

*Proceedings of the workshop on
Development of meaningful statistics for sustainable bioenergy trade
organized by
IEA Bioenergy Task 40 on Sustainable International Bio-energy Trade
International Energy Agency, Paris, France
25 February 2008*

Richard Sikkema¹, Martin Junginger and André Faaij
(Copernicus Institute, Utrecht University, IEA Bioenergy Task 40)

¹ Main contact person, tel: +31-30-2537648, R.Sikkema@uu.nl

List of workshop participants:

- Jean Yves Garnier (IEA, Energy Statistics Division)
- Michel Francoeur (IEA, Energy Statistics Division)
- Ralph Sims (IEA, Renewables Unit)
- Zuzana Dobrotkova (IEA, Energy Statistics Division)
- Richard Sikkema (Copernicus Institute)
- Andre Faaij (IEA Task 40 / the Netherlands)
- Martin Junginger (IEA Task 40 / the Netherlands)
- Florian Steierer (UNECE Timber Section / Hamburg University)
- Christopher (Kit) Prins (UNECE Timber Section)
- Jussi Ala-Kihnia (European Commission / Eurostat)
- Wolfgang Bittermann (UN Energy Statistics Biomass / Statistics Austria)
- Arvydas Lebedys (FAO / FOIM)
- Ann Christin Boeng (Norwegian statistical office)
- Reinoud Seegers (CBS / Dutch statistical office)
- Jussi Heinimo (IEA Task 40 / Finland)
- Bo Hektor (IEA Task 40 / Sweden)
- Erik Tromborg (IEA Task 40 / Norway)
- Douglas Bradley (IEA Task 40 / Canada)
- Richard Hess (IEA Task 40 / United States)
- Tapio Ranta (IEA Task 40 / Finland)
- Trond Bratsberg (IEA Task 40 / Norway)
- Jeremy Wall (European Commission / DG Enterprise & Industry)
- France Lafargue (AFNOR)
- Guislaine Veron Delors (Arvalis Institut du Vegetal)
- Frank Rosillo-Calle (Imperial College London)

Workshop programme

- 9.30 Opening by
 - Andre Faaij (Leader IEA Bioenergy Task 40)
 - Jean Yves Garnier (IEA - Energy Statistic Division, Head of Division)
- 10.00 Ralph Sims (IEA / ETO - Renewable Energy unit)
 Current activities and future work on biomass in IEA Renewable Energy Unit
- 10.15 Zuzana Dobrotkova (IEA - Energy Statistic Division)
 IEA's renewables and wastes energy statistics
- 10.30 Coffee break
- 11.00 Richard Sikkema (Copernicus Institute) – Developing of meaningful statistics for sustainable bio-energy trade
- 11.15 Jussi Heinimö (University of Lappeenranta, Finland) – Methodological issues regarding indirect biomass trade
- 11.30 Bo Hektor (Tall Oil Sweden) - Bio-energy Trade
 - a non-existing Phenomenon?
- 12.00 Room for questions and discussion
- 12.30 –
14.30 Lunchtime
- 14:30 Kit Prins (UNECE/FAO Timber Section) - UNECE/FAO TIMBER and FORESTRY PROGRAMME
- 14:50 Florian Steierer (University Hamburg - Centre of Wood Science) - Improved information on wood energy production and trade
- 15:10 Jeremy Wall (EC - DG ENTR) - European Commission services' inputs
- 15:30 France Lafargue (AFNOR) - Standardization for Solid bio-fuels and Solid Recovered Fuels
- 15:50 Jussi Ali-Kihnia (Eurostat) – general explanations on European trade statistics
- 16:00 Room for questions and discussion
- 17:00 End of Workshop

Objectives of the workshop

There is a clear need for more elaborate biomass trade statistics and to make an inventory of ongoing activities by different international bodies to collect these statistics. The objectives of the workshop were:

1. To bring together various institutions currently involved in collecting international biomass trade statistics (such as the IEA Statistical & renewable energy divisions, Eurostat, FAO, UN ECE / Timber Section, the European Commission and others) for information dissemination and exchange; to summarize which data is currently collected, what is lacking, and what data would be required to fulfill various needs from industry, academia and policy makers
2. To explore the possibilities to set up a framework for the development of international biomass trade statistics and consistent mapping of international trade flows

Summary of the presentations

Below, an overview of each presentation is given, though most information is available in the PowerPoint slides. Also, the comments made by the participants are briefly summarized. Note: all presentations are available at the Task 40 website www.bioenergytrade.org

Introduction

Andre Faaij and Jean-Yves Garnier opened the workshop and sketched the necessity of meaningful bioenergy statistics. Andre Faaij briefly introduced the work done so far by IEA Bioenergy Task 40 on quantifying international bioenergy trade flows and stressed the need for meaningful statistics for policy makers, industry actors and scientists alike. Jean-Yves Garnier gave a brief overview of the work the work of the IEA Energy statistics Division and highlighted the difficulties of getting good statistics on renewable energy production and consumption, let alone trade data. Especially estimating numbers of developing countries such as India and China. As key message for the day he reminded the participants not to forget developing countries in this process.

Ralph Sims (PowerPoint presentation included)

Ralph Sims provided a brief overview of the recent work of the IEA Renewable energy unit. He highlighted the difficulties of building bioenergy projects and renewables, and introduced the recent reports on work on how to set up bioenergy projects, the report on renewables for heating and cooling, (including the global use of global renewable heating and cooling, and overview of the support policies) and the progress on the forthcoming ETP report 2008 (for details, see the presentation)

Zuzana Dobrotkova (PowerPoint presentation available)

Zuzana Dobrotkova explained the IEA statistics division's classification of renewables (electricity, no stock changes, with stock changes). Especially the category with stock changes (e.g. industrial waste, MSW, liquid biofuels etc.) can be traded.

Some of the challenges regarding biomass trade statistics include:

- origin and destination is not included, as it is often not known
- end-use of many products is unknown
- liquid biofuels data is actually collected under the oil questionnaire, but data quality varies, data reporting is not always complete, and confidentiality issues are problems

The joint wood energy enquiry also revealed a number of issues (see presentation).

Comments

- Bo Hektor stressed the need to up-to date statistics
- Jean-Yves Garnier responded that data collection is only carried out by national statistics bureaus; IEA and Eurostat do not collect their own statistics and are dependent on their data, which causes a two-year time-lag.
- Kit Prins remarked that strong points in the joint enquiry was the use of a variety of sources (household statistics, industry statistics etc.), which allowed for a more complete picture of wood use.
- Florian Steierer recommended to be careful regarding the last two conclusions: 1. The data on how much wood is going directly from forest to households is still largely uncertain for many European countries. 2. Also be careful to recommend use of direct wood energy
- Jean Yves-Garnier remarks that The IEA has no information on trade flows other than gas and oil. Even for those "real" flows are difficult to assess. Especially transit flows (e.g. Russian gas being transported via transit and consuming country like Italy) make it more difficulty in assessing the flows. This is of particular interest in case one wishes to assess a consumer countries' dependency from a producing country.

Richard Sikkema (PowerPoint presentation available)

Richard Sikkema gave an overview of current trade of biomass in Task 40 member countries, and illustrated which biomass categories are and are not covered by current trade statistics. He demonstrated ongoing developments in biomass energy trade using various pellet types as illustration: industrial- and non-industrial wood pellets, but also more recently torrefied pellets, mixed-biomass pellets and refuse-derived fuel pellets which may be increasingly traded in the future for energy purposes. Richard recommended that future (wood) pellet classification should include a larger variety of feedstocks and qualities.

Comments:

- Kit Prins remarked to pay attention to differentiated pellet categories, but to be careful not to create too many categories.
- Jussi Ala-Kihnia noted that the definition only includes physical dimensions, *not* the feedstock (.i.e. not necessarily from sawmill residues)

Jussi Heinimo (PowerPoint presentation available)

Jussi illustrated that up until 2004, the use of indirectly traded biomass was larger than the biomass directly traded for energy purposes, and gives a number of illustrations of indirect biomass trade, e.g. trade of paper or forest products which end up eventually for energy use. He showed the difficulties to determine indirect biomass trade volumes, and how in Finland indirect trade of wood fuels is now included in trade statistics.

Comments:

- Jeremy Wall noted that there clearly is a long “shopping list” regarding the detail level of statistics, but is the question is which levels are realistic. Choices will have to be made were to draw the line.
- Martin Junginger commented that the definition of (domestic) production and consumption of important, and may vary drastically depending on the aim. For example, while from a “global carbon cycle” viewpoint, the point of fixation of carbon from CO₂ is relevant, trade statistics will count ‘conversion of vegetable oil to biodiesel’ as domestic production, independent of where the vegetable oil was produced.

Bo Hektor (PowerPoint presentation available)

Bo Hektor presented the reasons why the bioenergy industry needs good-quality biomass trade data, and made a number of statements (see presentation). One of his main points was that proper statistics need to be developed and defined now to avoid costs and problems later. Currently, statistics are required to get loans for biomass investments: banks and the finance sector are not knowledgeable regarding the biomass sector, consider it a high-risk sector, and require 'hard data' to prove that biomass trade is growing.

Comments:

- Kit Prins noted that “taking away the uncertainty is very expensive”, and remarked that choices will have to be made which streams should be followed. He also remarked that biomass trade does not exist by itself, but is part of raw material flows and energy systems. By analyzing the surroundings, insights in bioenergy trade can be gained.
- Jeremy Wall remarked that the reliability of statistics also plays an important role to support financial decisions.

Christopher Prins (PowerPoint presentation available)

Christopher Prins provided a brief overview of the UNECE/FAO timber section (see presentation). The Joint Forest sector Questionnaire was one of the major efforts with regard to use of wood productions for wood energy. Furthermore, a standard approach for wood balances was developed in cooperation with Hamburg University, to create a comprehensive EU wood resource balances.

Florian Steierer (PowerPoint presentation available)

Florian provided an in-depth overview of the joint wood energy enquiry and model to set up an EU resource balances (including all 27 EU MC and Norway and Switzerland). Current challenges include a.o. measuring the intra-European trade. Possible (short term) solutions would be empirical research (questionnaires). But, empirical research can only provide snapshots. Improved definitions in production and trade classifications would amongst others enable better trend assessments.

Comments:

- Kit Prins remarked that given the errors made presently for the trade flows of wood products, we should not have exceeding high hopes for setting up better bioenergy statistics.
- Wolfgang Bittermann confirmed that conversion factors between energy and biomass units are crucial precondition to launch a sound and detailed discussion at national level. He urged that nationally acknowledged solid conversion factors will help disclosing unrecorded trade flows and/or removals. The Austrian Energy Agency developed the Austrian wood flow model, based on sound conversion factors.

Jeremy Wall (PowerPoint presentation available)

Jeremy Wall provided a summary of the ongoing processes in the various bodies of the EC DG's. The European commission services are generally concerned with bioenergy statistics, as they are needed for setting sustainability criteria, green public procurement policies and forest law enforcement government and trade (FLEGT) (concerning illegal logging). All these topics require monitoring and thus the need for statistics. Jeremy also presented the outline of some elements for improving (inter)national bioenergy statistics (see presentation).

France Lafargue (AFNOR) (PowerPoint presentation available)

France Lafargue provided an overview of the history of the standardization of solid biofuels and solid recovered fuels, the definitions and technical specifications used under CEN/TC 335 & 343, and their benefit for the wood pellet trade.

Discussion

To kick off the general discussion, **André Faaij** summarized some key points:

- Indirect trade is important, large volumes
- For many goods, energy use and non-energy use cannot be distinguished
- Good definitions / nomenclature of biomass streams are required
- Clear limitations to the (human) capacity what data can be collected on trade.
- Do not forget developing countries with major biomass trade, e.g. Brazil, Indonesia, etc

Jussi Ala-Kihnia (Eurostat) elaborates on a number of points regarding European trade statistics:

- Exemption thresholds set by each country to assure that at least 97% of the Intra-European trade of that country is covered – e.g. Finland 100 000 €import volume of a single enterprise (smaller companies are thereby exempt from the reporting duty to Intrastat system).
- Companies (about 500 000 declaring for Intrastat) in Europe have no incentive, nor enforced duty to supply 100% correct data to the EU stats (in the Intra-European trade). The situation is different for exports from and imports to EU market figures, as these are supplied by Customs.
- Instead of a bulky and complex classification, the CN structure is currently being revised to make it less complex. The challenge is to develop easy-to-use *combined* tariff and statistical nomenclature, simplifying and reducing the nr of codes is the aim, rather than increasing the number of codes. Nevertheless, since 2008 ETBE and FAME (first generation for biodiesel) entered the CN. Codes for 'fuel ethanol' are not

possible, as end use is not clear. 2nd generation biofuels (e.g. Fischer Tropsch biodiesel) will not be covered by these codes.

- Furthermore, a wood pellet code for CN2009 will be proposed on 27 Feb (and was accepted in principle). The code should come into force 1 January 2009.
- The deadline set by the WCO secretariat for submitting proposals for the HS 2012 has past already, and the next opportunity would then be for 2017 (!). Proposals can still be submitted, but this would require immediate action.
- In the future, statistics for trade from/to the EU should include the country of origin and final destination country, to avoid the 'Rotterdam effect', i.e. the situation where everything is imported to and declared at customs in the Netherlands, and the Netherlands then formally exports all the goods to the rest of the EU. Implementation of such a system is however difficult.

Wolfgang Bittermann summarizes some lessons from joint wood energy enquiry:

- Common accepted conversion factors have to be established.
- Identifying bioenergy trade flows is very difficult. The Austrian Energy Agency collected data of wood flows to set up a comprehensive wood balance. This enabled a quantification of the gap between supply and consumption by non-commercial wood flows (possible due to overall conversion factors).
- Hidden trade flows like shavings from imported round wood processed in domestic saw mills normally are included into energy balances as domestic production
- Possible solution: Focus primarily on clearly identifiable biofuels and do not try to identify at the trade level what material with multiple use potential is used for, but use consumption & production figures to identify such biofuel trade flows.

Erik Tromborg puts up the question whether indirect trade of biomass should be monitored. For import, that is principally possible, for export, this is not feasible. **Jussi Ala-Kihnia** responds that he deems this impossible altogether in the framework of official trade statistics.

Kit Prins emphasizes that we need to define which questions do we want to answer: separate time frame short-term and long-term. For the short-term actions such as requesting codes for specifically identifying pellets are of importance. For the long-term: we need to be able to identify both type of fuel, and feedstock from which fuel was produced from. Both are required for proper balances. First thing to do for the short term would be to set up a rather simple description of overall global bioenergy trade flows

Richard Sikkema proposes to take the IPCC guidelines as starting point: agree on certain default and work out biomass energy sub model. Also compare statistics for semi-finished and finished trade statistics.

Martin Junginger makes two points:

1) While woody biomass flows seem to be rather well-charted (or on their way with the CN code for pellets), liquid biofuels are basically not covered. The importance of liquid biofuels is growing rapidly over the last years, and good trade statistics will be essential, also to be able to meet sustainability criteria. However, liquid biofuels trade flows cannot

be measured properly at the country entry/exit due to the fact that they can have several end-uses. One solution for this could be to introduce mandatory reporting on the origin of the biofuels sold by (bio)fuel retailers such as Shell, Texaco etc.

2) It has become clear that introducing (CN/HS) codes for biofuels is a time-consuming process. Ideally, an inventory of future candidates for refined energy carriers such as 2nd generation biofuels, torrefied pellets, pyrolysis oil etc. could be made. As soon as any of these products reach a threshold level, application for a separate code could be started.

Reinoud Segers remarks that import/export in general does not get so much attention in general statistics (related to the fact that it is difficult to measure). The definition of 'domestic production' is crucial: The Eurostat/IEA manual is not very precise on its definition of domestic production. If ethanol is imported, and then transformed to ETBE in NL, is that domestic production or not? Our current interpretation is that ethanol is then only counted as 'material' and not as energy. The same goes for palm oil, which may be used for food, feed and fuel. Thus a complete balance for multi purpose biomass commodities would be required to be useful for the public debate and market development.. Also, there are issues regarding confidentiality: the industry wants to have good trade data, but does not want to reveal their own raw data. Possibly, contacts with international professional organization may help.

André Faaij notes that similar to the wood flow balances, it would perhaps be possible to make a biomass flow balance. This would probably require a merger of analysis capabilities around the table at this workshop and additional organizations. One key question however remains how the data availability from developing countries is.

Summary by André Faaij of the workshop & discussion findings:

1. It has become clear that the topic of setting up biomass trade statistics / flow balances is far from being solved, and important to be pursued further.
2. As a basis, the background paper written for this workshop will be extended based on the issues identified and comments made during this workshop. This paper will then be circulated to all workshop participants for comments and additions. Ideally, it will become a joint product, in which the main institutions (IEA, FAO, Eurostat, UNECE, EC, etc.) can include key messages and recommendations on possible future work, e.g. biomass balances (and look into finding sources of funding for such work). Such a paper could then be sent out to a broader audience.
3. (Also) depending on the response from the field is and organize follow-up events in e.g. 3 months time.