

# Global Bioenergy Partnership

*Working together to promote bioenergy  
for sustainable development*

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**GBEP SIDE EVENT**

**Promoting bioenergy towards sustainable development & climate  
change mitigation: the GBEP challenge**

UNFCCC COP 13 – Bali Hyatt Hotel, 12 December 2007

**CORRADO CLINI**

**GBEP Chair**



# G8 COMMITMENTS AND MANDATES

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## 2005 Gleneagles Plan of Action

*“We (the G8) will promote the continued development and commercialisation of renewable energy by: [...] d) **launching a Global Bioenergy Partnership** to support wider, cost effective, biomass and biofuels deployment, particularly in developing countries where biomass use is prevalent, following the Rome International Workshop on Bioenergy”.*

## 2007 Heiligendamm Summit Declaration

*“We invite the **Global Bioenergy Partnership (GBEP)** to continue its work on biofuel best practices and **take forward the successful and sustainable development of bioenergy**”*

# A CONFLICT OF INTERESTS

## Energy security and Climate security

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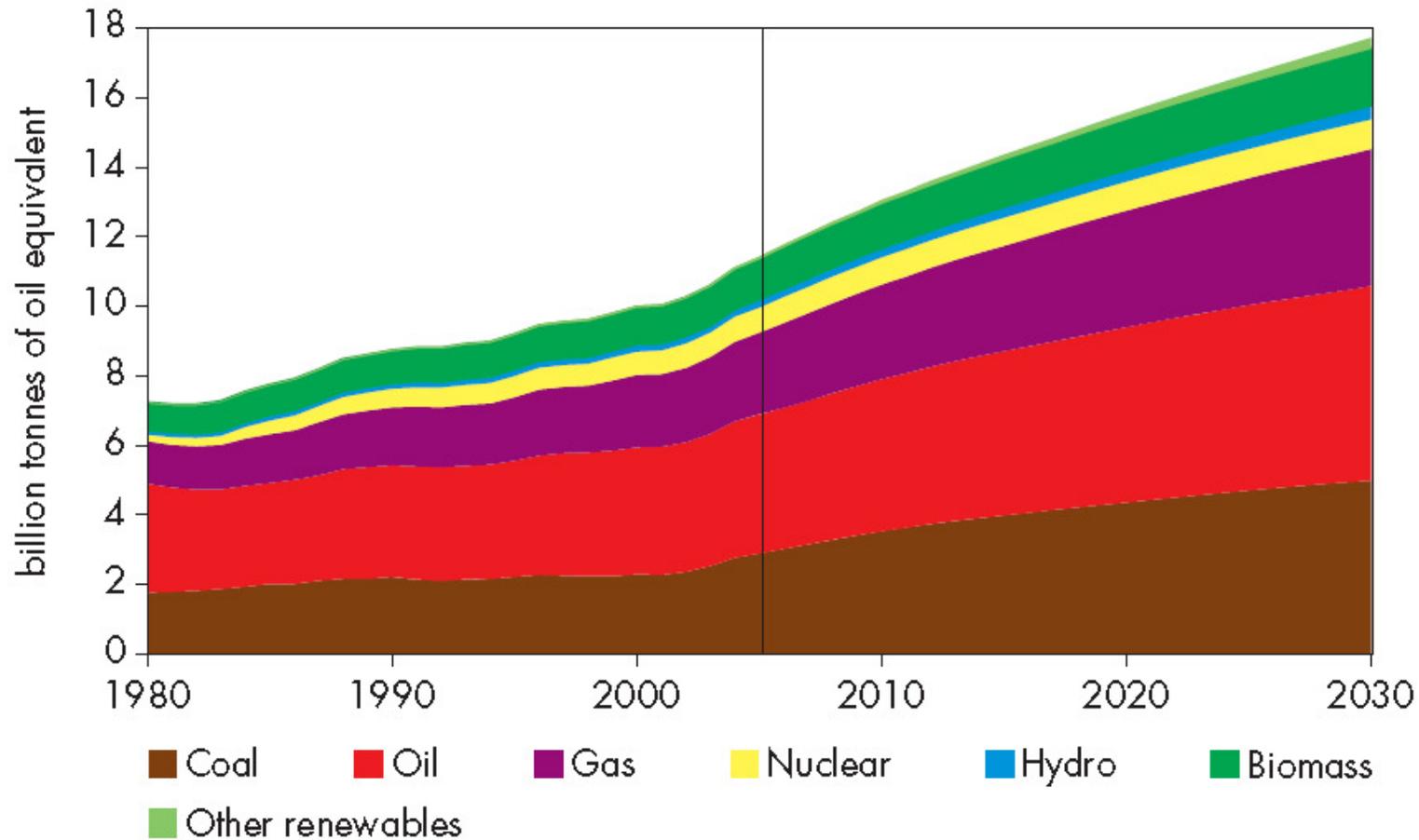
According to the [Intergovernmental Panel on Climate Change \(IPCC\)](#) a global emissions reduction by 30%-50% should be reached in the timeframe 2030-2050, to drive the stabilization of CO<sub>2</sub> concentration at a safe level (450-550 ppm) by the end of the century, to avoid irreversible changes in the climate system.

According to the Reference Scenario in the [IEA World Energy Outlook 2007](#):

- World energy consumption will increase about 55% in the next 25 years, 84% from fossil fuels;
- The global CO<sub>2</sub> energy related emissions will increase of about 57%.

# WORLD PRIMARY ENERGY DEMAND

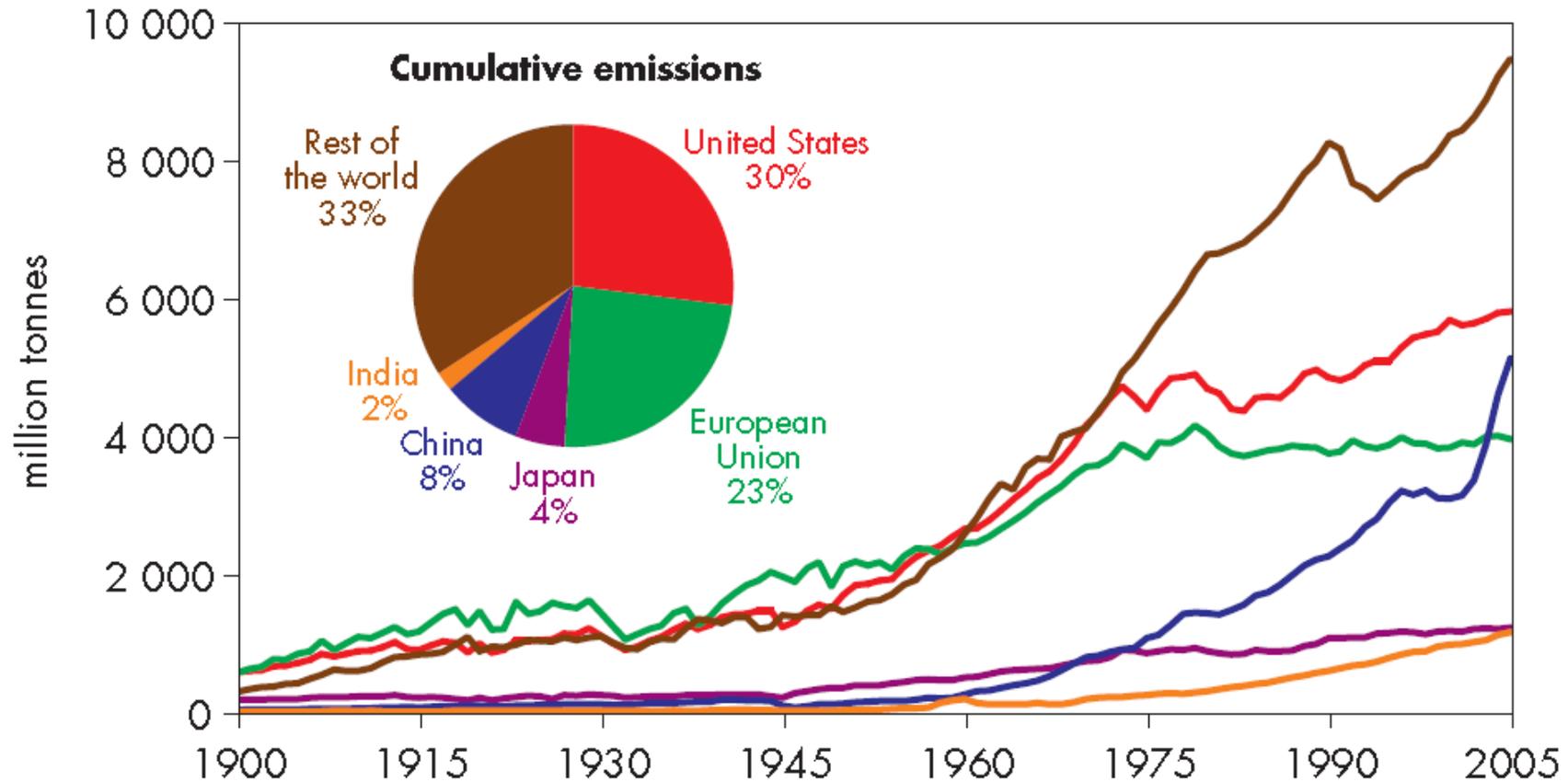
(Reference Scenario WEO 2007)



Source: Reference Scenario WEO, IEA 2007

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

(Reference Scenario WEO 2007)



Source: Reference Scenario WEO, IEA 2007

# THE CHALLENGE OF STABILIZING CO<sub>2</sub>

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Stabilizing CO<sub>2</sub> requests a long term global strategy, beyond Kyoto, to develop and to disseminate radical changes in the energy technologies and in the global energy system:

- *research & innovation, and energy policies, to reduce the “carbon intensity” of the economy through the development and dissemination of the new renewable and energy efficiency technologies, hydrogen and carbon sequestration, such as a new generation of nuclear power;*
- *making the new clean and safe energy sources and technologies available and cost effective in the emerging economies and in developing world, to address both energy security and emissions reduction.*

Considering the IEA estimated dimension of the investments in the global energy system in the next 20-30 years ( 20 trillion \$)

***THE TIMING FOR THE DEVELOPMENT OF THE  
NEW CLEAN ENERGY SOURCES AND TECHNOLOGIES  
to supply the increasing energy demand,  
to orient the trend of the future of global emissions  
IS NOW !***

# 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

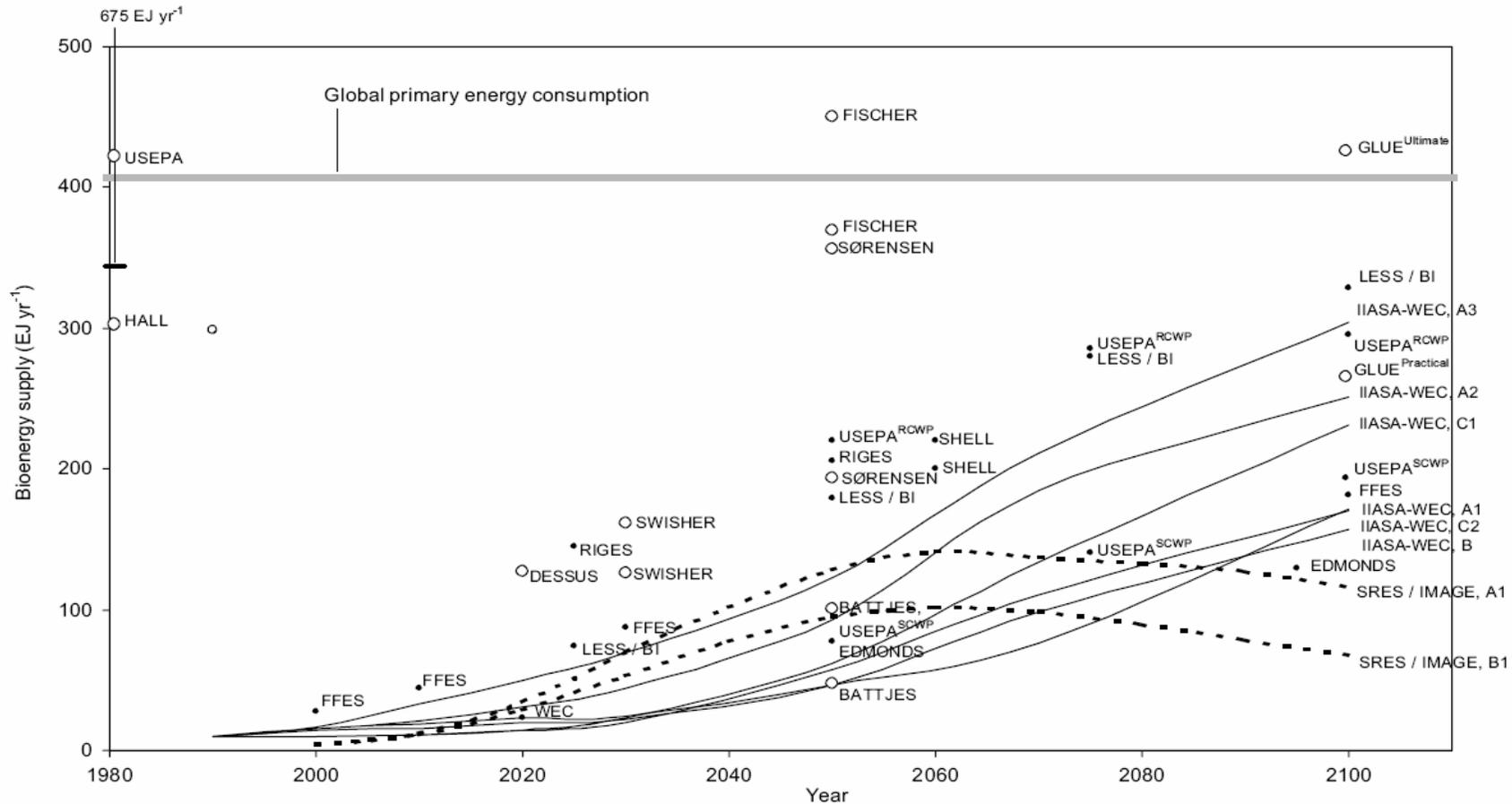
The trade-off between the current and the future measures is a key issue in the complicate game of the post Kyoto regime.

***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***

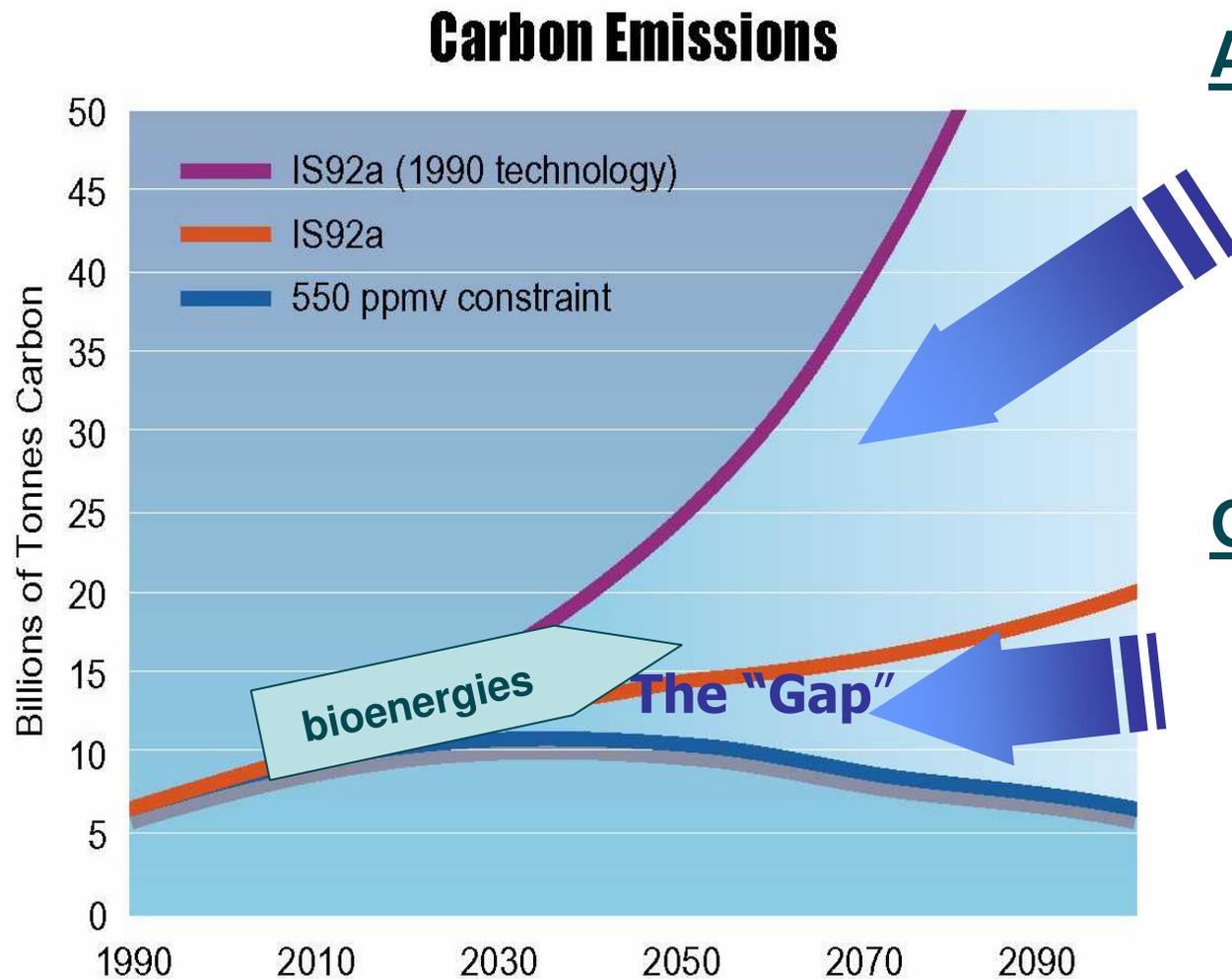
# GLOBAL BIOENERGY POTENTIAL



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

# STABILIZING CO<sub>2</sub>

## Base case and “Gap” technologies



### Assumed Advances

- Fossil Fuels
- Energy intensity
- Nuclear
- Renewables
- Bioenergies

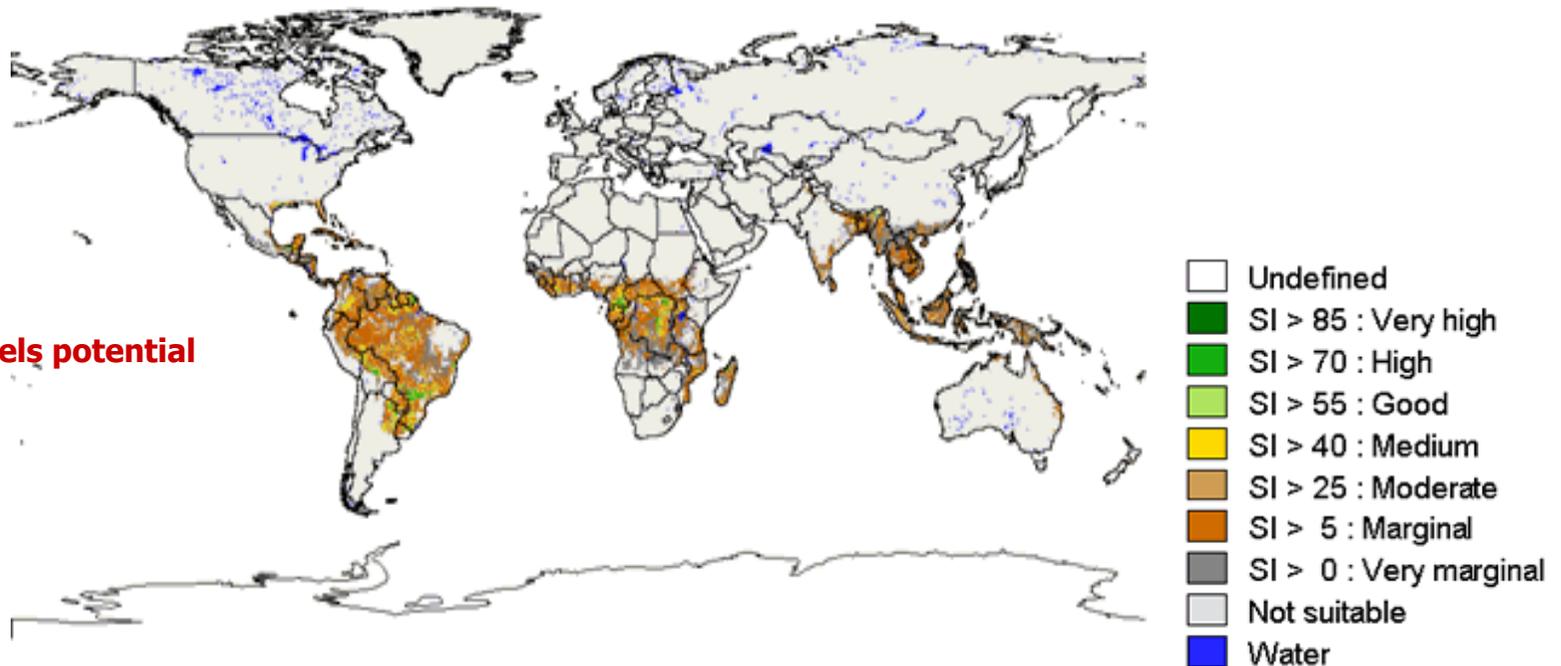
### Gap technologies

- Carbon Capture and Sequestration
- Hydrogen
- “New Nuclear”
- “New Renewables”

Source: Jae Edmonds, PNNL/Univ MD

# Bioenergy can change the geography of the global energy market

**Sugarcane/biofuels potential**  
Source: FAO, 2006

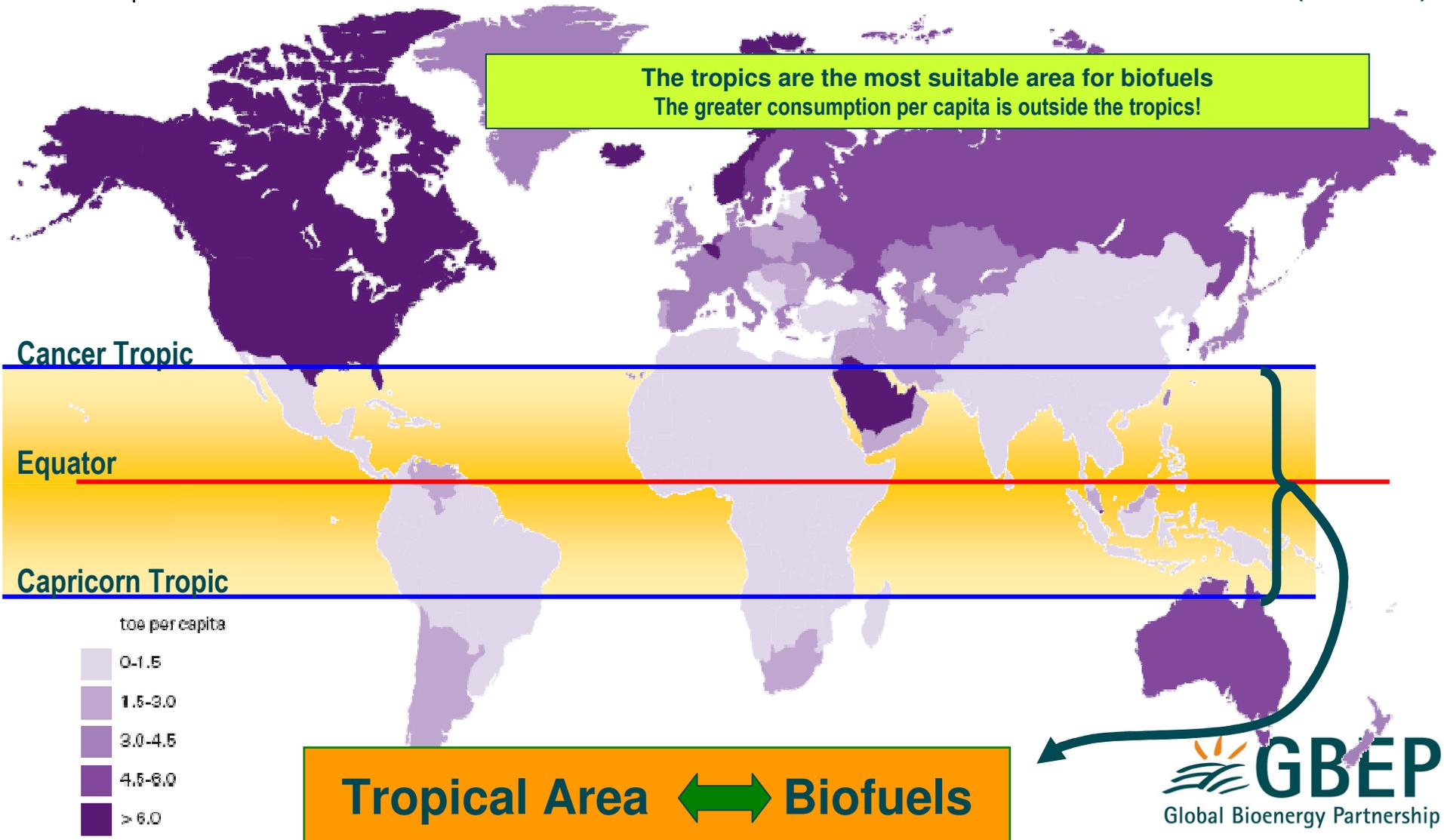


- > **Increasing**
  - the diversity of geographic and fuel sources;
  - the energy security;
  - the economic role of developing countries;
  - the development of fuels and technologies towards a low carbon economy.
- > **Challenging the fossil fuels economy**

# ENERGY CONSUMPTION/BIOENERGY POTENTIAL

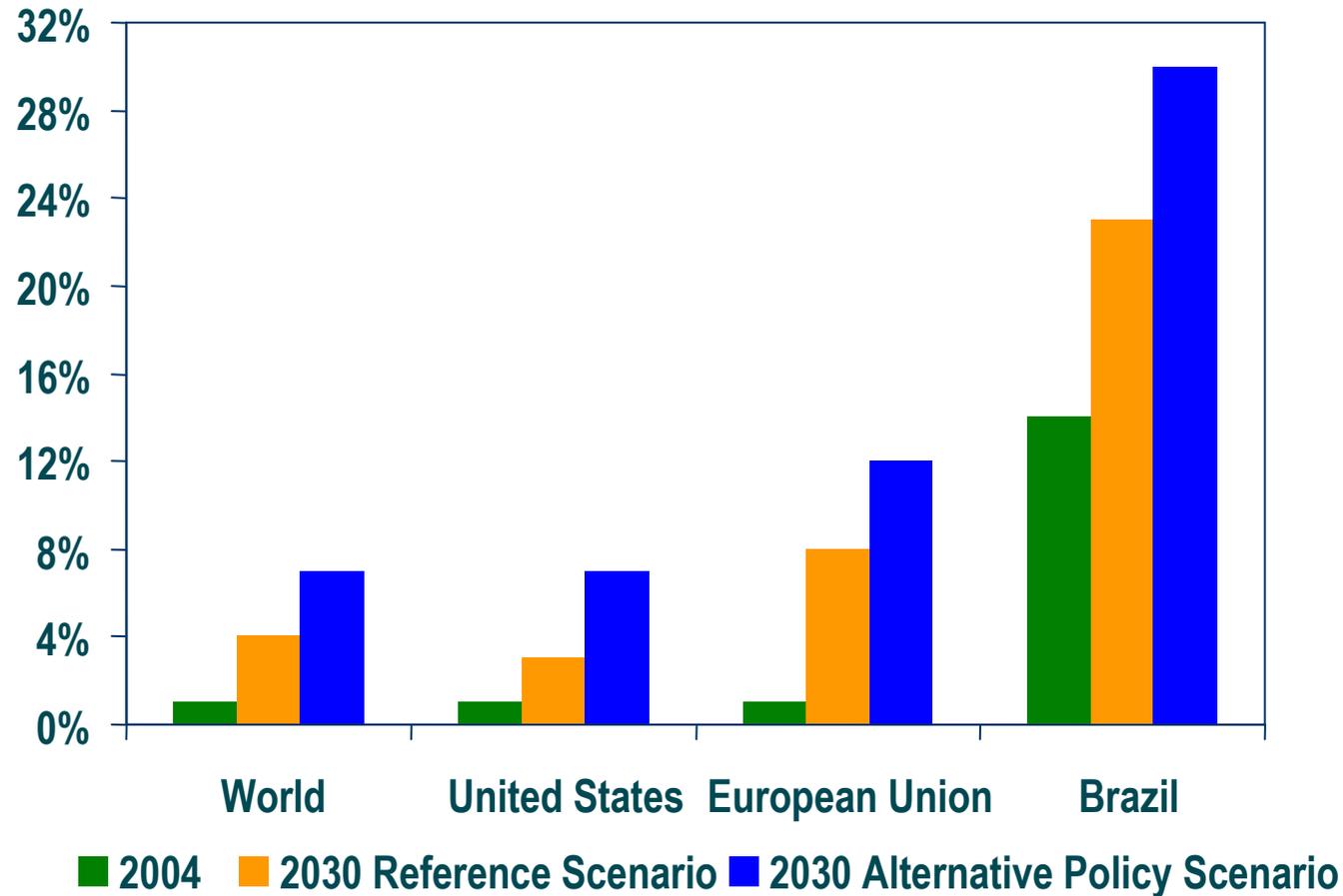
Consumption per capita  
Tonnes oil equivalent (toe)

Source: BP Statistical Review (June/2006)



# POTENTIAL SHARE OF BIOFUELS IN ROAD-TRANSPORT FUEL CONSUMPTION

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Source: IEA - World Energy Outlook 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 driven Indonesia the third-leading emitter of green house gases after USA and China.

In the case of palm oil from Indonesia 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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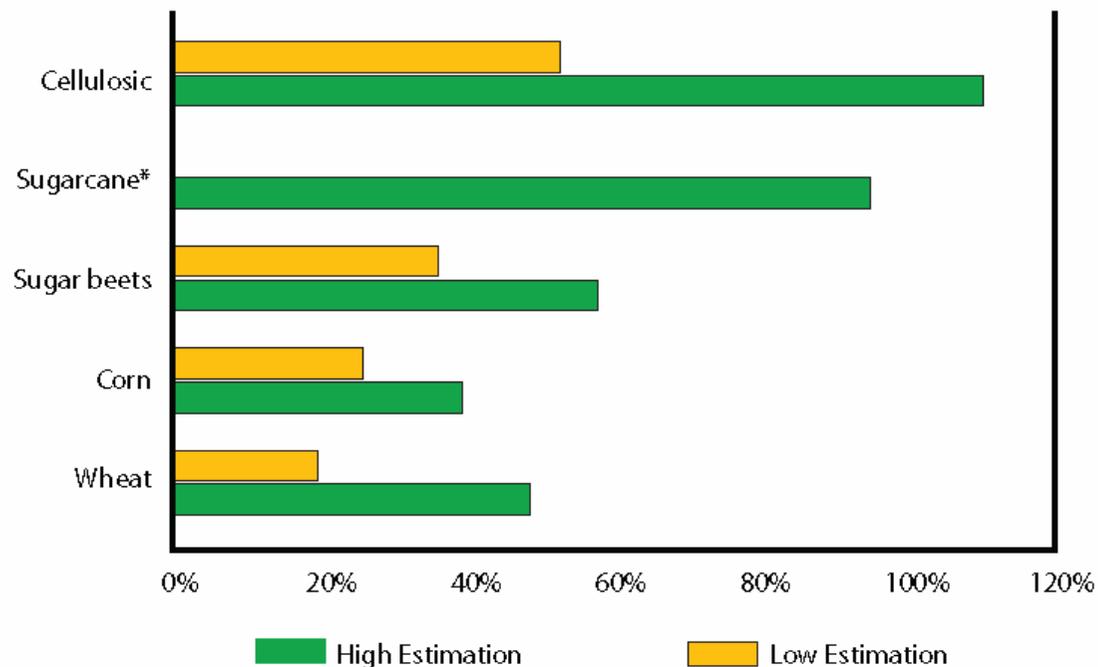
The increasing demand for agricultural land for energy production would provide opportunities for sustained increase in agricultural commodity prices. This may result in significant resource transfer to rural areas in developing countries.

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.

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 could 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.

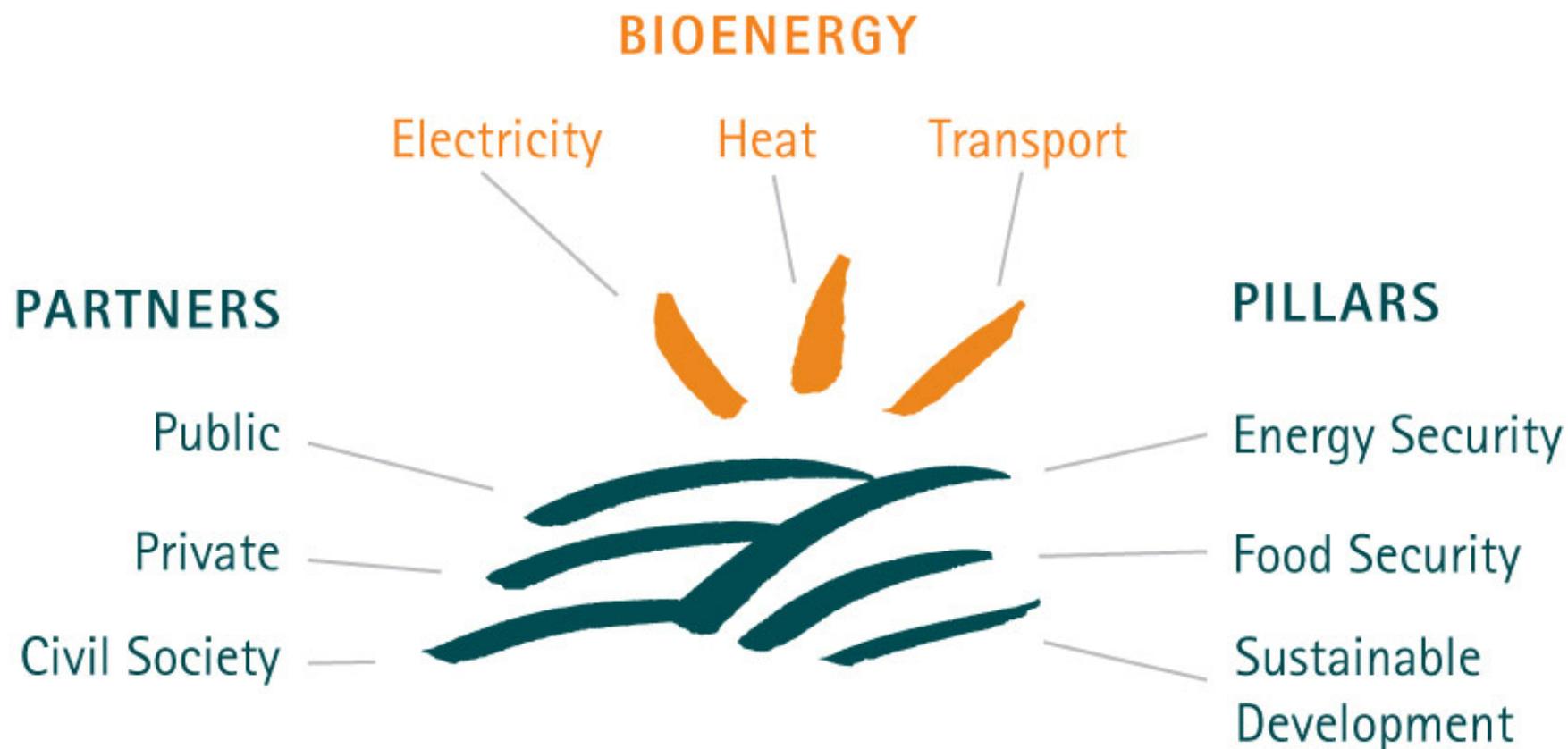


- > Biofuels can help in reducing emissions and addressing energy security if produced in appropriate way.

Source: IEA

# GBEP – SCOPE, PARTNERS, PILLARS

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# GBEP PROGRAMME OF WORK

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- **GBEP Report** “A Review of the current State of Bioenergy Development in G8 +5 Countries” (FAO - Leading Partner)
- **Facilitate collaboration on bioenergy field projects** (UK - Leading Partner)
- **Harmonization of GHG Methodologies for Transport Biofuels** (US – Leading Partner)  
**and for Solid Biomass** (Leading partner: Germany)
- **Awareness Raising and Information management**