Joint Workshop on "Forests, bioenergy and climate change mitigation"

19-20 May 2014 at EEA, Kongens Nytorv 6, 1050 Copenhagen K, Denmark

co-organized by

European Commission

European Environment Agency

IEA Bioenergy

IINAS International Institute for Sustainability Analysis and Strategy

Scope

This workshop, co-organized by the Joint Research Centre of the European Commission (JRC), the International Energy Agency (IEA) Bioenergy Tasks 38, 40 and 43, the European Environment Agency (EEA) and the International Institute for Sustainability Analysis and Strategy (IINAS), builds upon a series of previous expert meetings and resulting agreements and statements of the respective participants.

The objectives for the workshop are

- to *facilitate dialogue* between scientists on the topic of *climate effects of forest-based bioenergy*,
- to advance *scientific understanding* of the topic and
- to *clarify divergent views* on the role of forest-based bioenergy in climate change mitigation.

The focus will be on scientific and technical issues and data needs in modelling and C accounting methodology, rather than debating policy options, though some discussion on implications of research for policy formulation is anticipated.

Background

Forests provide many different ecosystem services to society, ranging from timber and food provision over regulating functions, such as carbon storage or flood attenuation, to opportunities for recreation and biodiversity protection. Using woody biomass from forests for any purpose has an influence on these functions which shows the importance of reviewing wider environmental considerations when using wood from forests for bioenergy.

Woody biomass for bioenergy is being promoted as one of the main renewable, low-carbon sources to achieve climate and energy policy targets for 2020 and beyond.

Currently, woody biomass represents the biggest proportion of installed capacity of renewable heat and power plants in the EU (>50% for electricity generation and >75% of heat generation). The use of woody bioenergy is also expected to further increase in the future.

The promotion of biomass use for energy offers considerable opportunities for the agriculture and forestry sectors, which can find new markets for their products. At the same time, concerns have been growing that increased biomass mobilization for energy use, such as in the EU, may result in unintended negative environmental impacts both in the EU and in third countries.

There has been considerable effort spent on defining sustainable land use systems, especially with relevance to forestry and agriculture sectors. For example, the countries involved in what came to be known as the Montreal Process, agreed upon seven criteria of sustainable forest management in 1993. This agreement was significant globally, since the member countries represent about 90 per cent of the world's temperate and boreal forests in the northern and southern hemispheres. The seven criteria upon which the Montreal Process is based have been broadly accepted internationally and are similar to the foundation principles for essentially all sustainability standards developed since that time.

While originally conceived with forest management in mind, these seven criteria have also been adapted to ensure sustainable trade in forest products, including bioenergy feedstocks, so that it is possible to verify whether wood products purchased by consumers were produced from timber or biomass harvested from sustainably managed forests.

Yet, important questions remain about the sustainability of forest bioenergy use, and require careful consideration of benefits and costs with a view on multiple aspects (CO_2 emissions, other climate forcers like albedo and black carbon, biodiversity, water use, local air pollution, social and economic criteria etc.). Discussions about how to include biogenic carbon accounting in LCA analysis, and develop sustainability criteria and methodology that take into account forest management, site conditions, biomass types, cascading use of biomass etc. are still on-going.

Given this background, the JRC, IEA Bioenergy Tasks 38, 40 and 43, the EEA and IINAS, organized a series of (partially joint) workshops[1] to discuss the main issues underpinning the use of forest bioenergy and its impact on climate change.

[1] Most recent meetings held in Arona (Italy, July 2013, http://iet.jrc.ec.europa.eu/bf-ca/expert-consultation-developing-binding-sustainability-scheme-solid-biomass-electricity-and-heat), Savannah (Georgia, October 2013, http://www.pinchot.org/doc/468/) and Copenhagen (December 2013).

Discussions at previous meetings, and previously published documents such as the "IEA Bioenergy ExCo statement", or the JRC report on "carbon accounting of forest bioenergy"[2], helped to build consensus around some relevant topics, and gave evidence that several open issues need further discussions to reach scientific consensus (see document "*Survey of participant views on key statements*" accompanying this paper).

This expert meeting will continue these discussions, building on points on which some agreement was made in previous meetings. As not all expert meeting participants were present at the previous meetings, the survey is meant to help identify areas of overall agreement, and dissent.

The meeting aims at clarifying issues raised during previous meetings, with particular attention to methodological aspects. To learn about the views of participants with regard to key statements, the invited experts are kindly asked to express their level of agreement on each of the statements on climate impacts of bioenergy compiled by IINAS (see accompanying survey document).

In case of disagreement the experts are invited to substantiate the scientific basis underpinning their views.

Purpose of the meeting

The meeting has the following objectives:

- To present the outcomes of the survey circulated before the workshop, and discuss identified points of divergence.
- To discuss and to improve shared understanding and agreement on the way forward regarding the scientific basis, the policy implications (e.g. necessity or otherwise to promote/discourage different bioenergy options), and the possible measures and implementation methods.
- To propose a plan of collaborative research and other joint activities to foster scientific understanding and investigate contradictory claims with regard to climate mitigation effects of using forest biomass for energy.
- To propose a priority list for developing statistical data sets and other information sources that allow a better assessment of the climate change effects of forest bioenergy.

[2] IEA Bioenergy ExCo statement: http://www.ieabioenergy.com/publications/on-the-timing-of-greenhouse-gas-mitigation-benefits-of-forest-based-bioenergy/
JRC, 2013, EUR 25354 EN: http://iet.jrc.ec.europa.eu/bf-ca/publications

Topic areas to be discussed

1) Forest bioenergy climate impacts and GHG reduction targets (policy framework)

- GHG emission reduction targets, such as proposed by EU legislation: definition of a methodology (including metrics) to assess net GHG savings (biogenic carbon stocks included) and associated net climate effects for a series of feedstocks.
- Data and information sources available and how to improve them, for instance on type of feedstock used (now and in future), their availability (now and in future) and consequences of their use (now and in the future).
- Trade of bioenergy products: flows to EU, how to account for non-EU context of global supply chains (e.g. geographical origin, type of biomass (e.g. logs, chips and pellets), ecological community of origin (e.g. wetlands).
- Certification schemes for bioenergy products, and traceability.
- How to determine woody bioenergy feedstocks not contributing to 2020-2030 GHG emission reduction targets (as determined by the specific performance criteria and associated quantification framework to be agreed upon).
- Conversely, how to determine performance criteria and an associated quantification framework that includes woody bioenergy options that can provide climate change mitigation benefits in the longer term.

2) Resource competition and synergies between forest fuels production and other production in the forest sector, and interaction between the forest sector and other industrial sectors

- How to account for resource competition and synergies in different sectors? What are the sectors that, currently or in perspective, are more likely to suffer competition from the bioenergy sector?
- How to assess the feedstock-supply response to an additional demand for bioenergy / the biobased economy (modelling?)
- How to link agro-forest-energy models and manage uncertainties?
- Which additional primary data collection is needed (e.g., on prices, flows, uses, availability etc.).

3) Long-term climate impacts modelling and policy:

- Definition of the appropriate climate and other metrics to be used for the analysis.
- Definition of baseline/counterfactual(s) for the analysis, taking into account likely future development of energy and land use systems.
- Inclusion of biogenic carbon flows and non-GHG climate forcers in setting-up climate modelling.

4) Research needs and opportunity to create research consortia in this context