

Synthesis of findings

of the workshop:

*Quantifying and managing land use
effects of bioenergy*

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Confrontation of bottom-up vs. top down

Key steps iLUC modelling efforts:

- CGE; historic data basis
- Model shock, short term, BAU, current technology.
- Quantify LUC
- Quantify GHG implications (carbon stocks)

Bottom-up insights:

- Coverage of BBE options, advancements in agriculture, verification of changes (land, production)
- Gradual, sustainability driven, longer term, technological change (BBE, Agriculture)
- LUC depends on zoning, productivity, socio-economic drivers
- Governing of forest, agriculture, identification of “best” lands.

Important insights (a selection):

- Verification of model outcomes (statistics (Kline/Stevens, LUC data (Nassar), FAO, LCA's...)
- Other BBE options and improvements in management major impact on performance (Borjesson, Hamelin, Hess)
- Yield gap analysis and system change fundamental (Sparovek, Dunkelberg)
- Much more sophisticated knowledge on management of carbon stocks (e.g. forestry)
- Not "just" GHG's (biodiversity, socio-economic,...; many authors...)

Provocation?

Current iLUC exercises (and modeling frameworks deployed) do currently **not** give a proper picture of (i)LUC (or ways to avoid that) and can therefore not be used as a basis for policy.

But we need the aggregated modeling frameworks...

- World is far too complex...
- E.g. consequential LCA becomes unmanageable.
- Many interactions come from global level: trade determining factor (Timilsina), food & energy prices, competing (energy & mitigation) technologies, etc.
- Showing BAU IS important: markets and governments are imperfect (Laborde)

Ways forward...

- But top-down and bottom-up approaches are reaching out to each other
- More sophisticated approaches give more balanced outcomes (e.g. Nassar).
- Much to gain from combined efforts (e.g. Wicke, Witcover)

Key questions:

- Do we have enough modeling capabilities, methods, data and tools to provide sufficient answers to policy and the market (on iLUC)?
- Are the right questions being asked to science? (quantify iLUC vs. mitigation of iLUC)
- Honesty, limitations, uncertainties and the science – policy interface...
- What are we trying to govern here?; how to prioritize GHG, energy, land-use, agriculture, forestry, rural development...