

**IEA Bioenergy Task 31: Biomass Production for Energy  
from Sustainable Forestry**

**FINAL TECHNICAL PROGRAM**

**International Workshop**

***Forests Under Pressure?!  
Bioenergy – Forest Industry – The Public***



**Wershofen (Eifel), Germany  
5 - 8 October 2009  
including  
Field Study Tour**

*Hosted by Johann Heinrich von Thünen-Institut (vTI)*

# International Workshop

## *Forests Under Pressure?! Bioenergy – Forest Industry – The Public*

### Background

This is an international workshop organized by IEA Bioenergy Task 31 in association with Johann Heinrich von Thünen-Institute, Germany. IEA Bioenergy is an international collaborative R&D agreement, with the aim to accelerate the use of environmentally sound and cost-competitive bioenergy on a sustainable basis, to provide increased security of supply and a substantial contribution to future energy demands. Within this framework, a number of collaborators concentrate on different aspects of the bioenergy chain.

The objective of **Task 31** is to share, analyse, synthesise, disseminate and promote scientific knowledge and technical information leading to the economically and environmentally sustainable production of biomass for energy from integrated forestry systems. The Task builds on existing scientific and technical knowledge, information and expertise, adding new information from research and practical experience as it becomes available. This multi-disciplinary body of information is used in an integrated way to emphasise the scientific principles behind the biological, economic, environmental and social components of sustainable forest biomass production systems. The Task also has a significant role in identifying breakthrough technologies in relation to silviculture, forest management, harvesting and transportation in conventional forestry systems for bioenergy.

The **Johann Heinrich von Thünen-Institute (vTI)** is one of four German federal research institutes under the auspices of the German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV). The **vTI** was created on January 1, 2008 from the German Federal Research Centre for Fisheries, the German Federal Research Centre for Forestry and Forest Products and part of the German Federal Agricultural Research Centre.

The **vTI** develops science-based policy for the German federal government and thus serves, with its application oriented and practice related research, the development of society tomorrow.

The **vTI** pursues interdisciplinary research in the following areas:

- Economics (micro- and macroeconomics of agriculture, forestry, lumber, food and fish production),
- Technology,
- Use of materials from renewable natural resources,
- Climate,
- Biodiversity,
- Organic Farming.

The **vTI** is comprised of 15 specialty institutes. The headquarters of the **vTI** are in Braunschweig with facilities in Hamburg, Großhansdorf, Eberswalde, Waldsiedersdorf, Rostock, Cuxhaven, Ahrensburg and Trenthorst.

## Bioenergy in Germany

In 2008 almost 5.3 % of the German primary energy demand originated from biomass. This makes biomass the most important renewable energy resource in Germany. Overall almost 50 million m<sup>3</sup> of wood, industrial wood residues and waste wood were used for heat and power generation. Due to the increased woodfuel demand annual fellings more than doubled since the year 2000. In order to reach the national CO<sub>2</sub> reduction targets for 2020 it is estimated that an additional 20 – 30 million m<sup>3</sup> per year of woodfuel will be needed. However in the public mind, there is already a fear that the woodfuel boom could harm the forests and imperil sustainability. For the public, raw material supply is only one function forests should fulfil. Nature conservation and recreation needs that are often contrary to intensive forest management are regarded with the same significance. To balance and prioritise the competing demands on the forests as well as to prove and secure sustainability of woodfuel production will be important in the coming years.

## Workshop Objectives

Increased prices for fossil fuels, legal regulations to support bioenergy, and national CO<sub>2</sub> reduction targets lead to an increased demand worldwide for wood as a bioenergy resource. High woodfuel demand is challenging traditional forest products industries with high production demand and has already begun to create shortages and increased competition for domestic wood supplies. Future regulations to extend nature conservation and other management restrictions could further reduce the domestic wood supply for bioenergy and the forest products industry.

In technical sessions as well as field tours this workshop gives the opportunity to share experiences, to discuss strategies and to present solutions on how to balance a secure wood supply for bioenergy and industry with other objectives in the forest sector. Resource managers, forest owners, industry representatives, energy production professionals, energy users, scientists and researchers will be able to exchange information and discuss production and use of forest biomass for energy as an integral part of sustainable resource management for multiple benefits.

Beyond this overall framework the workshop will have a special focus on:

- technology, logistics, economics and sustainability impact assessment of **integrated** woodfuel/timber supply chains,
- concepts for mobilising unused biomass resources from small-scale private forest owners,
- sustainable forest management systems designed to enable more intensified harvest of forest biomass,
- criteria and indicators for sustainable use of forest biomass,
- silviculture and management techniques to increase productivity of forests.

## Programme Outline

ARRIVAL IN WERSHOFEN  
19:00 Ice-breaker

Sunday 4 October, 2009

DAY 1: WORKSHOP TECHNICAL SESSIONS  
Starting time 08:30  
Technical sessions will be held at Hotel Kastenholtz  
End of workshop technical sessions at 17.00  
Poster session 17:00 to 18:30  
19:30 to 22:00 Conference Dinner: (Hotel Kastenholtz)

Monday 5 October, 2009

DAY 2: WORKSHOP TECHNICAL SESSIONS  
Starting time 08:30  
Technical sessions will be held at Hotel Kastenholtz  
End of workshop technical sessions at 17.15  
Task 31 Business Meeting 17:30 to 19:30  
Dinner will be served at Hotel Kastenholtz

Tuesday 6 October, 2009

DAY 3: FIELD TRIP - Wood Competence Centre Rheinland, Wednesday 7 October, 2009  
Breakfast 07:15  
Departure time 08:15  
Stop 1 – Wood Competence Centre Rheinland, Nettersheim  
Stop 2 – Municipal Heating Plant, Nettersheim  
Lunch from 12:30 – 13:30 at the Wood Competence Centre Rheinland  
Stop 3 – Fuelwood supply from hardwood stands  
Return time is between 17:00 & 18:00  
Dinner will be served at Hotel Kastenholtz (at your own expense)

DAY 4: FIELD TRIP - National Park Eifel  
Breakfast 07:15  
Departure time 08:15  
Stop 1 – Vogelsang (presentation of the National Park)  
Stop 2 – Hike on the Dreiborn Plateau (approx. 90 min.)  
Stop 3 – Lunch at Vogelsang  
Stop 4 – Hike from Vogelsang to Lake Urft (approx. 3 h.)  
Stop 5 – Boat trip on Lake Urft  
Stop 6 – Dinner at Restaurant  
Return time is between 21:00 and 22:00

Thursday 8 October, 2009

The field tour/excursion will take place during autumn in western Germany and it can be cold and/or wet. It is therefore recommended that participants bring long trousers, warm pullovers, rain gear and closed footwear.

More information about the Eifel Region is available at: <http://www.eifel.de/>

## Workshop Technical Program

<b>WORKSHOP TECHNICAL SESSIONS – DAY 1</b>	<i>Monday 5 October, 2009</i>
<b>08:30 - 10:00 <u>Opening of the workshop... Welcome and Introduction</u></b>	
08:30	Werner Kloos, ‘Welcome Address of the Federal Ministry for Food, Agriculture and Consumer Protection’
08:45	Matthias Dieter, ‘Competition between forest users in Germany’
09:30	Manfred Klein, ‘Production of forest biomass for energy from a nature conservation point of view’
10:00 - 10:30 Coffee Break	
<b>10:30 – 13:55 <u>Session 1. Integrated Woody Biomass Supply Chains and Land Management to Meet Increasing Demand</u></b>	
10:30	Daniela Thrän & Matthias Edel, ‘Meeting increasing fuelwood demand in Germany – solutions to upcoming competition’
10:55	Gerd Kupers & Irma Corten, ‘E-land – Energy from Land - models’
11:20	Peter Heck <i>et al.</i> , ‘A chance of novel land use management systems and their logistical improvement as an instrument of the regional material flow management’
11:45	Maarten Mortier, ‘The economics of sustainable biomass production in the Netherlands’
12:10-13:30 Lunch	
13:30	Peter Ralevic <i>et al.</i> , ‘Drivers, challenges and opportunities for forest bioenergy – a comparative study of selected European and North American countries’
<b>13:55-16:55 <u>Session 2. Sustaining Site Productivity: data and standards</u></b>	
13:55	Brenna Lattimore <i>et al.</i> , ‘The effects of woodfuel production and harvesting systems on soils and site productivity: coordinating research efforts’
14:20	Karsten Raulund-Rasmussen <i>et al.</i> , ‘Sustainability assessment of intensified forest biomass harvesting practices from a nutrient and wood production point of view’
14:45	Evelyne Thiffault <i>et al.</i> , ‘An adaptive path to sustainable forest biomass harvesting using existing knowledge and spatial information: a case-study in Québec (Canada)’
15:10-15:40 Coffee Break	
15:40	Wendelin Weis <i>et al.</i> , ‘Fluxes and pools – how to access the nutritional sustainability of wood production and harvesting’
16:05	Antti Wall, ‘Risk analysis of energywood harvesting for site productivity’
16:30	Shannon Berch <i>et al.</i> , ‘Development of standards and criteria and indicators for sustainable harvest of forest biomass in British Columbia’
<b>17:00-18:30 <u>Poster Session</u></b> (see separate list of poster authors and titles)	
<b>19:00–20:30 IEA Bioenergy Task 31 workshop dinner</b>	

**WORKSHOP TECHNICAL SESSIONS – DAY 2**

Tuesday 6 October, 2009

**08:30-10:10 Session 2 continued. Sustaining Site Productivity: data and standards**

08:30	Heljä-Sisko Helmisaari <i>et al.</i> , 'Nutrient removal in logging residues in thinnings in boreal forests in Finland: long-term impact on site productivity'
08:55	Elena Vanguelova <i>et al.</i> , 'Impacts of energy forestry on soil sustainability in the UK – research and development of best practice guidelines'
09:20	Emily Carter <i>et al.</i> , 'Assessing soil impacts related to forest harvest operations'
09:45	Brian Titus <i>et al.</i> , 'Sustainable forest biomass harvesting research in the Canadian Forest Service: an overview'

10:10-10:40 Coffee Break

**10:40-14:20 Session 3. Technology and Economics of Forest Biomass Supply Chains**

10:40	Antti Asikainen, 'Impacts of fluctuating demand on the efficiency of forest fuel supply'
11:05	Paula Jylhä <i>et al.</i> , 'Competitiveness of the supply chains of small-diameter wood based on the wood paying capability of a kraft pulp mill'
11:30	Juha Nurmi <i>et al.</i> , 'Integrated energy and round wood harvesting from second thinning of Norway spruce ( <i>P. abies</i> )'

11:55-13:30 Lunch

13:30	Helmer Belbo & Maria Iwarsson Wide, 'Crane-cycle efficiency of multi-tree felling equipment'
13:55	Dominik Röser <i>et al.</i> , 'How much wood can a wood chipper chip?'

**14:20-16:55 Session 4. Sustainable Systems for Integrated Biomass Production**

14:20	Berienn Elbersen & Joop Spijker, 'Biomass for energy and biodiversity in nature, forests and abandoned lands in Europe'
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14:45-15:15 Coffee Break

15:15	Jianbang Gan & C.T. Smith, 'Integrating biomass and carbon values with soil productivity loss in determining forest residue removals'
15:40	Dan Neary & P.J. Smethurst, 'Sustainable forestry in Australian agroforestry landscapes for improving water quality and providing a source of biomass for bioenergy'
16:05	Mike Blazier, Eric Taylor & Gordon Holley, 'Agroforestry systems for biofuel production on retired agricultural lands of the mid-South USA'

**16:30–17:15 Discussion and Closing of Technical Program****17:30-19:30 IEA Bioenergy Task 31 Business Meeting** (Task Leaders & National Team Leaders)

## Posters

- 1 Wendelin Weis *et al.*, 'Impact of site characteristics on nutritional sustainability of wood production and harvesting'
- 2 Nicholas Clarke *et al.*, 'Effects of biomass removal in harvest residues on two Norwegian forest ecosystems'
- 3 Eric Taylor & Ben Jackson, 'eXtension's Wood Energy Community of Practice at Work'
- 4 Ronny Wirkner & Daniela Thrän, 'Biomass from short rotation coppice in the context of sustainable forest management systems'
- 5 Abu Yousuf & Domenico Pirozzi, 'Production of biodiesel from cellulosic biomass'
- 6 Martijn Boosten, 'Short rotation coppice (SRC) in the Netherlands'
- 7 Joel Burley *et al.*, 'Sixth year impacts of forest slash incorporation on soil nutrients and loblolly pine growth'
- 8 Stephen Green & Mark Prior, 'The South West England Bioheat Programme – unlocking the power of wood fuel from factory to firebox'
- 9 A. Gordon Holley *et al.*, 'Economic feasibility of in-woods "prefining" of woody biomass in the Western Gulf region of the United States'
- 10 Helmer Belbo & Maria Iwarsson Wide, 'Comparative study of felling heads versus harvester heads in biomass harvesting from early thinning'
- 11 Brian Titus *et al.*, 'Environmental sustainability and increased forest biomass removals: towards a global meta-analysis'
- 12 Klas Norin, 'Mobilization of private, non-industrial forest owners as suppliers of forest fuel'
- 13 Johanna Enström, 'Railway transportation of forest fuel'
- 14 Tomas Johannesson, 'Training of contractors for improved fuel quality'
- 15 Gustaf Egnell, 'Environmental aspects on stump-harvest – current knowledge and knowledge gaps'

## Instructions to Presenters/Authors

### *Presentations*

There will be 25 minutes allocated (20 minutes talk plus 5 questions/discussion) for each presentation. Slide and PowerPoint presentation equipment will be available for oral presentations. To ensure smooth presentation and avoid electronic hitches oral presenters should deliver their PowerPoint presentations in the conference room 15 min. in advance of their session on memory stick or CD. PowerPoint presentations will be collected and made available after the workshop on the Task 31 website and on CD to all workshop participants.

Poster boards will be available for your use. Poster presenters should mount their posters preferably on Sunday evening October 4<sup>th</sup> and leave them on display until the end of the technical sessions on Tuesday evening October 6<sup>th</sup>. A special Poster Session is scheduled for Monday evening October 5<sup>th</sup> from 17:00 to 18:30. Poster presenters should be on hand at their posters during this session.

Printing and copying facilities will be available during the workshop.

### *Manuscripts*

It is expected that the workshop proceedings will be published in a refereed journal. Full papers written in English, from both oral and poster presentations will be considered for inclusion in the proceedings. Slide decks will not be included. Detailed guidelines for manuscript preparation will be provided with the final workshop technical program. Please submit a single hardcopy and an electronic version of final paper to Oana Popescu either: at the workshop; by post (Dept. of Ecosystem Science and Management, 2138 TAMU, Texas A&M University, College Station, TX 77843-2138, USA); or email ([opopescu@tamu.edu](mailto:opopescu@tamu.edu)).

**Papers will be accepted until October 31, 2009.**

## General Information for participants

The Workshop technical sessions will be held at Hotel Kastenzholz. All accommodation is either single or double bedded (for participants with accompanying person). Since the number of rooms is limited, we recommend early registration.

A separate programme for the accompanying persons will not be organized. Accompanying persons are welcome to join the ice-breaker event, conference dinner and excursions on the 7<sup>th</sup> and 8<sup>th</sup> of October.

## Field Tour

In addition to the technical sessions one field tour organized by the “Wood Competence Centre Rheinland” (Holzkompetenzzentrum Rheinland) will introduce you to the work of the Wood Competence Centre, give you the opportunity to visit the municipal biomass heat plant of Nettersheim and provide practical examples of fuelwood supply from hardwood stands.

A second field tour guided by the Eifel National Park Authority will give the opportunity to discover the trails and lakes of the youngest national park in Germany by foot and boat.

## Location

The workshop will be centred in the village of Wershofen in the beautiful Eifel Region of Germany. Two days of technical sessions will take place at the: Hotel Kastenzholz, Hauptstrasse 1, 53520 Wershofen, Germany ([www.kastenzholz-eifel.de](http://www.kastenzholz-eifel.de)).

## Getting to Wershofen



The village of Wershofen is located approx. 40 km southwest of Köln (Cologne) and can be reached:

**By air:** Wershofen is located approx. 60 min. by road from Cologne Airport.

**By rail:** The nearest station is **Bad Münstereifel**. From there you can take a taxi to Hotel Kastenzholz (approx. 25 minutes)

**By road:** You will find directions, depending on where you're travelling from, with the map enclosed.

For participants arriving at Cologne Airport a shuttle service to the workshop venue is available. Please email your travel details to

[joerg.schweinle@vti.bund.de](mailto:joerg.schweinle@vti.bund.de) in order to get information about departure times of the shuttle service.

## **Contact Information**

### **IEA Bioenergy Task 31 contacts**

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### **Workshop co-ordination**

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