Bioenergy Development: the Global Context

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According to IEA, in order to contain the average global temperature increase within the 2° Celsius (if compared to 1990 levels) there needs to be substantial GHG emission reduction.

Non-OECD countries expected to play an important role.
In the 450 ppm scenario, IEA foresees a specific role for bioenergy.
Bioenergy

In 2012 bioenergy production reached 1.34 billion tons of oil equivalent or about **10% of world primary energy supply** (IEA, 2014).

Bioenergy is the fourth most important energy source worldwide and the first among the renewables

Source:
IEA, 2013: 2013 Key World Energy Statistics
About 60% of bioenergy produced is in the form of traditional biomass.

Whereas only 5% of the energy from biomass produced worldwide is employed in the transport sector.

Source: IEA, WEO 2012
ARGENTINA current mandate
Ethanol: 5%
Biodiesel: 8%

BRAZIL current mandate
Ethanol: 20%
Biodiesel: 5%

CHINA current mandate
Ethanol: 10% in 9 provinces
Target for 2020
Etanolo/Biodiesel: 10%

INDONESIA mandates:
Ethanol: 3% -> 20% 2020
Biodiesel: 10% -> 30% 2020

MOZAMBIC current mandate
Ethanol: 10%

SUD AFRICA current mandate
Ethanol: 10%

USA current mandate
136 billion liters by 2022

EU current mandate
10% renewables in transport sector
(up to 7% from food crops)

Fonte: Global Renewable Fuels Alliance, 2015 and Biofuels Digest, 2014
Pellet production, trade and consumption – future scenarios (2030, 2050):

- Europe, India and China main importers
- Russia, Canada, Latin America and Africa main exporters

Source: IEA Bioenergy Task 40: Future Perspective in Biomass Trade
The Global Bioenergy Partnership (GBEP)

- GBEP was established to implement the commitments taken by the G8 in 2005 to support “biomass and biofuels deployment, particularly in developing countries where biomass use is prevalent”

GBEP aims mainly to:
- Promote high-level policy dialogue on bioenergy and facilitate international cooperation;
- support national and regional bioenergy policy-making and market development;
- favour the transformation of biomass towards more efficient and sustainable practices; and
- foster exchange of information, skills and technologies through bilateral and multilateral collaboration.
GBEP Membership
GBEP Sustainability Indicators for Bioenergy

<table>
<thead>
<tr>
<th>ENVIRONMENTAL</th>
<th>ECONOMIC</th>
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<tbody>
<tr>
<td>1. Lifecycle GHG emissions</td>
<td>productivity</td>
</tr>
<tr>
<td>2. Soil quality</td>
<td>net energy balance</td>
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<td>3. Harvest levels of wood resources</td>
<td>gross value added</td>
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<td>4. Emissions of non-GHG air pollutants, including air toxics</td>
<td>change in consumption of fossil fuels and traditional use of biomass</td>
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<td>5. Water use and efficiency</td>
<td>training and re-qualification of the workforce</td>
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<tr>
<td>6. Water quality</td>
<td>energy diversity</td>
</tr>
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<td>7. Biological diversity in the landscape</td>
<td>infrastructure and logistics for distribution of bioenergy</td>
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<td>8. Land use and land-use change related to bioenergy feedstock production</td>
<td>capacity and flexibility of use of bioenergy</td>
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**THE GLOBAL BIOENERGY PARTNERSHIP SUSTAINABILITY INDICATORS FOR BIOENERGY FIRST EDITION**
## Implementation of the Sustainability Indicators

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
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<tbody>
<tr>
<td>Argentina</td>
<td>X</td>
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<tr>
<td>Brazil</td>
<td>X</td>
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<tr>
<td>China</td>
<td>X</td>
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<td>Colombia</td>
<td>X</td>
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<td>Egypt</td>
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<td>Ethiopia</td>
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<td>Germany</td>
<td>X</td>
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<td>Ghana</td>
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<tr>
<td>Indonesia</td>
<td>X</td>
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<tr>
<td>Italy</td>
<td>X</td>
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<tr>
<td>Jamaica</td>
<td>X</td>
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<tr>
<td>Japan</td>
<td>X</td>
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<tr>
<td>Kenya</td>
<td>X</td>
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<tr>
<td>Netherlands</td>
<td>X</td>
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<tr>
<td>Paraguay</td>
<td>X</td>
</tr>
<tr>
<td>USA</td>
<td>X</td>
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<tr>
<td>Sudan</td>
<td>X</td>
</tr>
<tr>
<td>Uruguay</td>
<td>X</td>
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<tr>
<td>Vietnam</td>
<td>X</td>
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</tbody>
</table>
Barriers to Sustainable Bioenergy Development: Policy Frameworks

• Lack of **coordination** among relevant **sectors** and related **policies** and **institutions** (e.g. energy, agriculture, environment, etc.)

• Lack of coherent and stable **policy frameworks**

**HOW GBEP HELPS...**

Since 2006, GBEP has been fostering **institutional coordination**, **multistakeholder dialogues** and **policy dialogues** at both national and regional levels.
Barriers to Sustainable Bioenergy Development: Lack of Evidence – Potential & Sustainability

- Lack of understanding of biophysical and especially techno-economic potential of bioenergy, as well as of the environmental, social and economic sustainability of bioenergy
- Lack of evidence-based and political support for bioenergy policies

The GBEP indicators are contributing both to the generation of evidence and to assess the sustainability of bioenergy production and use.
Barriers to Sustainable Bioenergy Development: Data and Skills

• Lack of effective strategies and mechanisms for data collection and management

• Limited availability of – and access to – data

• Lack of skills and capacity to undertake necessary analysis

HOW GBEP HELPS...

GBEP is compiling the necessary data, with a view to filling data gaps, and is strengthening the capacity of relevant institutions
Conclusions

• Bioenergy has the potential to reduce GHG emissions and offer opportunities to agriculture and forestry sectors;
• West Africa could play an important role;
• Sustainability is key;
• Monitoring sustainability is a necessary step in order to understand, evaluate and improve the performances of the sector;
• GBEP is actively working on the diffusion of sustainability in the processes of production and use of bioenergy resources with several activities and tools, including the GBEP Sustainability Indicators for Bioenergy;
• Particularly for policymakers GBEP represents an important forum for discussion and harmonization policies.
Thank you

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http://www.globalbioenergy.org