Objectives and programme of the International Conference

"The European Forest-Based Sector: Bio-Responses to Address New Climate and Energy Challenges?"

Organized under the auspices of the
French Presidency of the Council of the European Union

6-8 November 2008, Nancy, France

Background and general objectives

The forest-based sector is at the intersection of two major crises closely interlinked, one related to climate and the other to energy. The climate issue stems from the amplification of the greenhouse effect: greenhouse gases, including carbon dioxide, are emitted at a much faster rate than that at which the biosphere and the ocean are able to process them. The energy issue is the consequence of a gradual depletion of the most accessible fossil resources, the use of which also contributes to the greenhouse effect; it results in higher energy prices which, in turn, benefit renewable resources, among other things.

Forests sequester and store carbon, and wood-based products prolong the retention, require little energy for their manufacture and have a high calorific value. This prompts us to consider how the forest-based sector can contribute, as it must, within the limits of its potential, to the mitigation of the two crises mentioned above.

The mitigation potential of forests has long been recognized by the Intergovernmental Panel on Climate Change (IPCC), the United Nations Framework Convention on Climate Change and the Kyoto Protocol. However, it has not been taken into account in its entirety. The retention of carbon in forest products and the substitution of wood to other materials or energy sources are considered at their true value. It is thus necessary to review the geochemical and institutional contributions of the forest-based sector to the mitigation of climate change.

While preparing new commitments for the period after 2012, it would be particularly useful to have as much objective information as possible available for the negotiators so that they gain a better understanding of the role of the forest-based sector as regards the physical processes of the carbon cycle, the competition between wood and other materials and the energy market. Three themes will thus be developed:

- Forests as carbon sinks;
- Wood-based products: carbon pools and energy conservation;
- The forest-based sector: source of renewable energy.

1. Forests as carbon sinks

1.1. The Kyoto Protocol takes into account the consequences of land-use change (afforestation, reforestation, deforestation) on the net changes in emissions of greenhouse gases (Article 3.3). It also makes it possible to take into account part of the effects of forest management on the carbon pool (Article 3.4). It was reached through difficult negotiation among many different parties and interests and brought about complex accounting rules. The issue is thus to confirm and, where appropriate, to improve, simplify or extend the manner in which forest sinks are taken into account.

1.2. The exact role of forests in relation to climatic and atmospheric changes is apparent in the carbon cycle: the carbon sequestered by photosynthesis and not released by plant respiration is stored until its potential release into the atmosphere through combustion or natural decomposition. Forests are also involved in the natural cycles of water, ozone and other greenhouse gases and play a role through their reflectance characteristics (albedo). In addition, global changes are affecting forest ecosystem processes (stands, soils) and therefore the carbon cycle. Moreover, they could cause an amplification of extreme events also likely, in turn, to interfere with ecosystem processes. Thus, an overall assessment should be drawn up so as to gain a more detailed understanding of the exact role of forests in climatic and atmospheric changes in order to determine, explain and defend the best option available.

1.3. Regardless of strategies for forest products (themes 2 and 3), the forest manager can enhance the effectiveness of sequestration through appropriate interventions. He can also reduce the adverse impacts of climate change through preventive measures, ie adaptation. It is worth noting that the distinction between management effects and other natural or human effects (atmospheric nitrogen deposition, increase of carbon dioxide atmospheric concentration, age-class structure of forest trees…) is still a difficult issue.

1.4. By analysing the current rules, reviewing the biogeochemical processes involved and assessing the opportunities for forest-related action, it becomes possible to discuss strategies, policies and measures, whether international, European or national, that are likely to substantiate the role of forests as carbon sinks.

2. Wood-based products : carbone storage and energy conservation

2.1. In its present form, the Kyoto Protocol does not enable to account for the retention of carbon in wood products, nor the fact that wood requires relatively less energy for processing than its alternatives. An important issue for the future is to quantify the comparative advantages of wood and develop a system that integrates them. The range of concerned products is currently expanding towards 'green chemistry' and new composite materials capable of entering the medical, pharmaceutical, food, electronic, textile, and other industrial sectors, besides bio-refinery (theme 3).

2.2. For an effective comparison between wood and major alternative materials, product life cycle analyses should be developed and generalised in order to include a wide range of markets and take into account a series of criteria including, of course, carbon balance.

2.3. Another important issue is to curb the negative effects related to certain wood harvesting and processing methods. This could be done by ensuring sustainable forest management, limiting illegal logging, implementing product traceability wherever necessary and reducing the number and toxicity of chemical products used for gluing and preserving wood.

2.4. After analysing the current situation, the life cycle of the various products and the obstacles to a more accurate taking into account of forest products in mitigating the greenhouse effect, attention should focus on discussing the strategies, policies and measures, whether international, European or national, that are likely to substantiate the role of forest products in carbon sequestration and energy conservation.

3. The forest-based sector: source of renewable energy

3.1. Unlike fossil fuels, wood is a source of energy renewable within a time scale that is immediately perceptible to people. Under wise management, forest regrowth offsets the emissions produced by the combustion of the harvested wood. The Kyoto Protocol does not take into account the emissions produced by the combustion of biomass. Wood may be used as a source of energy in many ways and at different stages of processing. New technologies of bio-energy are being developed, using lignocellulosic resources (among which wood); they may be in the context of bio-refineries in connection with paper mills.

3.2. The various possibilities of producing energy as heat, electricity or fuel from raw wood, forest industry residues, former by-products that have become key commodities or products at the end of their life cycle need to be assessed through multi-criteria analyses that take into account energy aspects as well as economic, environmental and social aspects in order to supply decision-makers with sound information.

3.3. In several European countries, forests are harvested at a level way below their biological potential while the demand for energy from biomass is on the rise. The actual available resources need to be assessed according to location, habitat type, management and possible market outlets. The objective is to balance supply and demand whilst complying with ecological constraints and preserving sustainable development. Any overharvesting is to be avoided. Possible conflicts between different forest uses and between different types of land-use (forest *versus* agriculture and fallow lands) need to be assessed and solutions need to be proposed.

3.4. These analyses of the current situation, of bio-energy sources and of expectations in this field can be used as a basis to discuss strategies, policies and measures, at the international, European or national level, most likely to make full use of the potential of wood as a source of bio-energy whilst contributing to the mitigation of the greenhouse effect.

Thursday 6 November 2008

8h00-9h00: Registration & film showing "Climate mitigated by forests and wood" (8h45)

9h00-9h45: Plenary opening and welcome session on behalf of:

- Nancy: **André Rossinot**, Mayor, President of the Urban Community of the Greater Nancy.
- Region Lorraine: **Jean-Yves Le Déaut**, Vice-President of the Regional Council.
- Ministerial Conference on the Protection of Forests in Europe (MCPFE) : **Harald Aalde** (Senior Adviser at the Royal Norwegian Ministry of Agriculture and Food

9h45-11h00: Keynote addresses.
Moderator: **François Houllier**, Chairman of the board of ECOFOR

- Forests and climate change at the interface between science and decision-making. **Risto Seppälä**, immediate past President of IUFRO (International Union of Forest Research Organizations), Chairman of the Expert Panel on Adaptation of Forests to Climate Change (Joint Initiative on Forest Science & Technology, Collaborative Partnership on Forests).
- Research to address climate and energy challenges: the Forest-Based Sector Technology Platform approach. **Johan Elvnert**, member of the Management Committee of the European Forest-Based Sector Technology Platform.
- Forestry: a major tool towards mitigation of climate change. **Gert-Jan Nabuurs**, Lead-Author of the 4th IPCC Assessment Report (Intergovernmental Panel on Climate Change), ALTERRA, Wageningen, The Netherlands.
- Forests and climate negotiations: **Bryan Smith**, Co-chairman of the contact group on Land Use, Land Use Change and Forestry (LULUCF) for the negotiations under the Climate Convention.

11h00-11h30: Coffee break

11h30-13h00: "Forests as carbon sinks"
Moderator: **Konstantin von Teuffel**, Chairman of the Board, European Forest Institute (EFI).

- Forest carbon sinks and Kyoto Protocol: from present commitments to future ones. **Peter Aarup Iversen**, Ministry for Climate and Energy, Denmark.
- Forests and carbon cycle: an overall assessment. **Philippe Ciais**, Laboratory of Climate and Environment Sciences (LSCE), France.
- The carbon balance of European forests: which management, drivers and future? **Sebastiaan Luyssaert**, University of Antwerp, Belgium.
- Reporting LULUCF emissions and removals: from current challenges to possible solutions in a more comprehensive accounting regime. **Giacomo Grassi**, Joint Research Center (JRC) of the European Commission.

13h00-14h15: Lunch

14h15-15h45: Parallel sessions "Forests as carbon sinks"

Session 1.1:
Forest and carbon management

Moderator: **Marcus Lindner** (EFI, Joensuu)

- Forests: carbon sinks? **Laurent Saint-André** *et al.*, Cirad Montpellier & Inra/Engref Nancy, France.
- Increasing carbon sinks by forest management? Conflicts and synergies. **Esther Thürig** & Edgar Kaufmann**,** WSL, Switzerland.
- Potential removals of roundwood for industry and energy, and remaining carbon in the growing stock for different cutting and climate scenarios in Finland. **Tuula Nuutinen** *et al*., Metla, Finland.
- Impact of tree felling and drought in carbon fixation over a Portuguese Eucalyptus site. **Gabriel Pita** *et al*., Portugal.

Session 1.2:
Soil-Forest-Atmosphere interactions
Economic and political instruments

Moderators: **Annemarie Bastrup-Birk** (U. Copenhagen, Denmark) & **Franck Lecocq** (LEF, France)

- Soil warming in a mountain forest increases GHG emissions. **Robert Jandl** *et al*., BFW Austria.
- Modelling interactions between forest management and climate at the global scale. **Valentin Bellassen** *et al.***,** LSCE, CIRAD & ONF, France.
- Policies and measures of carbon sequestration in the voluntary market: which equilibrium between transaction costs and shared rules of good practices?. Davide Petenella & **Lorenzo Ciccarese**, TESAF, University of Padova, Italy.
- The Kyoto Protocol mechanisms and Carbon Markets : opportunities and challenges for forestry. **Maria Nijnik**, The Macaulay Institute, UK.

15h45-16h15: Coffee break

16h15-18h00: "Wood-based products: carbon pools and energy conservation"
Moderator: **Pat Snowdon**, Forestry Commission (UK)

- Why harvested wood products are not accounted for in Kyoto Protocol and how they could be? **Christophe Van Orshoven** (Belgian Ministry of Environment) with Eugene Hendrick (Coford, Ireland).
- Life cycle analyses: a major tool to compare wood and its alternatives. Arno Frühwald & **Johannes Welling**, University of Hamburg, Germany.
- Wood processing by gluing and preservation: is this a problem under the Framework Convention on Climate Change? **Antonio Pizzi**, Enstib, France.
- Discussion of accounting approaches for consideration of Harvested Wood Products in post-2012. **Sebastian Rueter** & Kim Pingoud, von Thünen Institut, Germany & VTT, Finland.
- Measures and policies to increase the role of forest products in climate change mitigation. **Christopher Prins** & Sebastian Hetsch (Unece, Geneva).

18h00-18h30: Poster session and film showing "Climate mitigated by forests and wood"

19h00-22h30: Official dinner, City Hall of Nancy.

Friday 7 November 2008

8h00-8h30: Registration and film showing "Climate mitigated by forests and wood" (8h15)

8h30-10h15: "The forest-based sector: source of renewable energy"
Moderator: **V. Alaric Sample** (Pinchot Institute for Conservation, USA)

- Bio-energy and Kyoto Protocol: from present commitments to future ones. **Rosemarie Benndorf**, Federal Environmental Agency, Germany, with Paolo Canaveira, Celpa, Portugal.
- Forest based bioenergy potential in Europe to power, transportation fuels and heat. **Kai Sipilä** *et al.*, VTT & Metla, Finland.
- Potentials of bioenergy production within the forest market. **Johannes Schmidt** *et al.*, Boku & IIASA, Austria, and Mälardalen University, Sweden.
- Strategies, policies and measures to make full use of the potential of wood as source of bio-energy whilst contributing to climate mitigation. **Markku Karlsson**, UPM-Kymene Oyj, Finland.

10h15-10h45: Coffee break

10h45-12h15: Parallel sessions "Wood-based products: carbon pools and energy conservation" and "The forest-based sector: source of renewable energy"

Session 2.1:
Wood-based products: carbon pools and energy conservation

Moderator: **Christopher Prins** (UNECE)

- Harvested wood products modelling and reporting in France. **Gérard Deroubaix** *et al.*, FCBA, France.
- Which forest management, wood production and use could reduce greenhouse gases emissions? **Nicolas Robert** *et al.*, Lerfob/Inra/Engref/ONF/CNPPF, France.
- Analyses of an additional project of carbon sequestration in wood products: the case of the maritime pine forest of the Landes of Gascogne. Jean Jacques Malfait, University of Bordeaux 4, France & **Guillaume Pajot**, Macaulay Institute, Scotland.
- Estimating and modeling carbon storage effect in Harvested Wood Products. A German case study. **Sebastian Rueter**, von Thünen Institut, Germany.

Session 2.2:
Processes and technologies for bioenergy

Moderator: **Xavier Déglise** (IAWS)

- Thermochemical conversions of biomass: applications and current processes. **Anthony Dufour** *et al.*, Vertbilor, CNRS, France.
- France-Brazil integrated research for bio-energy **Romain Rémond** *et al.*, Lermab, France & University of Sao Paolo, Brazil.
- Forest energy resources, certification of supply and markets for energy technology. **Timo Karjalainen**, Metla, Arvo Leinonen, VTT & Lassi Linnanen, Lappeenranta University of Technology, Finland.
- The European pulp and paper industry, part of the solution to climate change. **Bernard de Galembert**, CEPI, Bruxelles.

12h15-13h45: Lunch

13h45-15h15: Parallel sessions "The forest-based sector: source of renewable energy"

Session 3.1 :
Evaluation of bioenergy development

Moderator : **Timo Karjalainen** (METLA, Finlande)

- Optimal dynamic control of the forest resource with changing energy demand functions and valuation of CO_2 storage. **Peter Lohmander,** Swedish University. of Agricultural Sciences, Sweden
- Policy changes and their effects on sustainable forest resource utilization in Europe. **Marcus Lindner** & Hans Verkerk, EFI, Joensuu.
- Utilization of "Integrated Environmental Assessments" (IEAs) to compare the contribution of various scenarios related with forest management and use of wood in order to maximize, during the next 50 years, net GHG emission reductions. **Arthur Riedacker**, Inra, France.

Session 3.2 :
Forest resources available for bioenergy

Moderator : **Jean-François Dhôte** (ONF, France)

- Availability of firewood in the French forest resource. **Patrick Vallet** *et al.***,** Cemagref, France.
- Ensuring forest sustainability in the development of wood bioenergy. **V. Alaric Sample**, Pinchot Institute USA.
- Sustainability as regards wood and wood residues for energy generation; an overview. **Piotr Paschalis Jakubowicz**, Faculty of Forestry, Warsaw, Poland.

15h15-15h45: Coffee break

15h45-17h30: Synthesis and outcomes

Moderator: **Bernard Roman-Amat** (AgroParisTech-Engref, France)

- Considerations on forest as a source of renewable energy. **Anna Zornaczuk-Luba**, on behalf of Undersecretary of State Janusz Zaleski, Ministry of Environment, Poland.
- Greenhouse gas dynamics of different forest management and wood use scenarios **Frank Werner**, Rüdi Taverna & Peter Hofer, Werner Environment & Development, Switzerland.
- Integrating and modelling scientific understanding to inform decisions about forest sector carbon management in Great Britain. **Robert Matthews** *et al.*, Forest Research, Forestry Commission, UK.
- EFORWOOD: an integrated tool to analyse the mitigation capabilities of the forest-based sector. **Kaj Rosen**, Project coordinator, Skogforsk, Sweden.
- The EU involvement in the post-2012 as regards land use and forestry. **Valérie Merckx**, European Commission, Brussels.
- Which scientific issues to address new climate and energy challenges? **Yves Birot**, Chairman of the Scientific Committee of the Conference.
- Which bio-responses to address new climate and energy challenges? **Jim Penman**, Defra, UK.

17h30-18h00: Closing: Michel Barnier, French Minister of Agriculture and Fischeries

Saturday 8 November 2008

East route: "Forest research and management", with:

- French National Institute for Agricultural Research (INRA)
- French Forest Agency (ONF,)

8h00-8h45: from Nancy to Champenoux

8h45-10h45: Visits in several groups of INRA Champenoux with change at 9h45:

<table>
<tr><th>Group 1 Isotopes</th><th>Group 1 Scanner</th><th>Group 2 Isotopes</th><th>Group 2 Scanner</th></tr>
<tr><td>Use of isotopes for the needs of forest ecology:
Erwin Dreyer</td><td>Detailed analysis of wood with a scanner in order to optimize its utilization:
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10h45-11h30: Possible way back to Nancy for some participants

10h45-12h00: From Champenoux to Sarrebourg

12h00-13h30: Lunch near Sarrebourg (restaurant "les Cèdres")

13h30-13h45 : To Hesse State Forest

13h45-16h15 : Visits in Hesse State Forest in two groups with a change at 15h00:

Group 1	Group 2
Hesse State Forest: **Irène Bee**, **Pierre Vionnet-Fuasset** and **Marc Bertrand** (ONF Sarrebourg). Forest management, carbon and environmental policy at ONF: **Marianne Rubio**, (ONF, Direction of Environment and Sustainable Development)	**Intensive Research Facilities** in Hesse Forest: **André Granier** (INRA); two facilities with flux towers and several measures of micrometeorology, carbon, water vapor… • pure Beech stand, 43 years old in 2008 • Beech stand, 22 years old in 2008, with miscellaneous broadleaved trees.
Intensive Research Facilities	**Hesse State Forest and forest management**

16h15-18h00: Way back to Nancy (Imposed arrival time)

Saturday 8 novembre 2008

South route: "Wood products and energy", with:

- French National School of Wood Science and Timber Engineering (ENSTIB)
- Vosges local government
- Enterprise Elyo-Suez
- City of Epinal
- Architecture Consulting François Lausecker (Architect)
- Vosges Office of Land Management and Housing (OPAC Vosges).

8h00-9h15: From Nancy to Mirecourt

9h15-10h30: Visit of the Secondary School Guy Dolmaire in Mirecourt (451 rue du Moulin Neuf) led by **Patrick Pruvot** (Local government of Vosges, school owner). Wooden building 10 000 m2, 10.4 million €, delivered in 2004, heated with wood, High Environmental Quality (HEQ), owner: Architecture Studio (Paris); major reference in contemporary architecture using wood.

10h30-11h05: To Epinal

11h05-12h10: Visit of the French National School of Wood Science and Timber Engineering (ENSTIB) and Fiber Campus of the University Henri Poincaré, Nancy, led by **Pascal Triboulot** (ENSTIB, Director). The wooden amphitheater was, 10 years ago, emblematic of the rediscovery of wood in contemporary architecture in France. Visit of the new campus wooden buildings delivered in 2006, 6 750 m2, 12.6 million €.

12h10-13h30: Lunch in the Technology Hall of ENSTIB

12h10-12h30: Possible way to Epinal railway station for some participants wishing to go back to Nancy by train (departure 12h47, arrival 13h42)

13h30-13h45: To Plateau de la Justice

13h45-15h15: Visit of the wood heating station (9, Avenue des Cèdres) led by **Christophe Ferry** (Elyo-Suez) in the presence of a representative of the city of Epinal. One of the 10 largest heating station using wood in France, the largest in Lorraine: 7 MW + heating network.

15h15-15h30: To the town Chantraine.

15h30-16h45: Visit of the residence "The Camerelle" (22, rue Victor Hugo) led by **François Lausecker** (Architect) and **Thierry Dubroca** (OPAC des Vosges). 18 housing and 4 houses, buildings made of wood labeled "Low Consumption". One of the first operations of sustainable development and energy conservation for the housing sector in France.

16h45-18h00: Way back to Nancy (Imposed arrival time)

Partners

Conference venue

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www.gip-ecofor.org/nancy2008/