

**Discussion note for GBEP action 5<sup>1</sup>** to be discussed at the Technical Working Group (TWG) meeting in preparation of the 2nd Steering Committee of the Global Bioenergy Partnership (GBEP) 28-29 September 2006 at FAO Headquarters in Rome

### **1. What is the scope for climate change mitigation and sustainable development through bioenergy?<sup>2</sup>**

Bauen et al (2005) identify a range from 100 to 450 EJ for bioenergy supply in 2050. A similar range (100 to 400 EJ/a in 2050) is reported by the assessment of a larger but partly overlapping set of 17 bioenergy potential studies in Berndes et al. (2003).

100 to 450 EJ/a of biofuel use is estimated to reduce annual CO<sub>2</sub> emissions by 1.4 to 4.2 GtC in 2050, corresponding to a 5 to 25% reduction of fossil fuel emissions (IPCC 2000b). Depending on demand scenarios, such biofuel potentials translate into a third of world primary energy supply in 2050.

Kaltschmitt (2002) points out a significant potential of bioenergy to avoid or reduce GHG emissions globally and particularly in Latin America and Africa. Hoogwijk et al. (2005) report large potentials for 2050 especially in the former USSR and East Asia.

### **2. What is the problem? - Challenges Related To Bioenergy Projects under the CDM**

Despite the growing literature on bioenergy and the CDM and a fair number of bioenergy CDM projects in the CDM pipeline, a number of important actions need to be taken on the policy, analysis and project level.

- No clear analysis is available yet on the contribution of bioenergy CDM projects to SD.
- No clear analysis is available yet on the financial feasibility of different bioenergy projects, including the role of carbon finance.
- Lack of a sufficient number of pilot projects for prototyping new CDM methodologies for the different types of bioenergy projects currently excluded from the CDM project pipeline
- Inadequate representation of bioenergy in the existing modalities and procedures of the CDM, leading, *inter alia*, to the absence of accepted methodologies for a number of bioenergy project types:

The current modalities and procedures of the CDM do not allow for activities that improve the efficiency of biomass energy systems or the substitution of unsustainable or non renewable biomass. Moreover, there is not yet any methodology recognized by the United Nations Framework Convention on Climate Change (UNFCCC) for GHG emissions reduction from biofuels for transportation. While energy-related projects have the greatest potential for GHG emission reduction and sustainable development<sup>3</sup>, and thus for reaching the goals of the UNFCCC, biomass energy projects are only eligible for crediting in the CDM if the project baseline includes emissions from the use of fossil fuels, or non-CO<sub>2</sub> greenhouse gases. For most developing countries and in particular for the poorest of the poor, these baselines do not represent the current situation (Schlamadinger and Juergens, 2004), as the only fuels available (being both, accessible and affordable) in most cases are biomass fuels, not fossil fuels. Consequently, funding for energy project activities under the CDM is not available for the neediest in most developing countries. Less than 1% of all Certified Emission Reductions so far originate from Africa.

### **3. What is going on to resolve outstanding issues and what remains to be done?**

Regarding the lack of clear analysis on the contribution of bioenergy CDM projects to sustainable development, FAO (together with Adrian Müller, CCRS<sup>4</sup>) is currently preparing an analysis on this topic, which will most probably be presented at the 12<sup>th</sup> conference of parties to the UNFCCC in Nairobi in November 2006.

---

<sup>1</sup> Action 5 according to GBEP's work plan: "Formulating standard guidelines to measure the greenhouse gas emission reductions through the promotion and use of biofuels in the transport and energy generation sectors. This would include the development of baseline methodologies and monitoring tools to be used for project activities in the bioenergy field."

<sup>2</sup> Text of section one is based on Jürgens and Müller (2006, forthcoming)

<sup>3</sup> Examples are: reducing the unsustainable exploitation of natural resources, decreasing the amount of unproductive time spent on gathering e.g. fuelwood and reducing local and indoor air pollution.

<sup>4</sup> CCRS Center for Corporate Responsibility and Sustainability at the University of Zurich

Regarding the lack of clear analysis of the financial feasibility of different bioenergy projects, including the role of carbon finance, Oscar Cacho, visiting professor at FAO from University of New England, Australia, is working closely with FAO to fill this gap. Some preliminary results might be presented at a side event at COP-12. Regarding the inadequate/non-representation of a number of important bioenergy project types in the CDM, a background paper and a draft decision for COP-12 are being prepared (see activity 3 in the text box). The following three points illustrate the urgency of action on all levels<sup>5</sup>:

*a) In November 2005, the Executive Board of the CDM decided to cancel a small-scale CDM methodology that allowed projects to receive credits from reducing the use of “non-renewable biomass”. Accordingly, projects replacing or improving inefficient use of biomass are no longer eligible under the CDM.*

*b) In response, Parties at the COP11/MOP1 requested the CDM Executive Board to produce new methodologies for these types of projects, emphasising their importance to the CDM. To date, however, the Executive Board has not been able to reach an agreement on the approval of a suitable methodology to cover non-renewable biomass use.*

*c) Clear guidance from the COP/MOP, reinforcing and expanding on the previous decisions is required to enable the approval of viable methodologies for the replacement or reduction of non renewable biomass. It is important that the window of opportunity for these projects is not lost, as projects in the CDM currently need to generate credits by the Kyoto Protocol commitment period 2008-2012 in order to benefit from carbon finance.*

#### ACTIVITIES OF FAO AND PARTNERS

1. **Side Event at COP-12 in Nairobi** on 10 November 2006 on “CDM and Bioenergy” (FAO with partners, including Ecosecurities, UNEP/UNCTAD, World Bank)
2. **Information paper on bioenergy under the CDM** (FAO, UNEP, UNCTAD)
3. **Background paper on the issue of non renewable biomass** for COP-12 and preparation of a draft COP decision (Ecosecurities, IETA, Joanneum Research, World Bank; with inputs from FAO)
4. **Submission to the UNFCCC of three proposed small scale methodologies** (Joanneum Research, Bernhard Schlamadinger)
5. **Development of a methodology for liquid biofuels** (UNCTAD, with inputs from FAO and UNEP)
6. **Previous Work at FAO**
  - 6.1. **Publications** between 2004 and 2006 (partly together with Joanneum Research)
    - illustrating the potential of bioenergy to contribute to climate change mitigation and sustainable development
    - pointing out the problems related to the modalities and procedures of the CDM
  - 6.2. **Side events and workshops** 2003-2006
    - raising awareness
    - exchanging information and expertise
    - coordinating activities
  - 6.3. **Submissions to the UNFCCC secretariat** with suggestions to amend the existing modalities and procedures in order to include the reduction of non renewable biomass as eligible CDM activity

#### 4. What should be GBEP's role given its comparative advantage

Regarding CDM projects reducing unsustainable or non-renewable bioenergy systems, GBEP partners that are *Parties at the COP/MOP2*, could re-emphasise the importance of incorporating CDM projects reducing non-renewable biomass and provide specific directions to the Executive Board to approve a suitable methodology by mid 2007 so that project developers are able to undertake such projects at the earliest.

In the same context and with regard also to liquid biofuels, GBEP partners could consider developing or supporting respective pilot projects for prototyping new CDM methodologies.

GBEP members interested in the cost efficiency and financial feasibility of different bioenergy CDM projects, might consider contributing to the activities currently carried out jointly between University of New England (Australia) and FAO.

Drawing on the expertise of its members on bioenergy and CDM, GBEP could elaborate a work programme on the issue, complete the list of already ongoing activities and prioritize its preferences as regards their respective contributions.

Regarding CDM investment decisions by entities in GBEP member countries, the consideration of sustainability implications of bioenergy CDM projects could be advocated based on careful analysis.

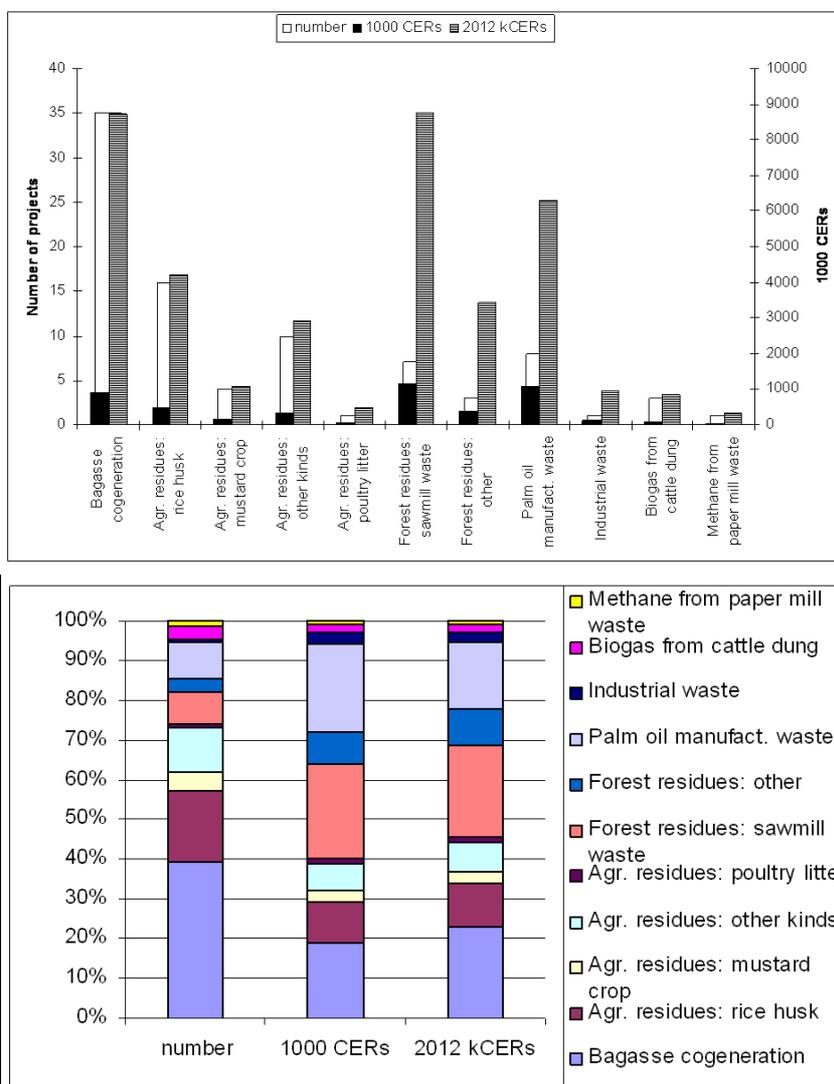
<sup>5</sup> The discussion below as regards non renewable bioenergy projects under the CDM is based on the draft paper prepared by Ecosecurities, IETA, Joanneum Research, World Bank; with inputs from FAO). Text in italics represents direct quotations from the last draft version (20/9/2006).

FAO could contribute, *inter alia*, with their forthcoming publication on the issue.

## ANNEX

### Number of and (expected) volume of CERs from different types of registered, reg. requested and review required CDM bioenergy projects in June 2006 (percentages: lower figure)

Source: Juergens and Mueller 2006, based on (Joergen Fenhann, UNEP, 20.6.2006).



## REFERENCES

- Bauen, A., C. Clini, G.Caserta, M.Franzosi, J.Howes and A.Prag (2005)** International Partnership on Bioenergy – White Paper. Italian Ministry for the Environment and Territory and Imperial College London, August 2005.
- Berndes, G. (2002).** Bioenergy and Water - the implications of largescale bioenergy production for water use and supply. *Global Environmental Change* 12, 253-271.
- Hoogwijk, Monique , Andre Faaij, Bas Eickhout, Bert de Vries and Wim Turkenburg, (2005)** Potential of biomass energy out to 2100, for four IPCC SRES land-use scenarios, *Biomass and Bioenergy*, Volume 29, Issue 4, October 2005, Pages 225-257
- IPCC (2000), R.T. Watson, I.R. Noble, B. Bolin, N.H. Ravindranath, D.J. Verardo, and D.J. Dokken (eds.)** *Land Use, Land-Use Change and Forestry*, , Special Report of the Intergovernmental Panel on Climate Change. Cambridge, Cambridge University Press.
- Jürgens, Ingmar and Adrian Müller (2005)** Bioenergy projects under the Climate Change Mitigation Regime and their contribution to sustainable development, FAO, 2006 (forthcoming)
- Kaltschmitt, Martin (2002).** *Umweltaspekte der erneuerbaren Energienutzung.*
- Fenhann, Joergen (2006)** The CDM Pipeline, UNEP Risoe Centre, 20.6.2006