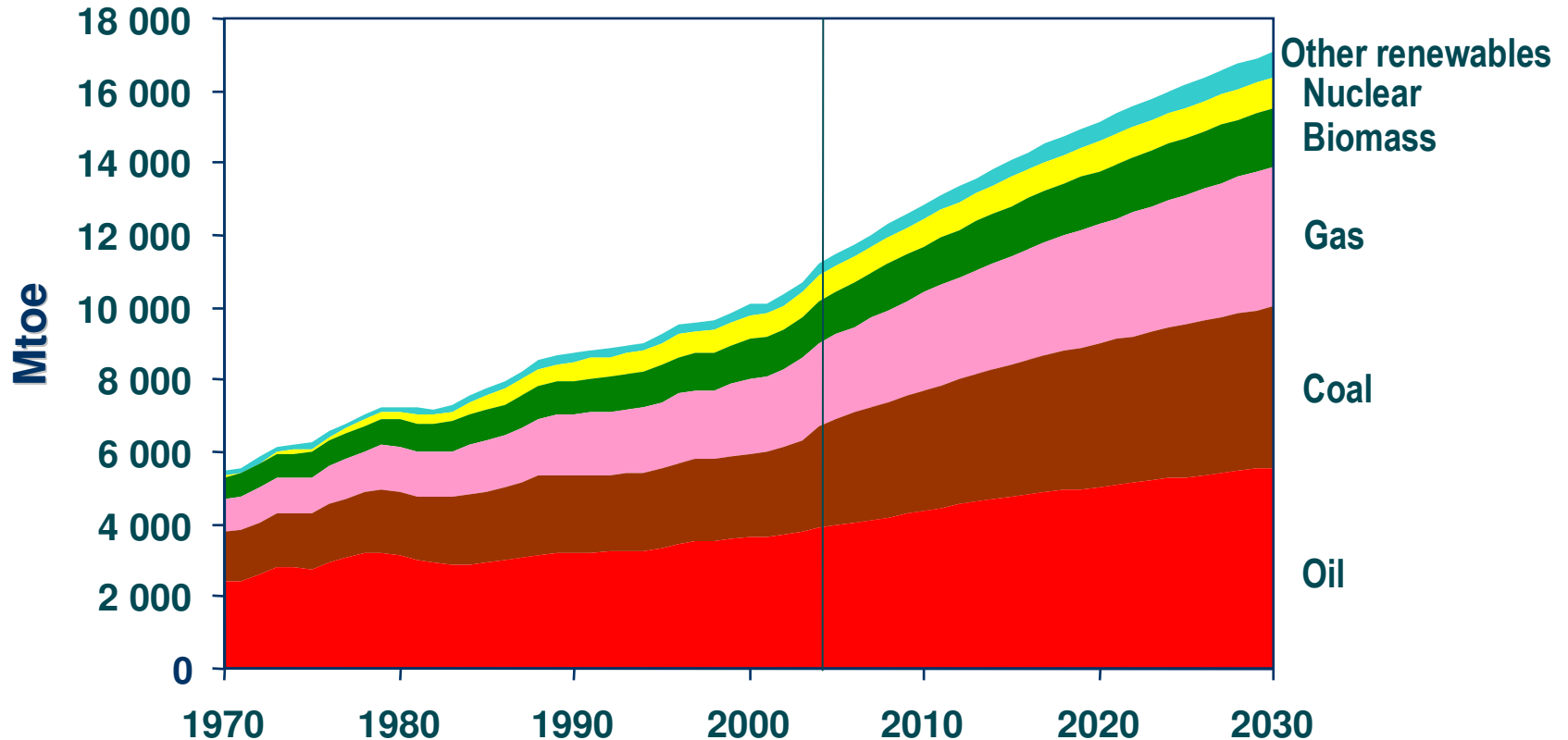
Viterbo, 14 February 2008

**CORRADO CLINI**

GBEP Chair

# WORLD PRIMARY ENERGY DEMAND

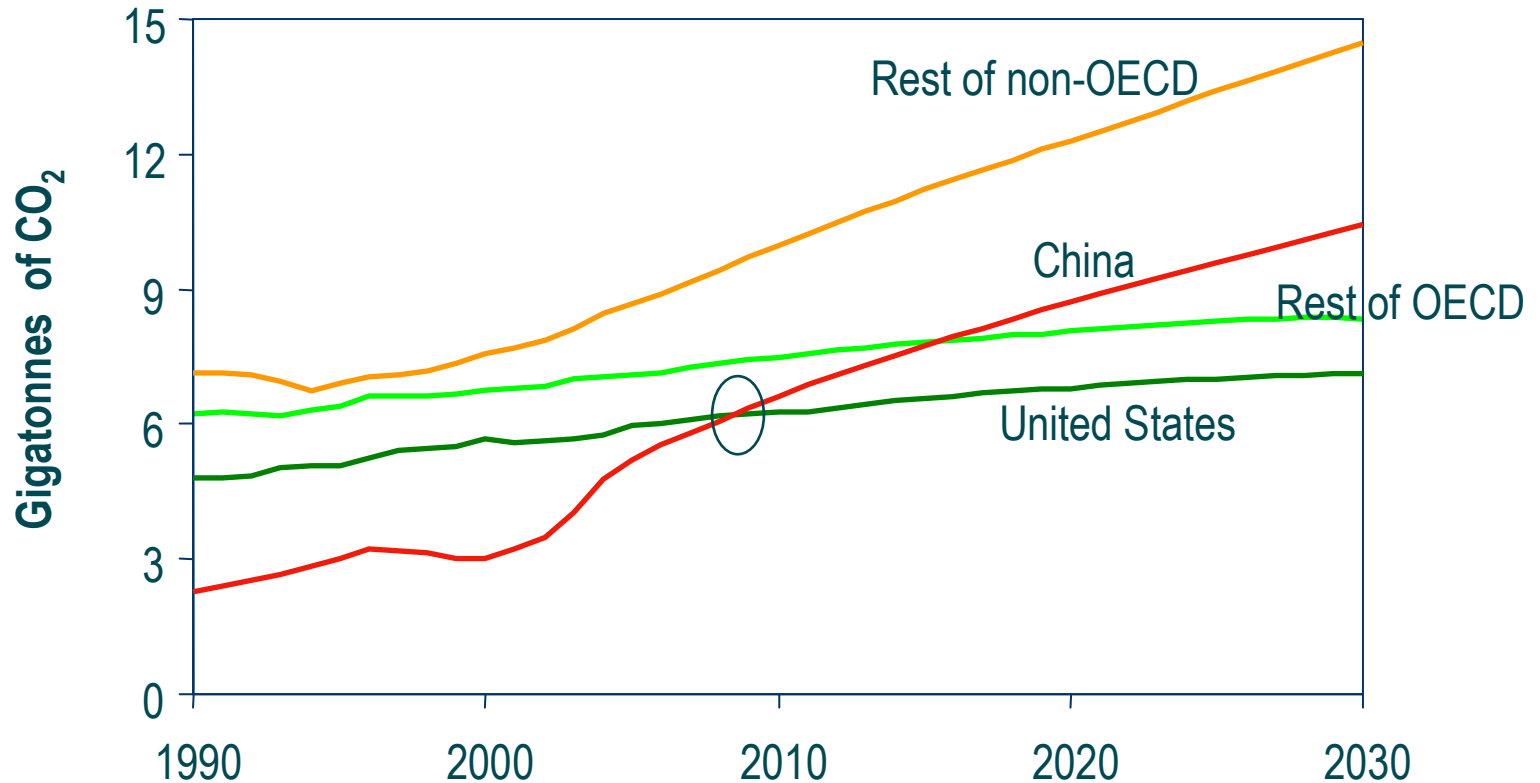
(Reference Scenario WEO 2006)



Source: Reference Scenario WEO, IEA 2006

# ENERGY-RELATED CO<sub>2</sub> EMISSIONS

(Reference Scenario WEO 2006)



Source: Reference Scenario WEO, IEA 2006

# BIOENERGY: a key role to meet the short term Kyoto targets and the long term stabilizing CO2

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To be effective in approaching CO2 stabilization, the long term global strategy and measures should be designed and should start immediately.

The challenge is to combine the short term measures to meet Kyoto targets with the long term global strategy

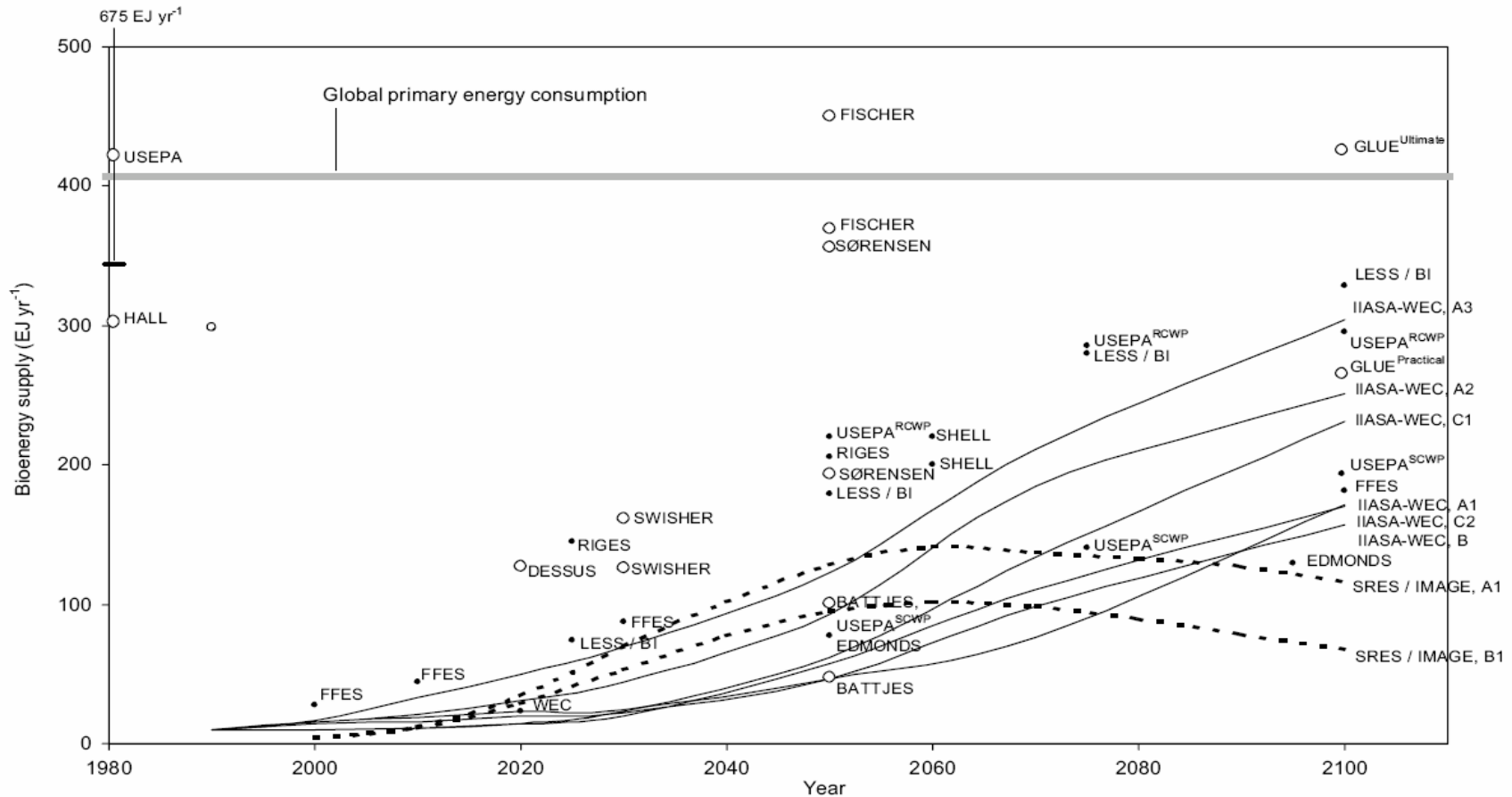
The trade-off between the current and the future measures is a key issue in the complicate game of the post Kyoto regime.

*Bioenergy can help to meet the increasing energy demand in the short term.*

*Bioenergy can be “carbon neutral”, effective to reduce the net carbon emissions.*

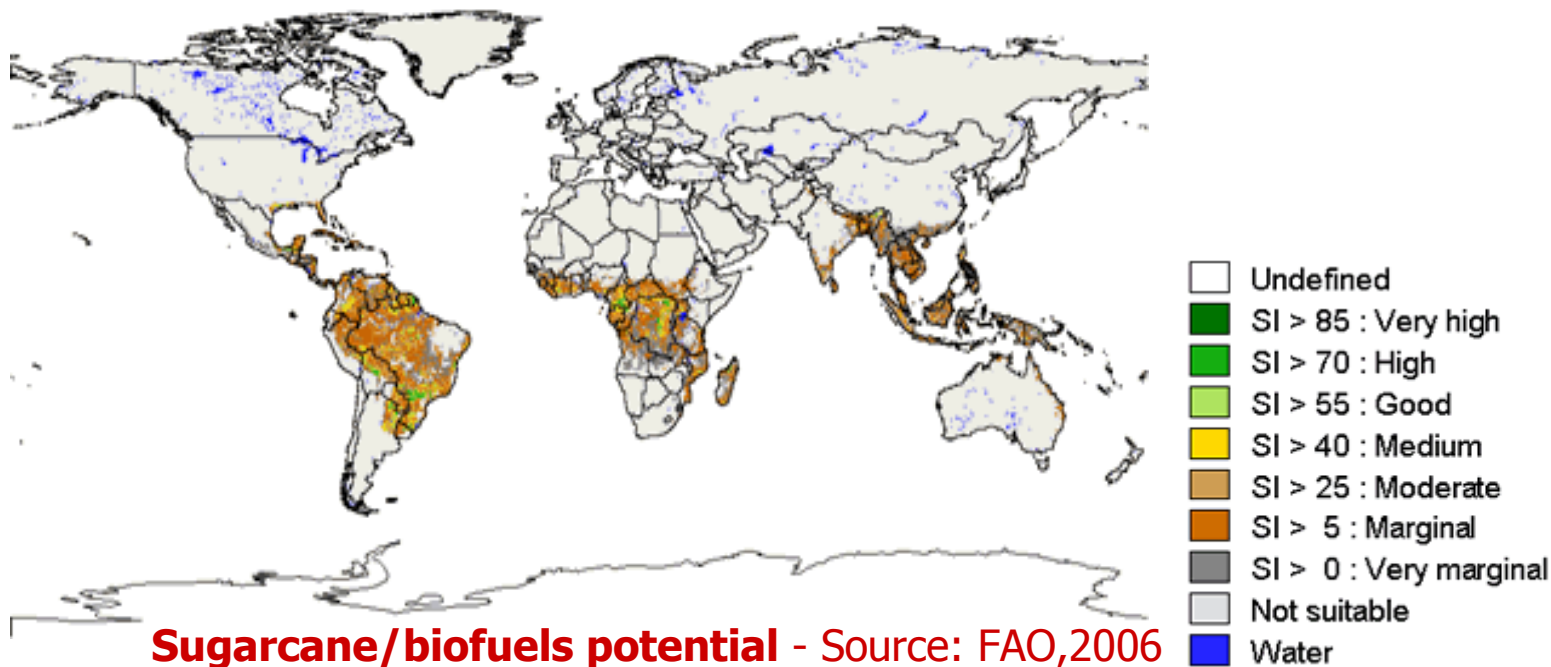
*Bioenergy can play a key role in “decarbonizing” the future global energy system*

# GLOBAL BIOENERGY POTENTIAL



**Stabilization of GHG concentration at 450 ppm in 2100 will require ~400 EJ biomass energy**

# Bioenergy can change the geography of the global energy market



## > Increasing

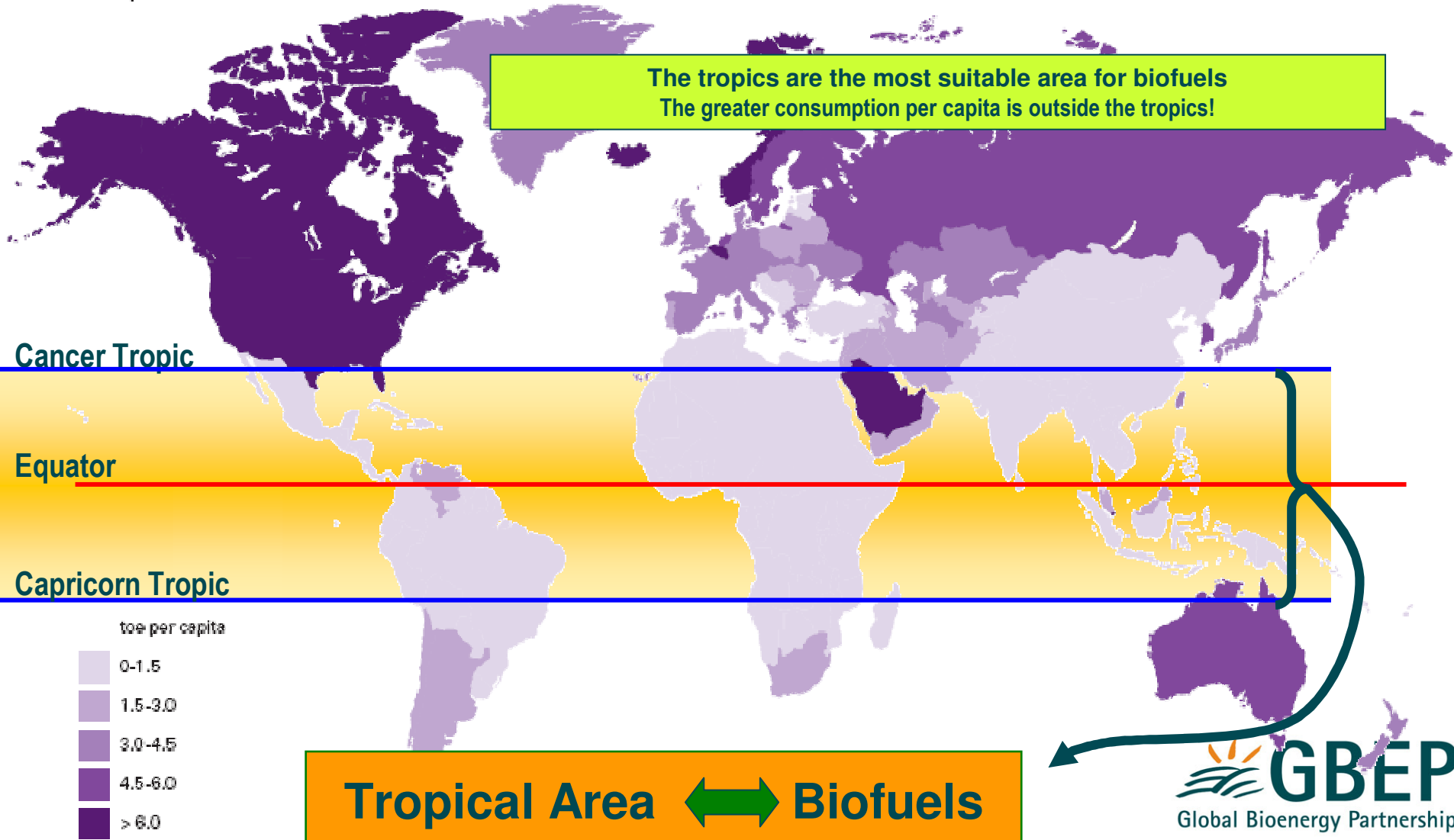
- the diversity of geographic and fuel sources;
- the energy security;
- the economic role of developing countries;
- the development of fuels and technologies towards a low carbon economy.

## > Challenging the fossil fuels economy

# ENERGY CONSUMPTION/BIOENERGY POTENTIAL

Consumption per capita  
Tonnes oil equivalent (toe)

Source: BP Statistical Review (June/2006)



# TOWARDS A BIOFUEL COMMODITY

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- > According to 2006 IEA Alternative Scenario, biofuels are expected to make a significant contribution to meeting **global road-transport energy needs**. They account for 7% of the road-fuel consumption in 2030 in that scenario, up from 1% today. In the Reference Scenario, the share reaches 4%.
- > Ethanol is expected to account for most of the increase in biofuels use worldwide, as **production costs are expected to fall faster than those of biodiesel** – the other main biofuel.

Nevertheless,

- biofuels environmental and social sustainability criteria should be identified and agreed;
- further cost reductions and international trade rules are needed to make biofuels competitive.

# ARE BIOFUELS A SUSTAINABLE OPTION?

## THE PALM OIL CASE IN INDONESIA

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According to a 2006 research of “Wetlands International” and “Delft Hydraulics”, the expanding production of palm oil in Indonesia to meet the increasing demand of biofuels in Europe was created by draining and burning the peat land, as well by razing huge tracts of the Southeast Asian rain forest in combination with overuse of chemical fertilizers.

Peat is an organic carbon storage sponge. Peat land is 90 per cent water. Draining and burning the peat land releases about 2 billion tons of carbon/year, equivalent to 8% of annual global emissions from the use of fossil fuels.

This has made Indonesia the third-leading emitter of green house gases after USA and China.

In this case, the production of biofuels can produce more harmful emissions than the fossil fuels they replace.

# ARE BIOFUELS A SUSTAINABLE OPTION?

## FOOD VERSUS FUEL

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The increasing demand for agricultural land for energy production would provide opportunities for sustained increase in agricultural commodity prices. This may result in significant resource transfer to rural areas in developing countries.

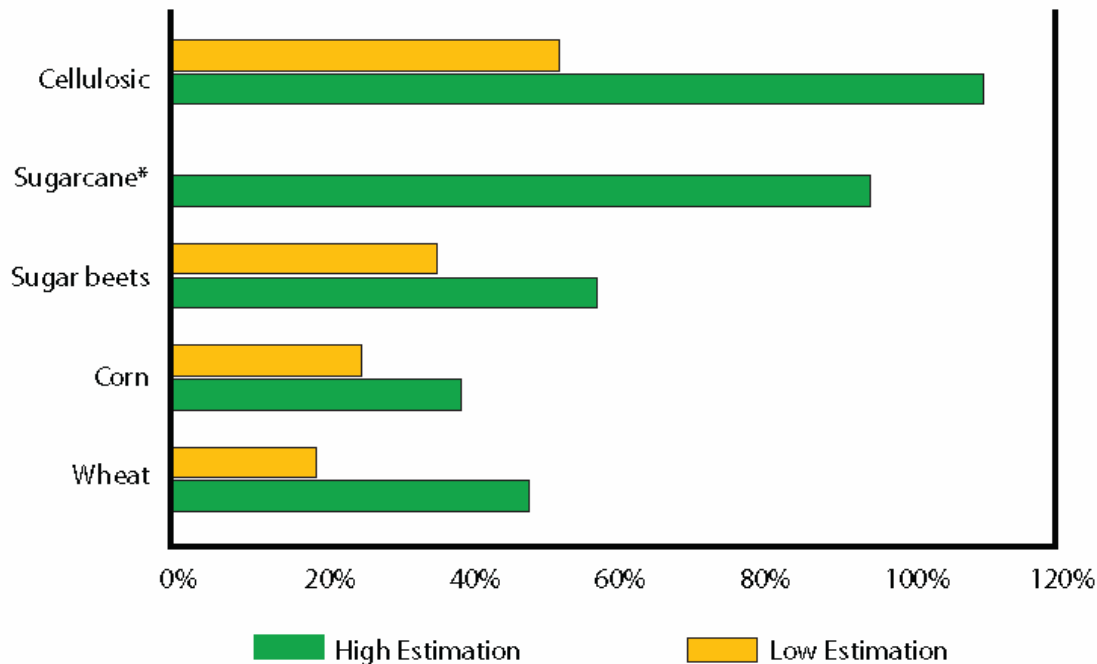
In the short term, however, higher commodities prices may negatively affect access to food for poor people in developing countries, especially net-food importing developing countries. The increasing use of land for energy crops production is raising concerns about land availability for all needed purposes, such as food, feed, energy, grazing and conservation.

Corn based ethanol , because of the volume of corn required and the tax payer subsidies in developed economies, affect the food system more than sugarcane based ethanol.

Innovative cellulose based biofuels (from grasses, trees, agriculture residues and wastes) will increase the energy efficiency of the production and will reduce the negative impacts on the food systems.

# BIOFUELS: TOWARDS A SUSTAINABLE OPTION

- > Labeling and certification should be used to ensure sustainable development, environmental gains and promote social equity.
- > However, sustainability criteria should not represent a way for the introduction of un-necessary trade barriers and protectionism against developing countries export opportunities.



- > Biofuels can help in reducing emissions and addressing energy security if produced in appropriate way.