

Global Bioenergy Partnership

*Sustainable development of bioenergy:
a possible challenge*

ZeroEmission Rome 2009

Maria Michela Morese

Secretariat Manager

Global Bioenergy Partnership Secretariat

Food and Agriculture Organization of the United Nations



A CONFLICT OF INTERESTS

Energy security and Climate security

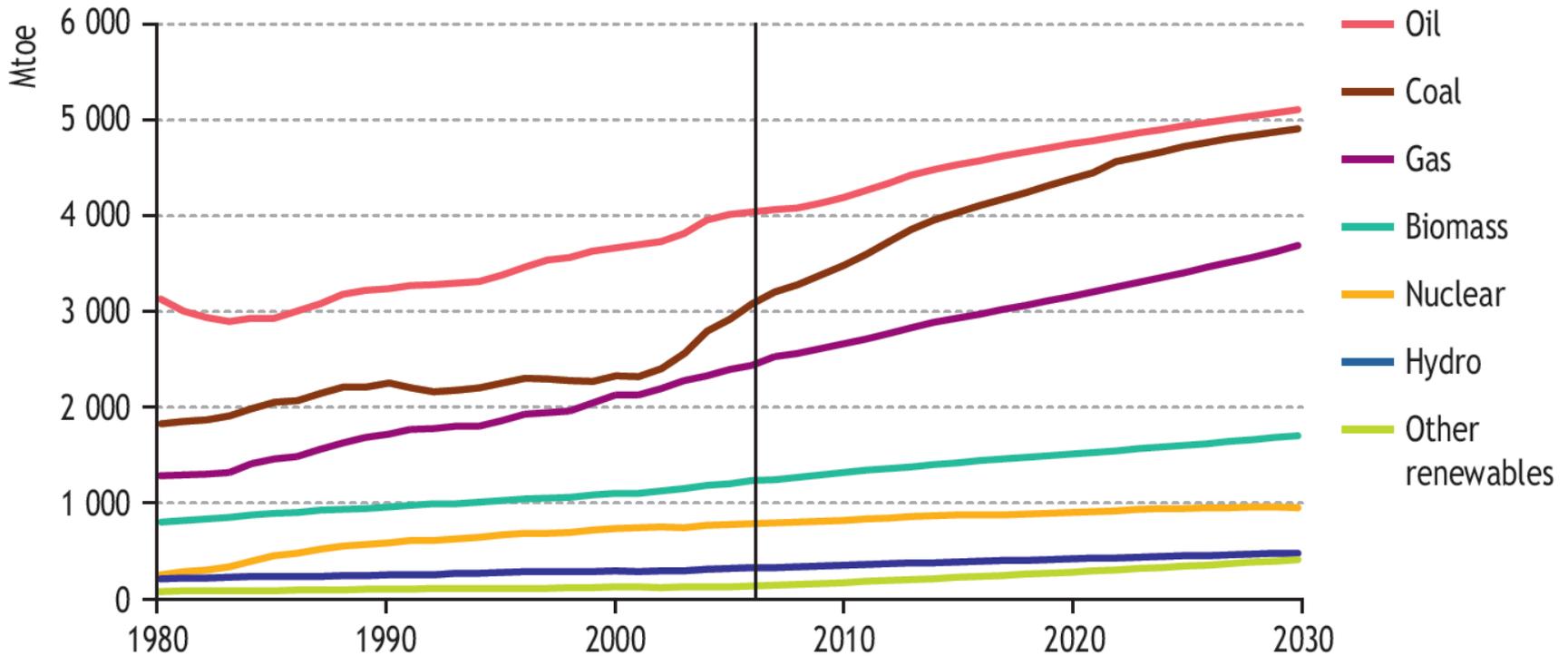
According to the **Intergovernmental Panel on Climate Change (IPCC)** a global emissions reduction by 30%-50% should be reached in the timeframe 2030-2050, to drive the stabilization of CO₂ concentration at a safe level (450-550 ppm) by the end of the century, to avoid irreversible changes in the climate 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 CO₂ energy related emissions will increase of about 57%.

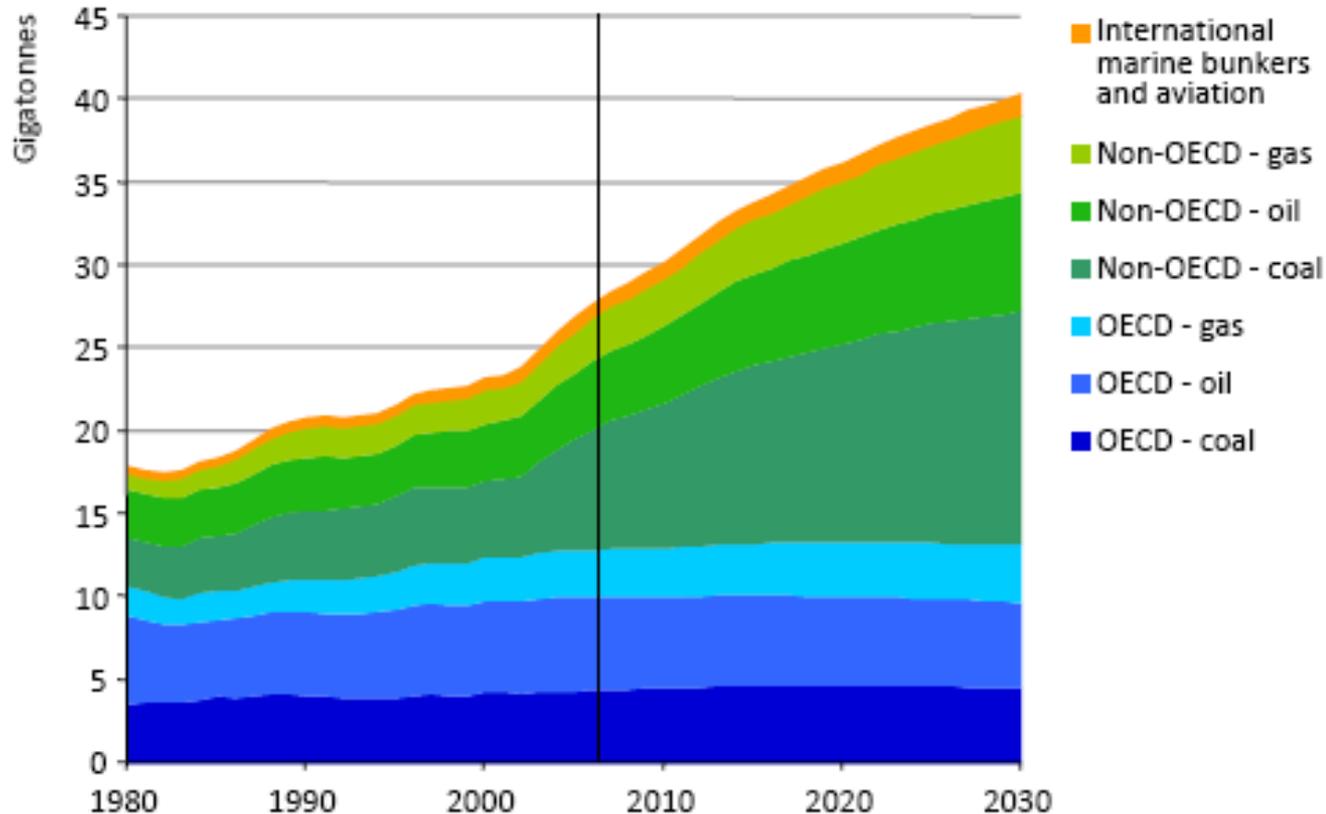
WORLD PRIMARY ENERGY DEMAND

(Reference Scenario WEO 2008)



Source: Reference Scenario IEA, WEO 2008

Energy-related CO2 emissions in the Reference Scenario



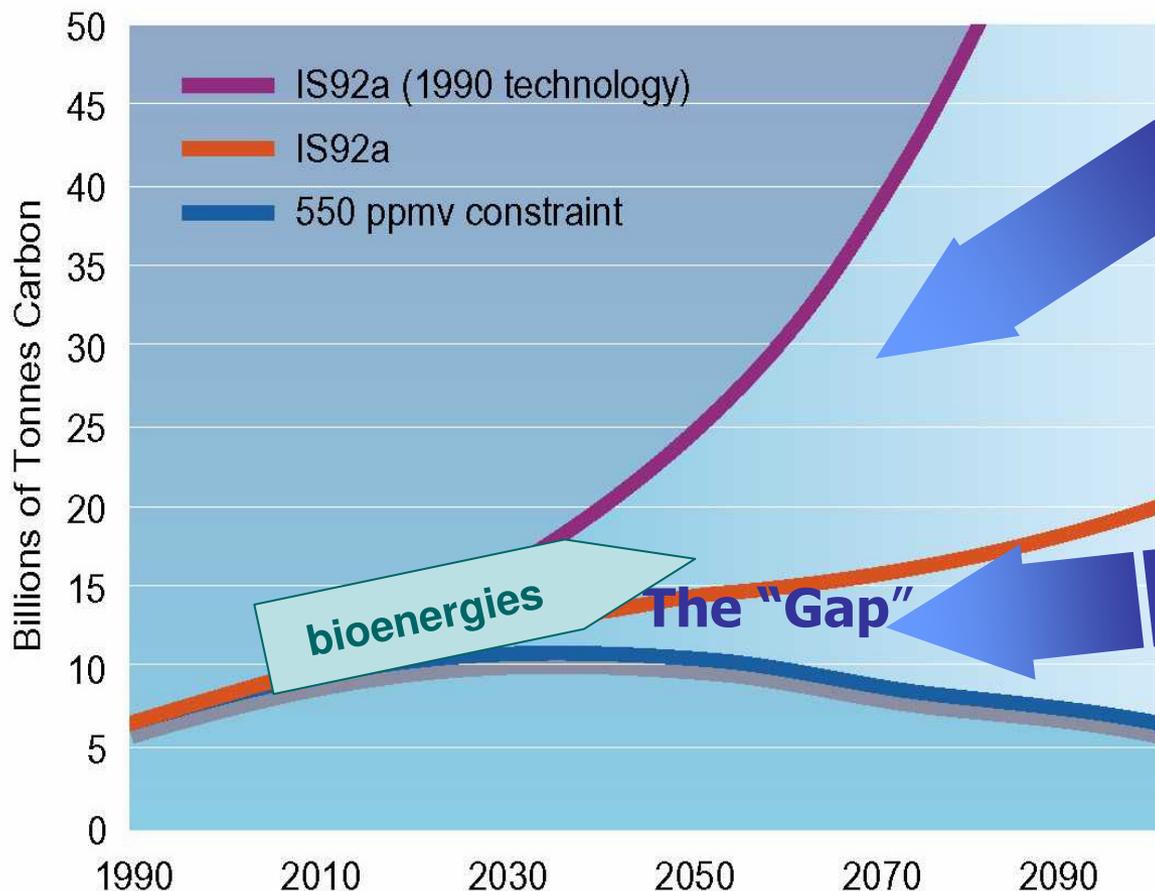
97% of the projected increase in emissions between now & 2030 comes from non-OECD countries –three-quarters from China, India & the Middle East alone

Source: Reference Scenario IEA, WEO 2008

STABILIZING CO₂

Base case and “Gap” technologies

Carbon Emissions



Assumed Advances

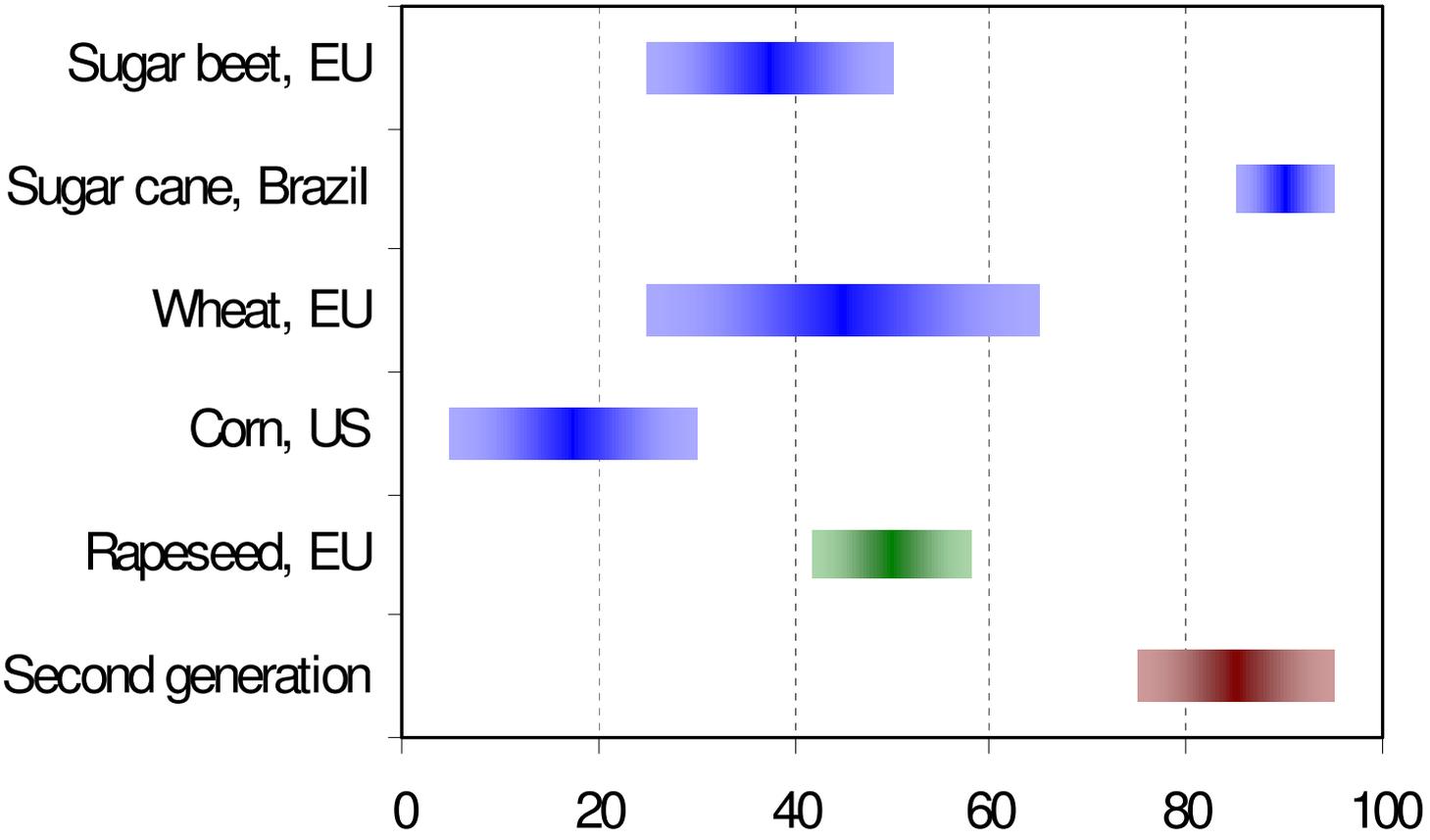
- Fossil Fuels
- Energy intensity
- Nuclear
- Renewables
- Bioenergy

Gap technologies

- Carbon Capture and Sequestration
- Hydrogen
- “New Nuclear”
- “New Renewables” including 2nd generation and advanced biofuels

GHG ABATEMENT POTENTIAL FROM BIOFUELS

Well-to-wheel emission reductions



When made from corn, E85 reduces lifecycle GHG emissions (which include the energy required to grow and process corn into ethanol) by 15-20% as compared to gasoline. E85 made from cellulose can reduce emissions by around 70 percent as compared to gasoline. (US EPA 2007)

% reduction, compared to petroleum gasoline

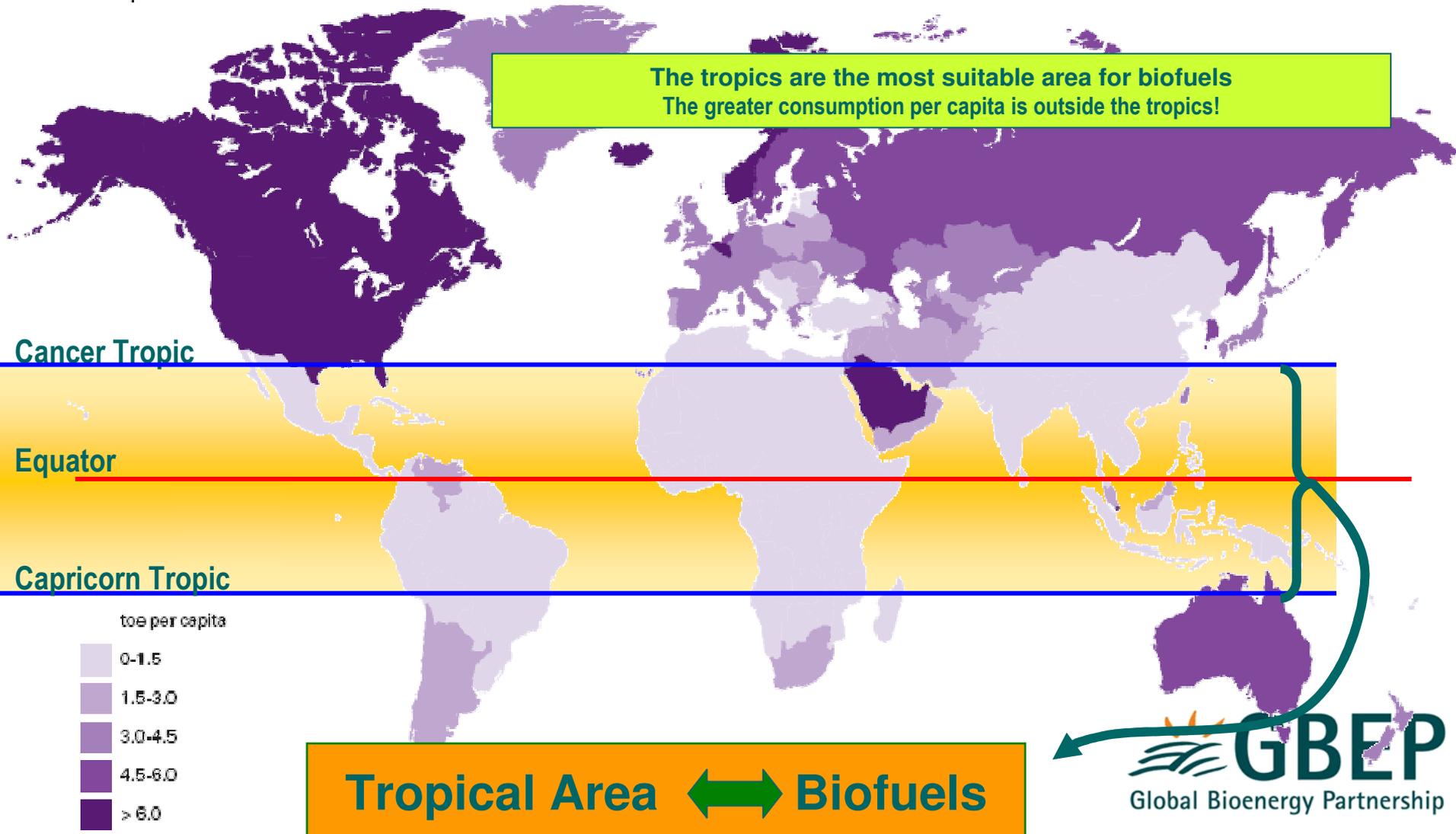


Wide ranges are partly due to varying LCA assumptions and methodologies. IEA, 2007

ENERGY CONSUMPTION/BIOENERGY POTENTIAL

Consumption per capita
Tonnes oil equivalent (toe)

Source: BP Statistical Review (June/2006)

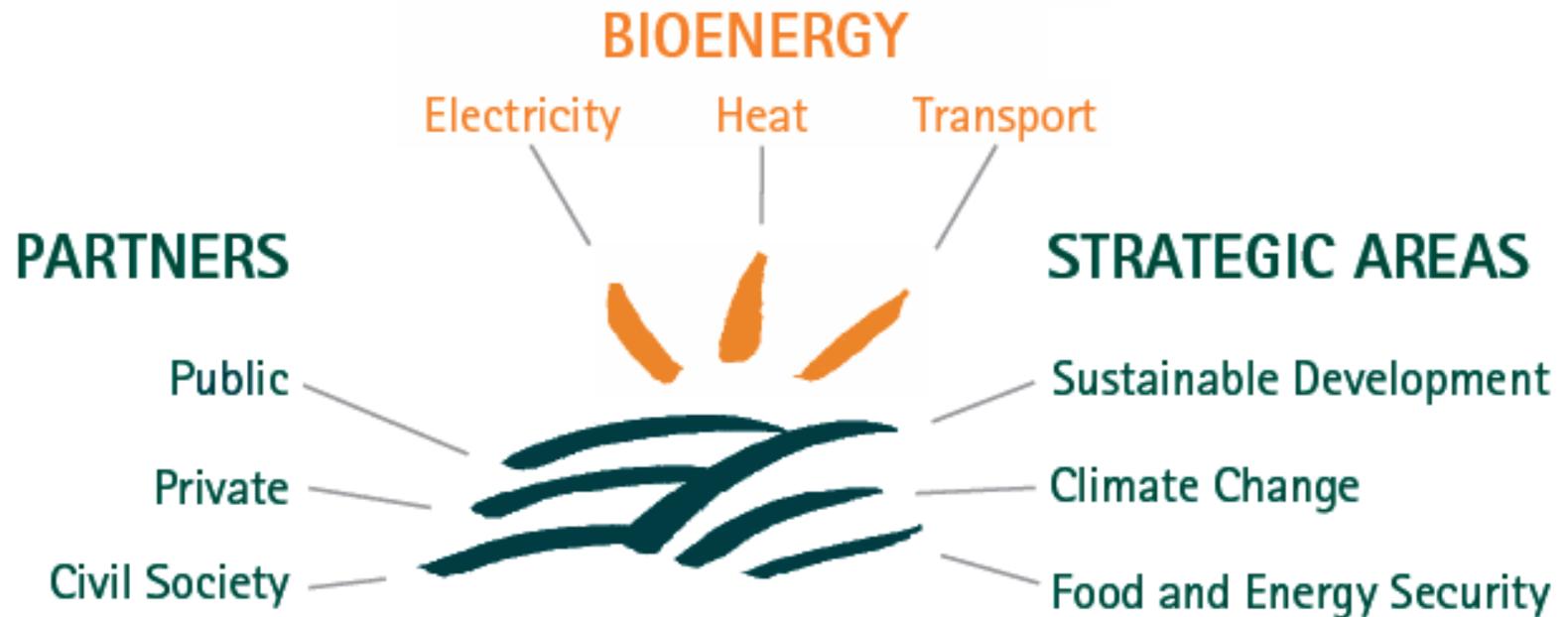


BIOFUELS: TOWARDS A SUSTAINABLE OPTION

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

THE GLOBAL BIOENERGY PARTNERSHIP

Scope - Partners - Strategic Areas



G8 COMMITMENTS AND MANDATES

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”

2008 Hokkaido Toyako Summit:

“We support the work of the **Global Bioenergy Partnership (GBEP)** and invite it to work with other relevant stakeholders to develop science-based benchmarks and indicators for biofuels production and use”

2009 L'Aquila Summit:

“We welcome the work of the **Global Bioenergy Partnership (GBEP)** in developing a common methodological framework to measure greenhouse gas emissions from biofuels and invite GBEP to accelerate its work in developing science-based benchmarks and indicators for sustainable biofuel production and to boost technological cooperation and innovation in bioenergy”.

Currently GBEP Partners include 28 Partners (18 national governments and 10 organizations) and 26 Observers.

GBEP PROGRAMME OF WORK

GBEP's current priorities are:

- 1. facilitating the sustainable development of bioenergy** (Task Force on Sustainability);
- 2. formulating a common methodological framework on GHG emission reduction measurement from the use of biofuels for transportation and from the use of solid biomass** (Task Force on GHG Methodologies); and
- 3. raising awareness and facilitating information exchange on bioenergy.**

GBEP is now discussing how to take forward work in a new focus area of **technology cooperation** and the **deployment of technologies for sustainable bioenergy**.

GBEP Programme of Work

SUSTAINABLE DEVELOPMENT OF BIOENERGY

“GBEP Task Force on Sustainability”

(UK leading Partner)

Main action and objective:

- Develop a set of **global science-based criteria and indicators** regarding the sustainability of bioenergy.
- Help building consensus on a practical way to achieve sustainable bioenergy production and use.

This work is expected to be finalized by MAY 2010 and to be submitted to the G8 summit in Canada.

It will provide a reference for all interested stakeholders and in the formulation of national policies and international cooperation programmes.

PROVISIONAL LIST OF CRITERIA

- 4 baskets -

ENVIRONMENTAL

- Greenhouse gas emissions
- Productive capacity of land and ecosystems
- Land use change, including indirect effects
- Air quality
- Water availability, use efficiency and quality
- Biological diversity

SOCIAL

- Food security
- Access to land, water and other natural resources
- Labour conditions
- Rural and social development
- Access to energy
- Human health and safety

ECONOMIC

- Resource availability
- Resource use efficiency in bioenergy production, conversion, distribution and end-use
- Economic development
- Economic viability and competitiveness of bioenergy
- Access to technology and technological capability

ENERGY SECURITY

- Energy Security

DEVELOPMENT OF INDICATORS

- Three sub-groups established
 1. **Environmental** sub-group, led jointly by UNEP and Germany
 2. **Social** sub-group, led by FAO
 3. **Economic and energy security** sub-group, led jointly by IEA and UN Foundation
- A work stream on **indirect land-use change** within the Environmental sub-group, led by Germany, due to produce a briefing paper on the subject, an inventory of applicable policy measures and other work to support the development of relevant indicators

GBEP Programme of Work

COMMON METHODOLOGICAL FRAMEWORK ON GHG EMISSION REDUCTIONS

GBEP Task Force on GHG emission reductions (US and UNF leading Partners)

Activities and Objectives:

- Review existing methodologies and analyse the full well-to-wheel lifecycle of transport biofuels and solid biomass;
- Develop a harmonized methodological framework so GHG lifecycle assessments can be compared on an equivalent basis.

4 Sub-groups:

- Sub-group 1 - Land use change and feedstock production (**US** leading);
- Sub-group 2 – Biomass processing (**EC** leading);
- Sub-group 3 – Fuel transportation and use (**Germany** leading);
- Sub-group 4 – Biofuel usage compared to fossil fuel (**Brazil** leading).

This work was finalized in MARCH 2009 and provides a reference for the use of policy makers and stakeholders when assessing GHG impacts so that GHG lifecycle assessments can be compared on an equivalent basis.

GBEP Programme of Work

DEPLOYMENT OF TECHNOLOGIES FOR SUSTAINABLE BIOENERGY

- Proposal for a new GBEP Task Force to be further discussed
- Focus on technology cooperation to accelerate the research, development, deployment, transfer and diffusion of technologies for sustainable bioenergy – particularly for rural energy services in developing countries and transportation; may also include compilation and dissemination of best practices, and capacity-building in policy-making.
- Aim to determine enabling conditions to promote the deployment of technologies for sustainable bioenergy and appropriate frameworks for technology cooperation in bioenergy and, subsequently, also pilot collaborative field projects.

For further information

GBEP Secretariat

Food and Agriculture Organization of the UN

Rome - ITALY

E-mail: GBEP-Secretariat@fao.org

www.globalbioenergy.org