



## Joint Newsletter

FP7 twin projects BEE and CEUBIOM

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This newsletter was prepared in a joint initiative between the two FP7 twin projects 'Biomass Energy Europe' (BEE) and 'Classification of European Biomass Potential for Bioenergy Using Terrestrial and Earth Observation' (CEUBIOM). The newsletter intends to inform users and providers of biomass resource assessments about the projects' activities and results, and about upcoming international events related to bioenergy.



Biomass Energy Europe



## Background of the projects

Current EU policies target for a strong increase of renewable energy in Europe. There is a high need for reliable knowledge of the biomass potentials for energy in Europe, based on commonly accepted approaches. Under the 7<sup>th</sup> Framework Programme the European Commission is funding the two 'Coordination Actions' CEUBIOM and BEE to address this need for a harmonisation of biomass resource assessments in Europe.

The main objective of the CEUBIOM project is to develop a common methodology for gathering information on biomass potentials using terrestrial and earth observations. This objective will be achieved by the implementation of a systematic assessment work plan and will result in the establishment of a harmonised approach and an e-training tool for dissemination.

This e-training environment is an important tool for reaching the much-needed European harmonisation, whereas a Stakeholder Platform will facilitate access to reliable and common datasets on biomass potentials and as such it will offer a more

efficient use of the available European biomass feedstock.

The objective of the Biomass Energy Europe (BEE) project is to improve the accuracy and comparability of future biomass resource assessments for energy by reducing heterogeneity, increasing harmonisation and exchanging knowledge.

BEE will provide best practice methods for the determination of biomass resource potentials at supranational (e.g. EU), national and regional level, and give guidance for transparent presentation of results by providing terms and definitions needed for the execution and presentation of biomass resource assessments. Best practice methods covered by the project comprise resource-focussed statistical and spatially explicit methods as well as demand-driven cost-supply and energy/economic modelling methods. The project focuses on four biomass categories: forest biomass and forestry residues, energy crops, agricultural residues and organic waste.

## Completed project activities and results

### User requirements of biomass resource assessments for energy

An analysis of policy backgrounds and user requirements has been conducted in BEE Work Package 3. One objective of this study was to find out and better understand the needs of those who use the results of different biomass resource assessments. Over 80 biomass assessment users were interviewed. The results will be taken into account when defining the proposal for a harmonised biomass assessment methodology.

Different user groups – and even different single users – have different requirements on the assessments, depending on the intended use of the results. Different requirements appear as regards for example biomass categories to be covered, time frame, geographical coverage, type of potential, etc.

In order to really harmonize the biomass assessments, clear guidelines are needed. Different assessments are only comparable if source data and methods are consistent. More transparency is needed. It is essential

to clearly describe the basic assumptions, limitations, and methods used. Different users have different requirements and expectations for the assessments. When it comes to the units used, updating frequency, geographical coverage, level of detail, there are almost as many opinions as there are users. By providing enough information on how the assessment has been compiled, users have it easier to choose if the assessments are appropriate for their needs. Users much rely on their existing contacts for finding the information they need. In order to provide more reliable, transparent biomass resource assessments, new kind of co-operation between organisations preparing the assessments would help.

The report "Political Framework and User Requirements of Biomass Resource Assessments for Energy" will soon be available at the BEE website.

*By Pirkko Vesterinen, Technical Research Centre of Finland*

## Methods & data sources for biomass resource assessments for energy

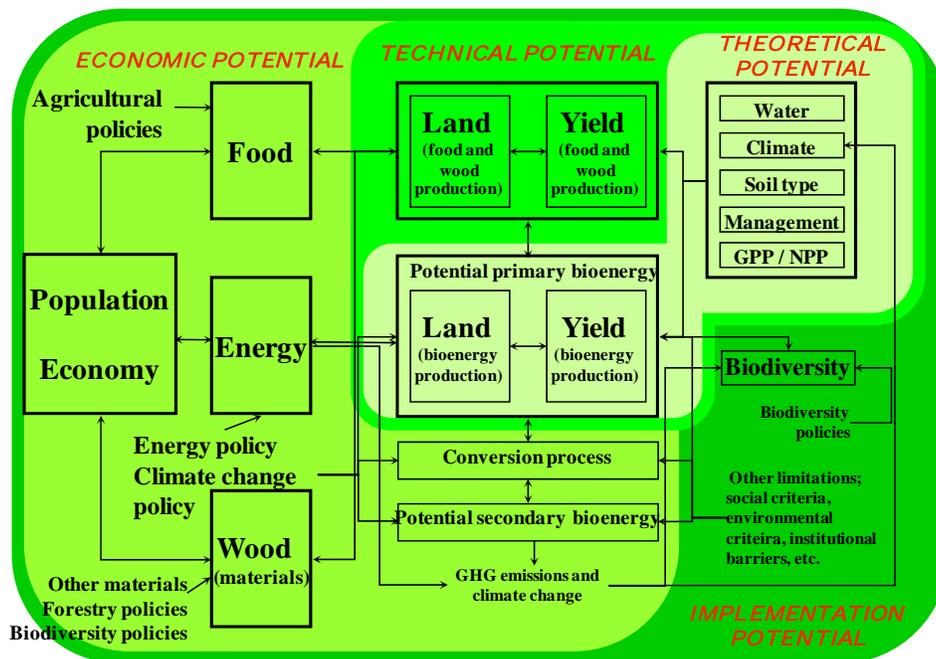
In BEE Work Package (WP) 4, similarities and differences between the various approaches, methodologies and datasets used in biomass resource assessments are investigated. Particularly the different approaches and methodologies that are used to integrate sustainability criteria into biomass resource assessments are subject of research. Second, a review is carried out of the results of existing biomass resource assessments. The focus is thereby especially on studies that focus on the world and on the EU.

It can be concluded that the results of existing biomass resource assessments vary widely. The variation in results is mainly caused by the approaches and methodologies that are applied. Especially the assumptions that are used to determine the future availability of land for energy crop production are crucial. A key parameter is the efficiency of agricultural production systems, which determines the availability of land that is not needed for the production of food. A crucial gap in data and knowledge is related to the availability and productivity of degraded land, which is not investigated in any of the key studies that are included. Further, we concluded that sustainability aspects are inadequately

taken into account. Generally, environmental factors are overrepresented whereas social and economic aspects are taken into account far less frequently. Regarding the environmental dimension, biodiversity and climate aspects are included more often than soil and water aspects. Regarding the social dimension, many studies account for the competition of biomass and land with food which always is given priority. Although many studies assess economic aspects, only few calculate the impact of bioenergy production on crop and food prices by integrating bioenergy production in the existing markets.

We conclude that none of the approaches and methodologies is ideal, because each approach and methodology has both advantages and disadvantages. BEE WP4 will be followed by the development of a harmonized approach, and harmonisation measures for biomass resource assessments are developed. The harmonised approach and harmonisation measures are than applied to several case studies.

*By Dr. Edward Smeets, Utrecht University*



*Illustration of the different biomass potentials considered in BEE.*

## GIS & EO techniques and data sources for biomass resource assessments

CEUBIOM Work Package 2 focused on the use of Geographical Information Systems (GIS) and earth observation (EO) techniques and data sources for bioenergy and biomass resource assessment.

It was concluded that:

-The main advantage of these techniques, over traditional field-based measurement, is the large spatial coverage with a high multi-temporal resolution.

- Due to the varying specifications of GIS and EO (e.g. in terms of accuracy, spatial resolution and information detail), a careful

selection of data and methods has to be performed for the task at hand.

- With the selection of appropriate data, also large areas can be handled, although the related large data volumes are challenging.

- Uncertainties related to the multiple error sources of these tools are the main drawback for bioenergy and biomass resource estimation.

*By Dr. Dimitris Zianis, Peter Gyuris, Dr. Manuela Hirschmugl, Izabella Pintér (from different CEUBIOM partner institutions)*

## Status of biomass resource assessments in SEE countries

In CEUBIOM Work Package 3 the status of the assessment of terrestrial biomass for energy in the South Eastern European Countries was described.

The analysis was based on the information derived from questionnaires that had been sent to the partners of the following countries: Bosnia and Herzegovina, Bulgaria, Croatia, Greece, FYR Macedonia, Romania, Slovenia and Serbia.

The main conclusions drawn are the following:

- Biomass assessment is based on statistical data supplemented by agricultural and forestry expertise.

- No common method on estimating biomass potential for energy could be identified.

- Most of interviewed stakeholders expressed interest in standardised biomass energy potential assessment procedures.

*By Dr. Dimitris Zianis, Peter Gyuris, Dr. Manuela Hirschmugl, Izabella Pintér (from different CEUBIOM partner institutions)*

## Ongoing project activities

### Combination and harmonisation of EO & terrestrial methods

CEUBIOM Work Package 4 will be the integrating focal point of the project with the objectives to set up a harmonized biomass assessment approach and to work out guidelines for best practise. Work will be based on the results of WP 2 and WP 3 and the continuous interaction with BEE. The requirements will be defined by the partners and users who identify their national problems and/or requests concerning possibilities to harmonize biomass assessments based on combined use of EO and terrestrial methods.

A summary of country reports of requirements and RTD needs have just been compiled. This research was based on user questionnaires gathered by the project partners from national users in their

countries. The topics of the questionnaire range from questions about the current situation and experience in the field of biomass potential assessment to the type, spatial, temporal and thematic resolution of the data needed. All in all, 43 national users have been questioned mainly through personal interviews, sometimes through telephone interviews and in few cases through literature review.

The next steps will include analyzing of results and defining of the technical framework for harmonized cost effective monitoring.

*By Dr. Dimitris Zianis, Peter Gyuris, Dr. Manuela Hirschmugl, Izabella Pintér (from different CEUBIOM partner institutions)*

## Harmonisation of biomass resource assessments

The objective of BEE Work Package 5 'Harmonization of biomass resource assessments' is to develop a common methodological framework for biomass resource assessments with regard to forestry biomass, energy crops, agricultural residues and organic waste.

Methodologies will be identified that are appropriate for different situations of data availability & scope of study. Moreover, advanced methodologies will be described that increase accuracy of biomass assessments by integrated use of empirical data from remote sensing, in-situ data, activity accounting and economic data. Furthermore, work will be done toward further integration of sustainability aspects in biomass resource assessments. The activities will result in a best practice handbook for biomass resource assessments that can be used as a reference for organizations that carry out resource assessments as well as their clients, typically policy makers and companies. As to increase accessibility of essential data sources needed to perform biomass resource assessments, a data sources handbook will be published as well.

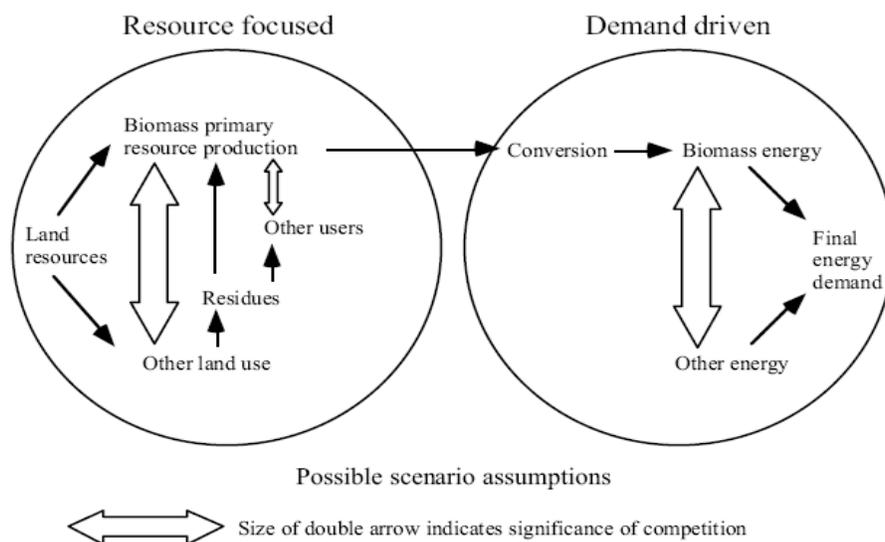
In the last half year a great number of best practice methods have been developed for the forestry, agricultural (including energy crops) and waste sectors that can be classified as follows:

- Resource-focused basic and advanced statistical methods (indicating biomass potential on national level based on statistical data)
- Resource-focused basic and advanced spatially explicit methods (showing more specifically in which areas the biomass is produced)
- Demand driven cost supply methods (indicating how much biomass can be made available for energy generation at what costs)

The coming months these methods will undergo a thorough review by all consortium partners. Furthermore, a number of advanced methods will be reviewed, like economic, energy and agricultural models and integrated assessments that integrate demand & supply of biomass including the effect of economic and environmental change. The first version of the best practice handbook for biomass resource assessments is expected in December 2009.

In BEE Work Package 6 selected methods of the best practice handbook will be applied in illustration cases at national and European level.

*By Martijn Vis, BTG Biomass Technology Group BV*



*The classification 'demand-driven' and 'resource-focussed' that is used in the BEE study.*

*Source: Berndes, Hoogwijk et al. 2003*

## Outcomes of the joint public session CEUBIOM – BEE

During the 2nd progress meeting in Budapest, a public joint session between BEE and CEUBIOM took place on March 31st 2009. This public session was addressed to users of biomass resource assessments, as well as to scientists, experts and other stakeholders interested in and working on the development and harmonisation of the methodology for biomass resource assessment, with a specific focus on the use of biomass as energy resource. In order to achieve the objective of harmonisation, the two project teams seek and offer information exchange and interaction with third parties that are interested in an increase of the information quality in this field. The public session opened with short project presentations by the coordinators of the twin projects CEUBIOM (Mr. Balazs Bodo) and BEE (Mr. Matthias Dees). Attention was drawn to the fact that both projects are linked in some aspects and of similar character, but also have significant differences.

An open and fruitful discussion highlighted the synergetic effects and additional values of combining reports of both projects, as

well as the preparation of joint abstracts and summaries of WP reports. A web based discussion platform will be prepared by CEUBIOM for the exchange of results and knowledge of both projects.

During the joint public session, some other bioenergy related projects were presented, e.g. the IEE projects BIOENERGIS, BEN and MAKE-IT-BE (presented by Alessandro Chiesa from Cestec) and the projects AQUATERRE (Steinar Rafn Beck), RISE (Iztok Zlatar) and EuUwood. Additionally, the projects GENESIS, AGROSENSE and NoE Bioenergy were shortly presented by attendees of the public session.

Another topic of the joint session was the presentation and discussion on work package level by Manuela Hirschmugel (CEUBIOM) and Edward Smeets and Martijn Vis (BEE). The roundtable discussion that followed was complemented by some closing remarks from the EC project officer Silvia Ferratini.

*By Dirk Lemp, University of Freiburg*



*Meeting in Budapest: BEE and CEUBIOM Partners prepare for the Public Session.*



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## Upcoming events

### International Bioenergy Symposium

**15-16 April 2010 in Chania, Crete, Greece**

CEUBIOM and BEE are preparing an international bioenergy symposium which will be hosted by the Mediterranean Agronomic Institute of Chania. CEUBIOM will be the main organiser of this event.

The two-day symposium will include presentations from stakeholders at a pan-European level on policies and support systems, as well as presentations of relevant national and international projects. The event will focus on harmonisation of methodologies of biomass assessment for bioenergy in Europe.

Abstracts for presentations on the following topics are welcomed:

- Forest biomass assessment with EO data,
- Terrestrial measurements of forest biomass,
- Yield estimates of bioenergy crops at ground level,

- Use of EO data for the estimation of agricultural crop biomass,
- Combining EO and terrestrial data for biomass estimation,
- Simple and advanced methods for the assessment of the potential of biomass for energetic use on national and European level,
- Results from recent studies on the current and future potential of biomass for energetic use on national and European level,
- Results from recent studies on the actual current use of biomass for energy on national and European level,
- Methods for the assessment of the actual current use of biomass for energy on national and European level,
- Integration of sustainability constraints in potential studies on biomass for energy.

### Other international events

- 5th International Conference on Biomass for Energy, 22-23 Sept 2009, Kiev, Ukraine.  
<http://www.biomass.kiev.ua/conf2009/eng/index.html>
- Next Generation Biofuels Markets, 28 - 30 September 2009, Amsterdam, Netherlands.  
<http://www2.greenpowerconferences.co.uk/v8-12/Prospectus/Index.php?sEventCode=BF0909NL>
- Biofuels Conference, 30 Sept - 1 Oct 2009, Berlin, Germany.  
<http://www.fnr.de/biofuelsconference/>
- IEA Bioenergy Task 31 - International Workshop "Forests under pressure?! Bioenergy – Forest Industry – The Public", 5 - 8 Oct 2009, Werschofen (Eifel), Germany.  
[http://www.ieabioenergytask31.org/IEA\\_Bioenergy\\_Task\\_31/Workshops.htm](http://www.ieabioenergytask31.org/IEA_Bioenergy_Task_31/Workshops.htm)
- BioSense09, 14-15 October 2009, Novi Sad, Serbia.  
[www.agrosense.org/biosense09](http://www.agrosense.org/biosense09)
- Bioenergy Markets West Africa: Enabling sustainable biopower, biogas & biofuels development in West Africa, 27-29 October 2009, Accra, Ghana.  
<http://www2.greenpowerconferences.co.uk/v8-12/Prospectus/Index.php?sEventCode=BF0910GH>
- European Renewable Energy Policy Conference, 16 – 17 November 2009, Brussels.  
[www.erec.org/2009-conference.html](http://www.erec.org/2009-conference.html)
- Fuels of the Future 2009 – 7<sup>th</sup> BBE/UFOP international conference on biofuels, 30 Nov - 1 Dec 2009, Berlin.  
<http://event.bioenergie.de/>
- World Future Energy Summit, "The World's Platform for Sustainable Future Energy Solutions", 18 – 21 Jan 2010, Abu Dhabi, United Arab Emirates.  
[www.worldfutureenergysummit.com](http://www.worldfutureenergysummit.com)
- European Pellet Conference, 3 – 4 March 2010, Wels, Austria.  
[www.wsed.at](http://www.wsed.at)
- XXIII IUFRO World Congress "Forests for the Future: Sustaining Society and the Environment", 23 – 28 August 2010, Seoul, Republic Of Korea.  
[www.iufro2010.com](http://www.iufro2010.com)



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### **BEE and CEUBIOM progress meetings**

The third BEE progress meeting will be held 10 - 11 September 2009 in Skopje, Macedonia. The meeting is hosted by BEE project partner MAGA (Macedonian Geothermal Association).

The next CEUBIOM progress meeting will take place 12-13 October 2009 in Graz, Austria. It will be hosted by Joanneum Research Forschungsgesellschaft mbH.

## **More information on the projects**

**BEE website:** [www.eu-bee.com](http://www.eu-bee.com)

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