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

Discussion points for each session

These questions are intended to prompt discussion, and are based on the survey responses. It is not intended that the groups compose answers to the individual questions – these are just food for thought. The intended output from the discussion is a statement(s) of an agreed position on this topic. Where the group does not reach consensus, please develop statements that capture the different points of view.

SESSION 1: How to assess climate impacts of forest-based bioenergy?

The survey included a number of statements that addressed LCA and its use to support decision-making and policy implementation and planning. There were diverging views among respondents concerning LCA-based decision support or assessments. Contentious issues include definition of spatial and temporal system boundaries, treatment of time, when ALCA vs. CLCA is most appropriate to use, and what other complementary analyses are needed. This session intends to follow up these questionnaire statements and clarify the different standpoints.

- What methodologies can be applied in assessing climate effects of forest-based bioenergy?
- What methods are suitable for different purposes (e.g. national GHG inventory, product environmental labelling, sustainability certification, emissions trading, policy planning, policy implementation…)?
- How can ALCA/CLCA be used to assess forest-based bioenergy, and for what purposes?
    - What is the appropriate system boundary for each purpose?
    - Should we deal explicitly with uncertainty?
- What metrics can be used to quantify climate effects of bioenergy?
- What reference system/baseline/counterfactual should be considered?
- Should the forest reference system include expectations of management responses, and/or natural regeneration, with/without natural disturbance?
- At what scale should the analysis be applied (spatial and temporal)? (Stand, product, combustion facility, policy/program, forest estate, region, nation, globe; product life cycle, scheme life?)

SESSION 2: Interaction between bioenergy and other wood products markets, including consequences for forest carbon stocks and flows

The survey included statements about interactions between bioenergy and other wood products markets and sizes of different markets, which elicited mixed comments.

Some propose that bioenergy feedstocks should be restricted to residues and end-of-life wood products due to perceived higher GHG savings per unit biomass, and propose that other forest products that deliver higher GHG savings should be prioritized.

The current use of biomass for energy is about half as large as the industrial roundwood production (in the order of 10 and 20 EJ/yr, respectively). Current 'modern' bioenergy thus is one order of magnitude smaller than future possible bioenergy demand, as estimated in energy system scenarios exploring pathways to achieve ambitious climate targets, e.g., 2-degree target (e.g. IPCC AR5, Global Energy Assessment). This potential 10-fold increase in biomass demand is used as an argument against restricting forest biomass use for energy to residue/waste flows and cascading uses, since it would limit the contribution of forest biomass to future primary energy supply to an almost insignificant level in most countries.

The argumentation goes on to say that policies should incentivize forest management planning towards supplying much larger biomass volumes in the future, that this will have as one consequence that forest carbon stocks in general become larger and that the critical question is not forest carbon balances but soil, water and wider ecological concerns.

Under the alternative perspective, that proposes limiting feedstocks, forest bioenergy supply will remain small compared to prospective bioenergy demand; other biomass sources need to be developed, or future energy systems will require alternative technologies to be implemented.

- Should policy prescribe which forest biomass categories should be used for bioenergy? What criteria would be used as basis for such a prescription?
- Should we instead let the market decide? Is it a problem if "stemwood" is used as biomass feedstock? How would problematic "stemwood" be defined? Is the problem a climate problem or is it rather the general problem of market distortion and economic inefficiency.
- Do diverging answers above (importance of regulation vs market) result from diverging expectations about the effectiveness of different governance (e.g., legislation, best management practices, certification systems, standards) in promoting optimal outcomes?
- How are forest carbon stocks affected by an increased forest biomass use for energy and what are the most important determining factors?

SESSION 3: Role of bioenergy in near-term climate targets

The survey included statements on approaches to deal with bioenergy in respect of near-term climate targets, recognising that some bioenergy systems may not contribute to GHG reduction in the short term. The survey raised the possibility of applying a risk-based approach to distinguish bioenergy systems that give greater contribution to the specific policy objective, e.g., near-term net GHG emission reductions. These concepts received mixed reactions.

- If bioenergy systems use biomass from managed forest landscapes where harvest does not exceed the annual increments, can one for simplicity exclude biogenic carbon in LCA studies?
- Should near term targets focus on reducing emissions or encouraging expansion of renewable energy technologies?
    - What are the effects of near- term climate targets (GHG reduction with/without accounting for forest carbon, renewable energy policies etc) on the development of the bioenergy industry?
- How should we consider bioenergy in GHG accounting for near-term targets?
    - Should we count (some) forest bioenergy as carbon neutral?
    - Does sustainable forest management (SFM) alone (i.e. without any GHG accounting) address the concern about forest carbon losses? If yes, should SFM be voluntary (encouraged by guidelines, standards, certification) or mandatory? Do we need traceability?
- Acknowledging uncertainties and knowledge gaps, is it useful to develop a "risk-based" approach to identify feedstocks that are compatible with short term targets?
    - If YES: how to define a methodology to "categorize" feedstock with lower/higher climate benefit? Should criteria relate to near term and/or long term climate effects?
        - Considering long term total ecological effects or just climate effects?
        - Can this methodology be based on ALCA? What data or lookup variables would be integrated in the methodology?
    - If NO: what alternative approach should be used to encourage adoption/ avoid disincentives to systems that offer benefits in long term but not short term?

SESSION 4: Contribution of bioenergy to long-term climate outcomes

Achieving climate stabilisation requires replacing the current energy systems with new technologies. Focusing only on near-term policy goals may block solutions beneficial in the longer term.

- If a bioenergy system delivers a benefit only in the longer term, is this a reason to discourage its implementation?
    - How long is an appropriate pay-back time?
    - Is 20 years too short, too long, or is payback irrelevant?
- If long payback is acceptable (or irrelevant), how would you explain this point of view?
- Metrics: is it possible (appropriate?) to apply different metrics (e.g., GWP, GTP) in the analysis?
- What baseline/counterfactuals are relevant?
- How to consider time, and uncertainty of development pathways (e.g., energy systems)?
- How to include non-GHG climate forcers in the analysis?

SESSION 5: Key messages, governance, other environmental sustainability considerations, research/data needs, and open issues

- What other (non-climate) environmental issues should be recognised, and how to consider these in policy development?
- What are the key messages for policymakers, from the earlier sessions?
- Which primary data are needed (e.g., on prices, flows, uses, availability etc.), and where can we get reliable data (updates on recent studies/databases/statistics etc.).
- What research could be undertaken to address identified knowledge gaps and investigate divergent claims with regard to climate effects of forest bioenergy?
- What are the priority needs for developing statistical data sets and other information sources to allow a better assessment of the climate effects of forest bioenergy?