Seminar Proceedings

Advanced unedited version

STRATEGIES FOR THE SOUND USE OF WOOD

Poiana Brasov, Romania
24-27 March 2003
NOTE

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FOREWORD

Wood is used for a broad range of end products as well as for energy generation throughout the world. Wood has been in constant competition with other materials and products such as synthetics, concrete, steel, ceramics, glass and fossil fuels. The decisions on utilisation of a raw material or energy source are taken within a technical, financial, regulatory and cultural framework. Therefore, it is important to understand the factors influencing the choice and to compare the performances of wood and its substitutes when using them in different applications (building, manufacturing of products, energy generation, etc.).

The revival of a wood-using culture in Europe, with the focus on wood as a renewable material and energy source contributing to sustainable practices, requires stimulating demand. This is essentially about education focused on wood’s functionality, performance, natural qualities, energy potential and fitness for sustainable consumption. Implicit in achieving this is the involvement of governments, industry, consumers, communities, opinion leaders, NGOs and other stakeholders.

Although wood is generally recognised by the public as an environment friendly material, it is less known that a balanced consumption of wood is a necessary part of sustainable forest management and important for the forests’ welfare. There is a long and unfortunate history of gaps of understanding between the forestry sector and the key parties, whereas value resides in closing these gaps by widespread exchange of information.

Objectives of the Seminar

So far, the international dialogue on forest has focused on the “upstream” aspects of sustainable forest management, although many major policy statements, including the Rio “Forest principles”, the IPF/IFF proposals for Action and Lisbon resolution L1, have also mentioned downstream issues linked with markets, consumption and trade. They have stressed the importance of sound and sustainable consumption patterns as an integral and necessary part of the sustainable development of the sector as a whole.

The objective of the Seminar was to place sound use of wood and sustainable patterns of consumption in the wider context of sustainable development, and explore possible policy options, for governments and other stakeholders. It also addressed, from the sustainability perspective, certain complex issues related to consumption and markets, including life cycle analysis, promotion of wood, certification and chain-of-custody, communication with, and education of, the public, trade and environment issues.

The Seminar objectives were in line with the scope of work and recommendations of various international organizations including:

- Ministerial Conference on the Protection of Forests in Europe,
- United Nations Forum on Forests,
• World Summit on Sustainable Development.

The Seminar outline was based on the comparative advantage of the UNECE/FAO integrated programme, one of the few international programmes to combine upstream and downstream issues in a single framework.

The Seminar was intended for policy makers and analysts, and a wide range of stakeholders and researchers, as well as trade and industry associations and environmental NGOs, etc.

Rationale

Romania invited the UNECE Timber Committee and the FAO European Forestry Commission to hold the seminar at the occasion of their joint session in 2000. Several reasons supported the idea for holding the seminar on sound use of wood in Romania. First, its national forestry policy and strategy foresee the development of the Romanian forestry sector based on the sustainable management of forests, improving efficiency of exploitation and development of high value-added products. Romanian forestry industry has therefore a good potential to transform its consumption patterns. Second, Romania has large forest resources constituting habitats for several endangered species and representing a great biological diversity. Third, Romania has considerable experience with transition from the central planned to the market economy presenting similar problems to other CEECs countries. These characteristics were very suitable for bringing together experts from the whole UNECE region to study and discuss the challenges of the sound use of wood. This was why the UNECE and the FAO welcome the generous hospitality of Romania to host the Seminar.
# PROGRAMME OF THE SEMINAR

## Programme overview

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Monday, 24 March 2003

- Study visit - Sustainable management of forests and wood industry in Romania

  Plenary session – Opening

- Welcome

  Mr. Christopher Prins, Chief, Timber Branch, UNECE Trade Development and Timber Branch

- National forest policy and strategy in Romania

  Mr. Ovidiu Ionescu, State Secretary for Forests, Ministry of Agriculture, Food and Forests, Romania

  Mr. Filip Georgescu, General Director, National Forest Administration, Romania

Tuesday, 25 March 2003

  Plenary session

Introduction - The place of the sound use of wood and other forest products in strategies for sustainable development

- Linking sustainable forest management to timber sourcing decisions and policies

  Mr. David Bills, Director General, UK Forestry Commission, the United Kingdom

- Forest products utilization and sustainable development

  Mr. Wulf Killmann, Director, Forest Products Division, paper presented by Mr. Jacques Lahaussois, Forestry Officer, Forestry Department, FAO

- Sustainability through competitiveness

  Mr. Jeremy Wall, Principal Administrator, Unit – Forest Based Industries, DG Enterprise, European Commission

- What the international dialogue on forests has changed in the role of production in promoting SFM?

  Mr. Gerard Buttoud, professor of forest policy, French Institute of Forestry, Agricultural and Environmental Engineering (ENGREF), France

- From good forest management to the sound use of wood: an NGO view

  Mr. Duncan Pollard, Head of European Forest Programme, WWF International, Switzerland
Round table discussion of stakeholders (NGOs, wood industry, forest owners)

Facilitated by Mr. Christopher Prins:

- Mr. Ovidiu Ionescu, State Secretary for Forests, Ministry of Agriculture, Food and Forests, Romania
- Mr. Bernard De Galembert, Forest Director, Confederation of European Paper Industries (CEPI), Belgium
- Mrs. Natalie Hufnagl, Secretary General, Confédération Européenne des Propriétaires Forestiers (CEPF), Belgium
- Mrs. Beatrix Richards, European Forest Policy Officer, WWF International

Session I: What is sound use of wood?

1.1 Life cycle analysis

- Comparison of wood products and major substitutes with respect to environmental and energy balances

  Mr. Arno F. Frühwald, Bundesforschungsanstalt für Forst- und Holzwirtschaft Hamburg, Germany

1.2 Competitively of wood – Is wood losing market share?

- The competitive climate for wood products and paper packaging; the factors causing substitution with emphasis on environmental promotion

  Mr. Jan Hagstedt, Senior Advisor, Nordic Timber Council AB, Sweden

- Potentials for the European woodworking industries to enhance the use of wood

  Mr. Jeremy Wall, Principal Administrator, European Commission, DG Enterprise, Unit – Forest Based Industries

1.3 Is increased consumption of wood sustainable?

- Outlook for long-term supply of and demand for forest products on the European Forest Sector Outlook Studies (EFSOS)

  Mr. Anders Baudin, School of Industrial Engineering, Växjö University, Sweden, and Mr. Kari Kangas, UNFF, New York,

- Wood supply for the growing European pulp and paper industry

  Mr. Bernard De Galembert, Forest Director, Confederation of European Paper Industries (CEPI)
• Impacts of the EU energy policy on the woodworking industries – the sound use of wood from an industries perspective

  *Mr. Chris Van Riet, Technical and Environmental Adviser, European Confederation of Woodworking Industries (CEI-Bois)*

**Session II: How to stimulate sound use of wood?**

### 2.1 Strategies and policy instruments

• Wood promotion in Germany - a joint initiative of forestry and wood based industry since 1990

  *Mr. Johann Georg Dengg, Ass. Head of Division on Timber Markets, Sales Promotion, Wood Use, Federal Ministry of Consumer Protection, Food and Agriculture, Germany*

• Governments' role in wood promotion

  *Mr. Ingwald Gschwandtl, Director, Forest Policy and Forest Information Division, Federal Ministry of Agriculture, Forestry, Environment and Water Management, Austria*

• Policy for wood consumption in Romania

  *Mrs. Constanta Istratescu, Scientific Research Secretary, and Mr. Dan Dumitru Copacean, National Institute of Wood, Romania*

• Project “Capacity Building to Improve Trade Finance and Investment Prospects for the Russian Timber Sector”

  *Mr. Hans Jansen, Project Manager, UNECE Trade Development and Timber Division*

### 2.2 Wood promotion campaigns, communication and education

• Promoting wood construction in the EU

  *Ms. Aila Janatuinen, Finnish Forest Industries Federation*

• Promotion of wood and forest products in New Zealand

  *Mr. Shaun Killerby, Market Analyst, Strategic Market Intelligence Group, Forest Research, New Zealand*

  **Poster session**

• Swiss wood promotional programs

  *Mr. Marco Zanetti, BUWAL, Switzerland*

• Energy Wood and Wood Energy

  *Mr. Christof Hugentobler, Switzerland*
• The FAO-ECE Forest Communicators Network
  Mr. Ingwald Gschwandtl, Director, Forest Policy and Forest Information Division, Federal Ministry of Agriculture, Forestry, Environment and Water Management, Austria

• A better use of growing stock and remaining trees by means of market-oriented instruments
  Poster by Mr. Marian Dragoi, Faculty of Forestry – University of Suceava, Romania

• Bulgarian timber market – state, opportunity and perspectives
  Mr. Ivan Paligorov, Deputy Dean, Business Management Faculty, University of Forestry, Bulgaria

• The reservation price for auction – the first step towards a sound use of wood
  Ms. Simona Dragoi, Senior Researcher, Forest Research and Management Institute, Romania

Wednesday, 26 March 2003

  Plenary session

Session III: New markets and consumption patterns

3.1 Bioenergy
• Bavaria pouches for biomass use
  Mr. Reinhold Erlbeck, Bavarian Ministry of Agriculture and Forestry, Germany

3.2 Managing climate change risks
• Managing forests for adaptation to climate change
  Mr. Zoltan Rakonczay, Forest and Climate Change Officer, WWF International, Hungary
• Afforestation of bad lands financed through Joint Implementation Projects
  Mr. V. Bluțdea, Forest Research and Management Institute, Mr. I. Abrudan, Faculty of Silviculture and Forest Engineering, Transilvania University of Brasov, and Mr. C. Pahontu, National Forest Administration, Forest Regeneration Service, Romania

3.3 Innovative products and uses
• Modeling and forecasting the demand for sawnwood in western Europe from an end-use perspective
  Mr. Anders Baudin, School of Industrial Engineering, Växjö University, Sweden
• The United Kingdom wood for good programme
  Mr. David Bills, Director General, UK Forestry Commission, the United Kingdom
Session IV: Strategies for the sound use of wood in central and eastern Europe

- The wood market in central and eastern Europe
  
  Messrs. Leonard Padureanu, Financial Manager, National Forest Administration, Gheorghe Florian Borlea, Forest Research & Management Institute, and Sabin Bratu, Head of the Commercial Office, National Forest Administration, Romania

- Improvement of the organization of forest use in Russia
  
  Mr. Gourguen Goukasyan, the Union of Timber Manufacturers and Exporters of Russia, the Russian Federation

- The sound use of wood and other forest resources in Romania
  
  Messrs. Gheorghe Dumitriu, Gheorghe Pirnuta, Iovu Biris and Gheorghe Florian Borlea, Forest Research and Management Institute-Bucharest, Romania

- Romanian and Bulgarian responsible timber trade - opportunity for the region
  
  Mr. George Dinicu, Forest Officer, WWF Romania

Session V: Trade and environment

5.1 Certification

- PEFC Council international perspectives
  
  Mr. Jaroslav Tymrak, PEFC Council, Luxembourg

- Forest certification - experiences with PEFC in Germany
  
  Mr. Dirk Teegelbekkers, General Secretary, PEFC Germany

- FSC certification as a tool for socially and environmentally responsible trade
  
  Ms. Gemma Boetekees, FSC Europe Director, Forest Stewardship Council (FSC) International Centre, Germany

- Forest certification in Romania and the market perspective
  
  Mr. Ioan Vasile Abrudan, Lecturer, Faculty of Silviculture and Forest Engineering, Transilvania University of Brasov, Romania

- Illegal logging in the context of the sound use of wood
  
  Mr. Anssi Niskanen, European Forest Institute, Finland
5.2 Supply chain issues: chain of custody, procurement, etc.

- Sound use of wood: new markets or new obstacles to trade?
  
  Secretary to the UNECE Working Party on Technical Harmonization and Standardization Policies, UNECE, Geneva

- Sourcing timber from sustainably managed sources

  Ms. Margaret Rainey, the Deputy Director with responsibility for the European Forest and Trade Networks, WWF International

- FSC certification and strengthening legal compliance in the forest products trade

  Mr. Liviu Amariei, Head of the FSC Accreditation Business Unit, Forest Stewardship Council, Mexico

**Working Groups’ Session**

Five working groups (WGs) focusing on the session themes

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<td>Mr. David Bills</td>
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<td>III. New markets and consumption patterns</td>
<td>Mr. Sten Nilsson</td>
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<td>IV. Strategies for the sound use of wood in central and eastern Europe</td>
<td>Mr. Leonard Padureanu</td>
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<td>V. Trade and environment</td>
<td>Ms. Margaret Rainey</td>
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**Meeting of the working group chairs**

- Summary of the results of the working group discussions

- Preparation and drafting of the conclusions and recommendations from the seminar

**Thursday, 27 March 2003**

**Plenary session**

**Presentation of working groups’ results**

**Conclusions and recommendations**

- Based on working groups outcomes

- Addressed to Timber Committee, European Forestry Commission, Ministerial Conference on the Protection of Forests in Europe, governments and other stakeholders.
REPORT OF THE SEMINAR
REPORT OF THE SEMINAR

Introduction

1. The seminar on Strategies for the sound use of wood was held in Poiana Brasov, Romania, from 24 to 27 March 2003, under the auspices of the UNECE Timber Committee and the FAO European Forestry Commission and at the invitation of the Government of Romania. Participants from the following countries attended: Albania, Austria, Bulgaria, Croatia, Finland, France, Germany, Latvia, Lithuania, the Netherlands, New Zealand, Poland, Romania, the Russian Federation, Sweden, Switzerland, Turkey and United Kingdom.

2. The following intergovernmental organizations participated in the Seminar: European Commission, Ministerial Conference on the Protection of Forests in Europe (MCPFE), and World Bank.

3. The following nongovernmental organizations also participated in the Seminar: Confederation of European Forest Owners (CEPF), Confederation of European Paper Industries (CEPI), European Confederation of Woodworking Industries (CEI-Bois), European Forest Institute (EFI), Forest Stewardship Council (FSC), International Institute for Applied Systems Analysis (IIASA), Pan European Forest Certification (PEFC), Union des Sylviculteurs du Sud de l'Europe (USSE) and WWF.

Opening of the session

4. Participants were welcomed by Mr. O. Neagoe, Prefect of Brasov, Mr. Ovidiu Ionescu, State Secretary of Forestry, Ministry of Agriculture, Food and Forests of Romania, Mr. Filip Georgescu, General Director, National Forest Administration, and Mr. Christopher Prins, Chief, Timber Branch, ECE Trade Development and Timber Division.

5. Messrs. Ionescu and Georgescu made a presentation on sustainable management of forest and wood industry in Romania.

Adoption of the agenda

6. The provisional agenda and programme was adopted.

Election of officers

7. Mr. Ovidiu Ionescu was elected Chairman of the Seminar and Mr. Florian Borlea Vice Chairman.
Discussion of the Seminar

8. The Seminar heard and discussed 5 keynote speeches and 29 papers. There was a roundtable discussion with representatives of major stakeholder groups and a poster session where 6 posters were presented. The proceedings with the original papers in the original language and an abstract in the three official languages were provided to participants and posted on the Timber Committee website before the Seminar.

9. The keynote speeches were given by: Mr. David Bills (United Kingdom) on Linking sustainable forest management to timber sourcing decisions and policies, Mr. Wulf Killmann (FAO, presented by Mr. Jacques Lahaussois) on Forest products utilization and sustainable development, Mr. Jeremy Wall (European Commission) on Sustainability through competitiveness, Mr. Gerard Buttoud (France) on What the international dialogue on forests has changed in the role of production in promoting SFM? and Mr. Duncan Pollard (WWF) on From good forest management to the sound use of wood: an NGO view.

10. The Seminar was structured around five themes:
   - Session I: What is sound use of wood?
   - Session II: How to stimulate sound use of wood?
   - Session III: New markets and consumption patterns
   - Session IV: Strategies for sound use of wood in central and eastern Europe
   - Session V: Trade and environment

11. At the Session I the following papers were presented: Mr. Arno F. Frühwald (Germany) on Comparison of wood products and major substitutes with respect to environmental and energy balances, Mr. Jan Hagstedt (Sweden) on The competitive climate for wood products and paper packaging: the factors causing substitution with emphasis on environmental promotion, Mr. Jeremy Wall (European Commission) on Potentials for the European woodworking industries to enhance the use of wood, Mr. Anders Baudin (Sweden) and Mr. Kari Kangas (UNFF) on Outlook for long-term supply of and demand for forest products on the European Forest Sector Outlook Studies, Mr. Bernard De Galembert (CEPI) on Wood supply for the growing European pulp and paper industry and Mr. Chris Van Riet (CEI-Bois) on Impacts of the EU energy policy on the woodworking industries – the sound use of wood from an industries perspective.

12. At the Session II the following papers were presented: Mr. Johann Georg Dengg (Germany) on Wood promotion in Germany - a joint initiative of forestry and wood based industry since 1990, Mr. Ingwald Gschwandtl (Austria) on Governments' role in wood promotion, Mrs. Constanta Istratescu and Mr. Dan Dumitru Copacean (Romania) on Policy for wood consumption in Romania, Mr. Hans Jansen (UNECE) on Project “Capacity Building to Improve Trade Finance and Investment Prospects for the Russian Timber Sector", Ms. Aila Janatuinen (Finland) on Promoting wood construction in the EU, and Mr. Shaun Killerby (New Zealand) on Promotion of wood and forest products in New Zealand.
13. At the Session III the following papers were presented: Mr. Reinhold Erlbeck (Germany) on *Bavaria pushes for biomass use*, Mr. Zoltan Rakonczay (WWF) on *Managing forests for adaptation to climate change*, Mr. Viorel Blujdea (Romania) on *Afforestation of bad lands financed through Joint Implementation Projects*, Mr. Anders Baudin (Sweden) on *Modeling and forecasting the demand for sawnwood in western Europe from an end-use perspective*, and Mr. David Bills (United Kingdom) on *The United Kingdom wood for good programme*.

14. At the Session IV the following papers were presented: Messrs. Leonard Padureanu, Florian Borlea, Sabin Bratu and Ionut Gondos (Romania) on *The wood market in central and eastern Europe*, Mr. Gourguen Goukassian (the Russian Federation) on *Improvement of the organization of forest use in Russia*, Messrs. Gheorghe Dumitriu, Gheorghe Parnuta, Iovu Biris and Florian Borlea (Romania) on *The sound use of wood and other forest resources in Romania*, and Mr. George Dinicu (WWF) *Romanian and Bulgarian responsible timber trade - opportunity for the region*.

15. At the Session V the following papers were presented: Mr. Jaroslav Tymrak (PEFC Council) on *PEFC Council international perspectives*, Mr. Dirk Teegelbekkers (PEFC Germany) on *Forest certification - experiences with PEFC in Germany*, Ms. Gemma Boetekees (FSC) on *FSC certification as a tool for socially and environmentally responsible trade*, Mr. Ioan Abrudan (Romania) on *Forest certification in Romania and the market perspective*, Ms. Laura Bouriaud (Romania) and Mr. Anssi Niskanen (EFI) on *Illegal logging in the context of the sound use of wood*, Mr. Serguei Kouzmine (UNECE) on *Sound use of wood: new markets or new obstacles to trade?*, Ms. Margaret Rainey (WWF) on *Sourcing timber from sustainably managed sources*, and Mr. Liviu Amariei (FSC) on *FSC certification and strengthening legal compliance in the forest products trade*.

**Technical visit**

16. The technical visit on *Sustainable management of forests and wood industry in Romania* organized in the context of the Seminar took place on Monday, 24 March 2003. The following places were visited:

- **Sinaia** - Presentation of standing crops managed using selective cuts; discussion with the Sinaia Forest District specialists (Prahova County Branch); visit to the royal „PELEŞ” Castle;
- **Ghimbav** - Visit to the S.C. „MTI” srl wood processing factory.
Conclusions and recommendations

17. The participants at the Seminar warmly thanked the Romanian authorities for organizing the Seminar and for the efficient arrangements and warm hospitality during the Seminar.

18. They approved the following conclusions and recommendations concerning strategies for the sound use of wood, for consideration by the Timber Committee and the European Forestry Commission as well as other bodies, on the basis of discussion in working groups. The outcomes from the working groups’ discussions are annexed to this report. The working groups were as follows:

i. What is sound use of wood? (Chair: Mr. David Bills, Rapporteur: Ms. Stefanie Linser)

ii. How to stimulate sound use of wood? (Chair: Mr. Gerard Buttoud, Rapporteur: Mr. Johann Georg Dengg)

iii. New markets and consumption patterns (Chair: Mr. Sten Nilsson, Rapporteurs: Mr. Anders Baudin and Mr. Jeremy Wall)

iv. Strategies for sound use of wood in central and eastern Europe (Chair: Mr. Leonard Padureanu, Rapporteur: Mr. Nico Leek)

v. Trade and environment (Chair: Ms. Margaret Rainey, Rapporteur: Mr. Serguei Kouzmine)

Conclusions

19. The objective of governments, forest based industry and the forest sector as a whole should be greater, better and appropriate use of wood from sustainably managed forests in technically and economically competitive and environmentally appropriate products and systems, of high quality. These should build on wood’s heterogeneity and advantages, while recognising its limitations, so as to influence and fulfil market needs.

20. Wood from sustainably managed forests is an environmentally friendly raw material, with many technical and economic advantages to the consumer. It is renewable and frequently reusable and/or recyclable, and it is finally a source of energy. It is non-polluting when growing in the forest, and less energy and resource intensive in processing and use than many of its competitors. It has low carbon intensity compared to competing materials.

21. The forest and timber sector plays an important role for employment and rural development. Forests, public and private, provide the multiple benefits which society rightly expects from forests, including conservation of biological diversity, protection against erosion and other natural hazards, facilities for recreation, landscape beauty, cultural sites and many more.

22. Bad governance of the forest sector, including illegal logging, corruption and trade in products resulting from these actions, is harmful to the forest ecosystem, to government authority and revenue, and to those who abide by the law, who are put at a competitive disadvantage. Bad
forest governance, including illegal logging, exists all over the world, including in Europe, although its extent and causes are not well known or understood. Governments are beginning to coordinate their action against bad forest governance. Publicity of such issues contributes to a lack of confidence by the public in wood as a sustainable material.

23. Sustainable forest management is a prerequisite for sound use of wood, and sound use of wood contributes to sustainable forest management; therefore the two concepts should be treated together in policy formulation.

24. However, the fact that wood is procured from sustainable forest management, has environmentally compatible properties and provides diverse social and environmental benefits, does not guarantee its competitiveness in the marketplace. There, wood and its derivatives have to compete on technical performance, service, price and image with products made from other, often less environmentally compatible, materials.

25. Furthermore, wood is suffering from substitution by other materials in many markets; globalisation permits fierce competition sometimes based on unsustainable, illegal and/or poorly costed practices which keep the prices of legitimate and sustainably procured wood and forest products down. This undermines legitimate business, threatening its competitiveness and as a consequence the economic viability of forest management in some parts of Europe through reduced residual revenue for timber. In some cases, as a result, the forest owner receives little direct compensation for the non-market benefits he/she is expected to provide to society. Often, the many non-market benefits of forests and wood are not valued, nor are the costs of producing them identified and specifically compensated by users or society as a whole. For many materials which compete with wood, the non-market benefits are relatively less important, and the non-market costs e.g. of pollution are not always borne by the producer: this tends to further distort the competition against forest products.

26. At present not enough is known about the volume of wood consumed in each end-use sector and whether it is gaining or losing market share, and why. Considerable information is available on Life Cycle Analysis (LCA), although more is needed: above all, the information collected needs to be made available in an attractive and relevant format to policy makers and opinion formers. However, so far, LCA does not include the value of forests. These information gaps hinder properly based policy formulation on this topic, and should be remedied.

27. The competitive position of wood and other dimensions of sustainable forest management are also strongly influenced, often unintentionally, by policies for other sectors, including energy, trade, environment and rural development. These inter-sectorial linkages are compounded by international ones. For example, forest products are traded on global markets, so use of wood in one country may influence forest management in another.

28. Global climate change is recognised as a major threat to the long-term health and stability of forests, inherently compromising the sustainability of the resource base of the timber sector.

29. More reflection is needed to define and describe sound use of wood.
Recommendations

30. To the UNECE Timber Committee and the FAO European Forestry Commission:
   1. Develop further activities on the sound use of wood, based on the recommendations of the Seminar's working groups.
   2. Monitor and analyse issues connected with forest law enforcement and governance, e.g. estimating, with the help of partners, the volumes of illegally logged wood in the ECE region, and the reasons underlying this phenomenon.
   3. Continue to provide independent and reliable information and analysis on issues relevant to sound use of wood e.g. market trends, certification, long-term outlook, forest resource assessment etc.
   4. Develop, in cooperation with the MCPFE and other stakeholders, an indicator set for the sound use of wood.
   5. Continue to work to improve knowledge and understanding of the end-uses of forest products, and the factors underlying substitution, by collecting and distributing information on the sound use of wood in the region, and monitoring on a continuing basis the performance of stakeholders in this respect.
   6. Stimulate better understanding of consumer perceptions and attitudes and continue to share experience on communication and wood promotion through, inter alia, the Forest Communicators Network.
   7. Together with the UNECE Working Party on Technical Harmonization and Standardization Policies, and in conjunction with the EUW/CEI-Bois study, determine whether there are obstacles to the sound use of wood arising from differences between construction standards and regulations in Europe, and develop recommendations in this regard to appropriate bodies, notably government at all levels, industry and international standardisation bodies.
   8. Develop further activities on the sound use of wood, based on the recommendations of the Seminar's working groups.
   9. Consider with other stakeholders how end-use demand can be best matched with the volume, quality and location of the resource.

31. To the Ministerial Conference on the Protection of Forests in Europe:
   1. Include the topic of sound use of wood in the work programme on the follow-up of the Fourth Ministerial Conference on the Protection of Forests in Europe.
   2. Continue to attach importance to stimulating better information and increased transparency on forest sector issues.
32. To Governments and EU institutions:
   1. Develop a policy and legislative framework to support and promote the sound use of wood as an integral part of the sustainable development of the forestry sector.
   2. Where appropriate, identify and implement new financial mechanisms to support these actions. This is particularly necessary in those countries where the “wood culture” is weak, as in many central and eastern European countries at present.
   3. The EU should assist the accession countries and other countries to support the development and promotion of the sound use of wood.
   4. Stimulate and facilitate the creation of multi-stakeholder partnerships to promote the sound use of wood.
   5. Develop wood procurement policies which encourage the sustainable management of forests in their own country and elsewhere, without creating barriers to trade. Of special note is the role of bilateral trade agreements. Governments should exchange experience on this issue.
   6. Provide information on, and promote the use of, environmentally friendly consumer products, energy supplies, and building construction products and systems derived from forest resources.
   7. Encourage research on the sound and innovative use of wood, including life cycle inventory and analysis (LCI/LCA), and take this information into account when formulating policy.
   8. Take an inter-sectoral approach to the forest sector, notably by drawing up national forest programmes, applying, as far as possible, the MCPFE Approach to National Forest Programmes in Europe, and take into account developments in other sectors and their possible consequences for forest sector policies. In particular the interactions between energy policies and the forest sector need analysis (e.g. at the special topic of the 2003 UNECE Timber Committee session).
   9. Provide information on wood availability and quality which recognises the true supply dynamics of the private sector, taking account of consumption by forest owners and the ability of owners to mobilise wood supplies.
   10. Improve infrastructure for better accessibility to wood and fibre resources, without compromising biodiversity interests, and the efficient processing and distribution of wood and wood products.
   11. Act strongly to maintain or achieve good forest governance in their country, prevent or reduce illegal logging, and participate in relevant international efforts, as bad forest governance harms sustainable forest management, and society as whole.
   12. Implement policies and measures aiming to enhance the resistance and resilience of forests to climate change.
   13. Improve education, training and research for the wood supply, processing and distribution chain, working together with industry and other partners.
   14. Consider with other stakeholders how end-use demand can be best matched with the volume, quality and location of the resource.
15. Promote client orientation of forest owners.
16. Work with partners to minimise threats to sustainable forest management resulting from the restitution process.

33. To forest-based industries:
   1. Meet identified and analysed market needs by producing and marketing products based on wood from sustainably managed forests.
   2. In particular ensure that wood is used in construction in a sound way, as failures in this respect damage long term prospects and confidence in the industries.
   3. Work jointly with other stakeholders, including retailers and distributors, to improve communication and promote the sound use of wood, and improve awareness of the environmental and utility benefits of the sound use of wood and wood products.
   4. Invest in research and development to produce innovative, attractive, client-oriented products, at competitive prices.
   5. Continue to develop a sense of social responsibility ensuring that customers have confidence in their purchases, in terms of legality, quality, sustainability and suitability for their purpose.

34. To other stakeholders (including NGOs and forest owners):
   1. Participate fully in efforts to create partnerships to promote the sound use of wood and wood products.
   2. Participate fully at all levels in efforts to mitigate global climate change.
   3. Forest owners should share information and know how and coordinate marketing through membership in associations.
   4. Forest owner associations should be set up or strengthened in those countries where they are weak or non-existent, provided there is a perceived need.
   5. There is a need for education in private or community forestry to promote good practice, especially in those countries where there are large numbers of new owners, because of the restitution process.
   6. Work with partners to minimise threats to sustainable forest management resulting from the restitution process.

Adoption of the report

35. The present report was discussed in draft form at the seminar and finalized by correspondence afterwards.
ANNEX

OUTCOMES FROM THE WORKING GROUPS’ DISCUSSIONS

Working Group I: What is sound use of wood?

(Chair - Mr. David Bills, rapporteur - Ms. Stefanie Linser)

Findings

How much wood is available from sustainable (multifunctional) managed forest?
- The problem is to reconsider the issue between standing volume and annual increment and what is really available and for what use.
- Infrastructure for forest access
- Tenure patterns with absentees and uninterested owners
- Restitution creates special problems for some countries
- Costs and prices

The LCA Role
- LCA solves the problem of material, energy, and emission budget.
- LCA does not include the value of forests types
  - It does not tackle the problem of cost/benefits or changes in structure and/or type of forest;
  - However in the absence of this information, adherence to the principles of sustainable and sound forest management should largely overcome this problem.
- The outcome of LCA is not well understood by opinion leaders, specifiers and decision makers who influence wood based policies and trends.

Hierarchy of uses
We agree with these principles:
- Species and log and timber qualities should be matched in an optimum way with end uses;
- Forest owners or forest growers should have access to wide range of competitive markets;
- Priority should be given to optimising the carbon cycle of wood after one or several product cycles by finally burning for energy in substitute for fossil fuels.

Government policies related to energy and landfill are endangering or distorting fair market conditions and diverting the forest sector from achieving these principles.

Optimising processing benefits
All sectors of the wood using industry can benefit from integration. This does not mean that it need be under the one ownership structure, but there are benefits in industry, sharing, inter alia, infrastructure, energy, processing residues and technical know-how.

Sound use of wood in construction
The consumer’s acceptance of wood is dependent upon good design, good engineering, good detailing of quality products and construction at competitive prices taking into account full life costing. (Too often the industry has let itself down by shoddy products, execution and design, damaging its long term market prospects).
Recommendations

Governments should:
- Investigate, understand and seek to avoid potential adverse consequences of environmental and market policies as well as building policies.
- Provide information on wood availability and quality which recognises the true supply dynamics of the private sector.
- Provide information and promote the use of environmentally friendly consumer products and building construction.
- Improve infrastructure for better accessibility to wood and fibre resources and the efficient processing and distribution of wood and wood products.
- Develop wood procurement policies which encourage SFM in the producing country.
- Encourage research on sound and innovative use of wood.

Forest industry should:
- Continue to develop a sense of social responsibility ensuring the customers’ confidence in their purchases in terms of:
  - legality,
  - sustainability,
  - quality and fit for purpose.
- Form partnerships to promote the sound use of wood.
- Provide product information on the environmental and utility benefits of the sound use of wood and wood products.
- Encourage research to support the sound and innovative use of wood.
- Work with governments to improve the education and training for wood supply, processing and distribution chain.

Forestry industry should:
- Together with governments, retailers, and distributors take measures to raise the consumers’ awareness of the environmental and utility benefits of the sound use of wood.

Forest owners should:
- Be organised in associations (to share, *inter alia*, information, know-how, equipment and to coordinate their marketing).

Working Group II: How to stimulate sound use of wood?

(Chair - Mr. Gerard Buttoud, rapporteur - Mr. Johann Georg Dengg)

How to stimulate the sound use of wood?
- Wood promotion in Germany since 1990
- Government roles in wood promotion
- Policy for wood consumption in Romania
- Realizing market possibilities in Norway
- Project “capacity building” in Russia
- Promoting wood construction in the EU
- Wood promotion in New Zealand

Basic needs
- Secure raw material basis by SFM (e.g. important for promotion of environmental arguments) - *may be linked with certification.*
• Build up logistic and infrastructure (CEEC).
• Set up effective forestry structures and wood processing industry (CEEC).

**Specific preconditions**
• Partnership of stakeholders (e.g. coalitions with NGOs on certain wood products),
• Eliminate barriers to wood utilization,
• Innovative wood products,
• Knowledge of markets and consumer wishes,
• Consumer information, education and training,
• High quality standards of products.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Stakeholders</th>
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<tbody>
<tr>
<td>Include the topic in sustainable development strategies (e.g. national forest programmes)</td>
<td>Governments</td>
</tr>
<tr>
<td>Set up wood promotion organizations (e.g. market surveys, consumer information)</td>
<td>Industry (with government support)</td>
</tr>
<tr>
<td>Strengthen national and international cooperation in wood promotion work</td>
<td>Industry, NGOs, governments</td>
</tr>
<tr>
<td>Eliminate barriers to wood utilization (e.g. legislation)</td>
<td>Governments</td>
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<tr>
<td>Research &amp; Development to create innovative products</td>
<td>Governments, industry</td>
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<td>High quality products, design</td>
<td>Industry</td>
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<td>Standardization of products</td>
<td>Industry</td>
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<td>Consumer information</td>
<td>Industry</td>
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<tr>
<td>Education and training</td>
<td>Governments</td>
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<tr>
<td>Support by a coalition of NGOs on promoting certain wood products</td>
<td>NGOs, Industry</td>
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</table>

**Working Group III: New markets and consumption patterns**

(Chair - Mr. Sten Nilsson, rapporteurs - Mr. Anders Baudin and Mr. Jeremy Wall)

Based on discussions stimulated by a background note, the group decided the following points:

Desired end-point: greater, better and appropriate use of wood as a material and in economically and environmentally competitive quality products and systems. These should capitalize on wood’s heterogeneity and advantages, whilst recognizing its limitations, so as to influence and fulfil market needs.

**Framework conditions:**
The following describes the framework driving the recommendations below:

1. Wood and other forest products need to be derived from healthily functioning forest ecosystems which provide raw materials to the market and social benefits. Currently, the market does not internalise either the environmentally compatible properties of wood or the less compatible properties of competing materials and products based on non-renewable resources.
Accordingly, any difference between the residual (market) price of wood from the forest and the full costs of sustainable forest management (SFM) should be met by society in recognition of the non-market functions which forests fulfil and the non-market benefits they provide. In this context, particular account should be taken of the limitations and needs of remote rural areas.
2. However, wood being procured from SFM and having environmentally compatible properties does not guarantee its competitiveness in the market. To this end, adequate supplies of wood and other forest produce must be legally available to the market from sustainably managed forest resources, in as unrestricted a manner as possible, whilst respecting environmental and social conditions. In this context, improper practices (including e.g. so-called “illegal logging”, etc.), which undermine the legitimate market, should be addressed through other appropriate fora. Similarly, certification can be addressed elsewhere.

**Recommendations for action: within the market context:**

1. Through increased R&D and innovation with targeted objectives, the development of products, processes and systems (including biofuels) which meet well analysed market needs in a competitive way. The market needs identified should not only take into account social and life-style trends, but also technological, environmental, economic and political realities. In this context, the inter-actions of these issues and their resultant effects on the forestry sector should be analysed and accommodated.

To this end, in-depth analysis of end-use substitution between different wood-based products and between wood–based products and those based on other materials or in combination should be carried out as a priority, so that research, marketing and promotion activities can be better focused. Research should also be carried out on the perceptions and attitudes of consumers and other interest groups in order to identify the strengths and weaknesses of wood produce.

2. At the same time consciousness of the possibilities offered by wood as a material and cultural medium (“wood culture”) should be developed by both industry and government acting in concert with specific target groups:
- policy-makers,
- planners, architects, designers,
- specifiers,
- end-consumers,
- general public, etc.

3. A consistent policy framework should be developed in an inter-sectoral context to support the development and use of competitive wood-based products in such a way as to optimise their technical and price performance in the market as well as their environmental and cultural advantages.

4. Institutional arrangements are needed to link industries (not only forest-based) and government as well as appropriate representatives of academia, international organisations and NGOs, with a clear allocation of responsibilities, in order to produce policy and actions. Collaborative action is needed to build up both understanding and competence in the market and to innovate products and systems.

5. Identification and implementation of new financial mechanisms is needed to support the above actions. These could include diverse concepts (e.g. the German “Holzabsatzfonds” system).

6. Relevant professional education and vocational programmes need to be devised and implemented, taking account of national and regional differences as well as cultural traditions.

7. Promotional activities are needed to complement the above actions, being most efficient only once these other actions are in place.
Work Group IV: Strategies for the sound use of wood in central and eastern Europe

(Chair - Mr. Leonard Padureanu, rapporteur - Mr. Nico Leek)

1. Promotion of the sound use of wood

There is a need for promotion of wood products in the CEE countries. It should be focused on the use of wood in private and public conditions. The conditions have to be related to the standard of living.

The governments of CEE countries should have an initiative role by stimulating the use of wood in public buildings. Also, the governments must support the costs of the promotion campaign in order to stimulate the use of wood on domestic markets.

2. Certification of the forests and forest products

It is an important instrument for stimulating export from the CEE countries to West European markets. Before certification of small sized forest owners can take place, there is a need for good legislation and effective enforcement. The CEE countries that are candidates to the EU enlargement must be prepared for that by starting the certification process. The exporting wood working industry should stimulate the certification of their own sources.

3. Small sized private forest owners

There is a need for education in private and community forestry to introduce good practice. The CEE countries could learn from experiences in this field in Latvia.

A sustainable forest management for the small sized owners could be achieved by constructing associations.

The wood working industry could stimulate and improve management by asking management plans and other documents according to legislation when buying the wood.

4. Market development

For general development for forestry and wood working industry, CEE countries should concentrate on the domestic markets. Foreign investments will stimulate technological developments in the domestic industry.

Timber prices should be available from the UNECE.
Working Group V: Environment and Trade

(Chair - Ms. Margaret Rainey, rapporteur - Mr. Serguei Kouzmine)

1. General recommendations

To promote environmental awareness, including sustainable forestry, within the trade and towards the general public.

To use a multi-stakeholder approach in achieving sustainability. On the forest sector level, there is a need to mobilise wide support and create a common platform that includes major players such as forest owners, processing industry, traders, NGOs, end users and consumers.

2. Recommendations to the UNECE

That the UNECE Timber Committee and the FAO European Forestry Commission continue to organise fora to discuss policies and strategies for the sound use of wood and other forest products.

Potential subjects for future meetings:
- To analyse best practices in the promotion of wood.
- To examine the environmental aspects of the entire chain of wood product manufacturing including forestry techniques, production processes, transport, processing and sales.
- Step-wise approaches to adapting to sustainable forestry standards.
- The role and contribution of certification schemes to sustainability.
- Can sustainable forestry be assured without creating unnecessary obstacles to trade?
- Build consensus on key concepts within sustainability issues (sustainable forestry, sound wood, environmentally friendly products etc.).

3. Recommendations to Governments

To support companies with environmentally adapted policies and products, including within the forest sector, for example through public procurement policies.

To take responsibility and act strongly to achieve legal compliance in the forest sector and to assess tools which could be used for fighting against illegal logging and trade. One such means might be bilateral agreements between governments to jointly address illegal logging. The implementation of the Memorandum of Understanding between Indonesia and the United Kingdom could provide important experience in this area.

To take all factors including Life Cycle Inventory (LCI) into the evaluation of all available materials with a view to provide equal opportunities for renewable and environmental adapted materials like wood. There was concern about the fact that in the EU Ecolabel there is discrimination against wood (due to sustainability requirements for wood and not for materials that compete with wood).

To promote sustainable forestry in their general sustainable development policies.

To provide transition and developing countries with wood sector market information and links with policy issues relating to the sound use of wood.
To encourage the European Commission that it provide the necessary support to research on sound wood production and use, in particular in transition and developing countries.

4. Recommendations to the Ministerial Conference

That its future activities include:

- Examining legal compliance in forestry and trade (including issue of illegal logging);
- The sound use of wood;
- Sustainable trade with transition and developing countries;
- Promotion of environmental awareness and sustainable forestry principles in general, including transition and developing countries;
- Development of a strategy for data collection on a national level on sustainability issues within the forest sector;
- Build consensus on key concepts within sustainability issues (sustainable forestry, sound wood, environmentally friendly products etc.).

5. Recommendations to research institutions

To study sustainable forestry issues in developing and transition countries.

To share results of studies with wood traders and adapt results to particular clients (builders etc.).

6. Recommendations to NGOs

To continue discussions involving all stakeholder to build consensus on key concepts within sustainability issues (sustainable forestry, sound wood, environmentally friendly products etc.).

Inform the general public on sustainability, in particular through awareness campaigns in developing and transition countries.

To look into the matter of promoting and if necessary adapting sustainability requirements to the needs of small forest owners.
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INTRODUCTION SESSION: THE PLACE OF SOUND USE OF WOOD AND OTHER FOREST PRODUCTS IN STRATEGIES FOR SUSTAINABLE DEVELOPMENT
Linking sustainable forest management to timber sourcing decisions and policies

Paper by Mr David Bills, Director General, Forestry Commission of Great Britain, the United Kingdom

ABSTRACT

The use of wood in construction can have many environmental advantages but it is important the wood comes from legal harvesting operations in well-managed forests. Otherwise in solving one problem we may well be creating another.

If we are to promote all the advantages of wood to the end user then we must be able to provide evidence that the wood they purchase is from sustainably managed forests.

The paper outlines the emerging concern of the global community over sustainable forest management and illegal logging. The United Kingdom is a major importer of timber and other forest products and the UK Government recognises it has a responsibility to consider the impact this demand has on forest management and the forest products trade beyond the United Kingdom. However before it can act it has had to get its own house in order.

The paper discusses work done in the United Kingdom to provide a credible certification system and argues that certification systems for home grown and imported wood are going to play an important role in influencing consumer and specified choice in the UK, not only in terms of what wood is used but in encouraging the use of wood – an environmentally compatible material – in place of other materials.

La gestion durable des forêts et le choix de la provenance du bois

Document établi par M. David Bills, Directeur général de la Commission forestière de Grande-Bretagne, Royaume-Uni

RÉSUMÉ

L’emploi de bois dans la construction peut avoir de nombreux avantages pour l’environnement mais à condition que le bois provienne de forêts bien gérées et que les opérations de récolte s’effectuent légalement, faute de quoi en résolvant un problème on peut très bien aboutir à en créer un autre.

Si l’on veut démontrer à l’utilisateur final tous les avantages du bois, il faut être capable de prouver que le bois qu’il achète provient de forêts gérées de façon à en garantir la durabilité.

Dans le document on évoque la préoccupation relativement nouvelle de la communauté mondiale, qui souhaite un aménagement durable des forêts et s’inquiète de l’exploitation illoisible des forêts. Le Royaume-Uni est un grand importateur de bois et d’autres produits forestiers et le Gouvernement
Strategies for the sound use of wood, March 2003, Romania
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britannique reconnaît qu’il a le devoir de se préoccuper des incidences de la demande de bois sur la gestion

des forêts et le commerce des produits forestiers au-delà de ses frontières. Toutefois avant de pouvoir agir,
it faut que les choses soient en ordre dans le pays.

L’auteur du document expose le travail réalisé au Royaume-Uni pour mettre en place un bon système de
certification et fait valoir que les systèmes de certification applicables au bois provenant de forêts
nationales et au bois importé sont appelés à jouer un rôle important pour influencer les choix du
consommateur et des prescripteurs au Royaume-Uni, non seulement pour ce qui est du type de bois à
employer mais aussi pour encourager l’utilisation de bois – matériau compatible avec la protection de
l’environnement – à la place d’autres matériaux.

Установление связей между устойчивым управлением лесами
и решениями и политикой в области лесозаготовок

Документ, подготовленный Генеральным директором Комиссии по лесоводству Великобритании,
Соединенное Королевство, г-ном Давидом Биллсом

РЕЗЮМЕ

Использование древесины в строительстве имеет много экологических преимуществ, где самое
важное - это обеспечить, чтобы древесина поступала в результате законных лесозаготовительных
операций, осуществляемых в эффективно управляемых лесах. В противном случае, решая одну
проблему, мы можем создавать другую.

В целях содействия использованию всех преимуществ древесины конечным потребителем мы
dолжны обеспечить наглядные свидетельства того, что древесина, которую он покупает, поступает
из устойчиво управляемых лесов.

В документе отражена растущая озабоченность мирового сообщества по поводу устойчивого
управления лесами и незаконных лесозаготовок. Соединенное Королевство является крупным
импортером леса и других лесопродуктов, и правительство Соединенного Королевства признает
свою ответственность за учет воздействия спроса на процесс управления лесами и на качество
лесопродуктов, продаваемых за пределами Соединенного Королевства. Но, прежде чем
предпринимать какие-либо меры в этом направлении, оно должно навести порядок в собственном
dоме.

В документе описаны меры, которые принимаются в Соединенном Королевстве для создания
надежной системы сертификации, и указывается, что системы сертификации для отечественных и
импортных товаров из древесины должны играть важную роль в оказании воздействия на
потребителя и на спрос в целом в Соединенном Королевстве не только с точки зрения сортов
используемой древесины, но и в плане стимулирования использования древесины как экологически
приемлемого материала взамен других материалов.
1. **INTRODUCTION**

I am sure this meeting will cover many of the advantages of using wood; in construction as fibre or as fuel.

A rough and ready classification of these benefits could be:

- **Technical** - Engineering solutions, thermal efficiency, aesthetic design
- **Economic** - Speed of erection, flexibility, off-site assembly available skills
- **Environmental** - Renewability, embedded energy, carbon sequestration, recyclability
- **Social** - Aesthetically pleasing, design flexibility

To complete the picture there is a need to consider the potential consequences of sourcing the raw material and the costs of disposal that is a complete life cycle analysis. Many of these concepts will be dealt with elsewhere in the Conference. This paper focuses primarily on issues relating to sourcing wood. In doing so it makes the link with sustainable forest management.

2. **THE PROBLEM**

The fundamental question that needs to be asked is:

Has the timber come from a forest that is being managed sustainably? **To manage sustainably means far more than just replanting the trees that are harvested.** Other questions have to be considered:

- Is the logging consistent with the law of the land? (laws can either be willfully broken or, in some countries where there is insufficient capacity, not enforced);
- Is the site being managed in such a way as to conserve the long-term productivity, for example, soil and water conservation?
- Are important ecosystems and/or rare and endangered species being threatened?
- Have local communities been displaced or otherwise had their life disrupted?
- Has the labour employed been treated with dignity and given appropriate support in terms of payment, occupational health and safety?

To use timber without knowing the answers to these questions might create one problem while solving another.

The fact is today many of the world’s forest ecosystems are under threat.

In December 2001 the Secretary General of the United Nations Conference on Environment and Development produced a review of progress achieved in implementing the UN Conference on Environment and Development (commonly called the Rio Earth Summit). The forest section of the report is particularly bleak. In summary, the text states that forests are of great importance to people worldwide – socially, economically and environmentally - but little progress has been made in tackling the high rate of deforestation in developing countries and although in some regions, notably
Europe, forest biomass and area has increased, there is a net loss of area and biomass on a global scale. Moreover, much of what is being lost involves primary or mature natural forests, often providing unique habitats for rare and endangered species of flora and fauna. At Johannesburg it was reported tropical forests are being lost at the rate of 35 million acres per year. That is 1.7 times the area of Scotland or about 75% of the UK.

I should make it clear that it is not just the timber trade which is causing forest loss and degradation—activities associated with land clearing for cash crops, subsistence agriculture and intensive fuel wood gathering contribute to a greater share of the problem than does logging for timber without sustainable forest management.

But the timber trade, which has become increasingly globalised, is very much on the agenda with perhaps most interest being directed at the illegal timber trade. This has been a topic all governments have been able to buy into as it robs them of revenues which often fund other illegal activities. It has been estimated that 15% of the global trade in timber and timber products is illegal. But then there are also logging operations which, although sanctioned by the relevant authority, are clearly unsustainable and often within important and diminishing forest ecosystems.

3. **Third Party Independent Certification**

To counter this there has also been a rise in the interest and practice of forest and timber certification. This has been particularly true of the UK which, along with the USA and Japan, make up the top three importing countries.

Certification is one way of providing assurance to the consumer of the finished product that their purchasing decision is not supporting illegal and unsustainable forestry practices. There are a number of certification systems in operation and unfortunately there is danger of confusion as the schemes compete for the attention of the trade. I do not want to get into the debate over the relative merits of the schemes other than to say there are a number of good ones, none of which are perfect, but the Forestry Stewardship Council scheme which enjoys the most support from environmental organisations has the greatest universal recognition and is the scheme of choice for most in the UK trade.

Forest certification involves a detailed audit at the forest management unit level to answer those broad questions I posed at the beginning of this presentation. To be effective in giving assurance of sustainable forest management a certification system must have three elements:

1. A forest management standard based on the fundamental principles of sustainable forest management against which the actual forest management system being applied to a specific forest can be audited. An sustainable forest management standard goes beyond a standard which involves the maintenance of the productivity of the forest. A standard will require compliance with the law of the land, a respect for cultural heritage and the rights of contemporary indigenous people. It will require the maintenance of existing access arrangements and that those who are employed in forest
activities are treated fairly and with dignity. But this only certifies the log to the forest edge or perhaps to the mill. There is also a need to audit the chain of custody.

2. An auditable chain of custody that ensures products from sustainable forests are indeed those which the consumer purchases so the supply chain must also be certified. This is more complex than might be assumed. Once the log is harvested there needs to be a system in place which ensures that when it reaches a sawmill it is not ‘lost’ amongst non-certified wood and when the finished piece of wood, which has been seasoned and shaped, leaves the mill it is not lost within other supplies of, for example, a furniture maker who might be buying wood from dozens of suppliers and when that manufacturer’s product arrives at the wholesaler then the retailer etc, etc.

3. The third element is the existence of a credible independent authority, who accredits the certifiers or assessors and who owns a label that is well recognised, promoted and trusted. This has been the strength of the FSC against the various industry certification schemes which, although I know many to be of greater quality, simply don’t have the credibility of the FSC scheme which is actively supported by the Worldwide Fund for Nature and others.

Of course, certification is not the answer to all our problems. There is much wood imported into the UK from well-managed forests that is not certified. There is a lack of capacity within the certification system to arrive quickly at a position where wood from well-managed forests is certified. Furthermore, wood from some developing countries is coming from quite well-managed forests but the institutions, the systems, the documentation and the chain of custody are not in a form or not well enough developed to be certified. This poses a dilemma. Not to use this wood would penalise a developing country and to use a non-wood substitute could penalise the environment. Loss of markets for wood from well-managed but uncertified forests would result in the forest “losing the value” and not being cared for. It might result in deforestation to grow cash crops.

4. The Growing Demand for Certification

Questions often asked are - who is it that wants the assurance that the wood is from a sustainably managed forest? Is there really a market for it? It is true that at the far end of the consumer chain whereas there is evidence of preference for garden furniture or perhaps a wooden spoon to have a respected label demonstrated by a significant minority of consumers, when it comes to timber or panel purchase for “Do it Yourself” purposes they inevitably buy on price and convenience. However, there are many distributors and retailers who are using their muscle in the UK as part of the Kingfisher plc group, and demonstrating preference for eco-labelling. The best-known example is B&Q who apply a philosophy of corporate civic responsibility to all their purchasing. They do so, they say, because their shareholders, employees and customers want it that way. In the UK it is estimated that the 95-Plus Buyers’ Group, which has a preference for FSC labeled timber, account for as much as 30% of the UK timber and forest product trade.

Moving further down the value chain we can anticipate more and more of the specifiers (local authorities, architects and engineers) taking more interest in the provenance of their timber purchases. This interest will be generated from a number of sources. Professional associations demonstrating
civic responsibility, Government guidelines for eco-friendly purchasing and the Government requirement for Government funded purchasers will all have their effect. We can also reasonably anticipate that a better-educated and increasingly wealthy community continually exposed by the media to problems of climate change, forest degradation and species loss will take an increasing interest in doing their bit as consumers. As you know, skilful advertising will promote these issues and demonstrate how peoples’ consumption decisions can be improved to minimise impact on the environment. Indeed this has been very much the thrust of the UK wood for good media campaigns targeted at opinion leaders and consumers. Their advertisements have produced well-researched and attributed information on carbon sequestration, life cycle and embedded energy issues and sustainable forest management issues.

You will notice throughout this presentation I have been talking of wood from unsustainable sources and wood from illegal operations. I don’t mean to use these terms interchangeably; there is a difference. Logging from unsustainable sources may well be sanctioned by the Government of the country involved and it can be many years before some countries which are dependent upon income from timber can achieve a level of sustainable practice and documented process which will satisfy certification requirements. This needs to be dealt with sensitively within the world community and it is important that importing countries have their own house in order and are prepared to provide appropriate incentives and assistance to the exporting country who may not have the capacity to achieve or prove their credentials relating to sustainable forest management. Illegal logging – while by definition not sustainable is far more serious – it damages more than the environment. It lines the pockets of criminals at the expense of honest workers, traders and communities. It is often associated with other destructive activities – it is in the immediate interests of all Government to tackle illegal logging.

5. THE UK GOVERNMENT POSITION

The UK Government recognises that it has an important role to play in combating illegal logging and promoting sustainable forest management both at home and abroad. It is in an influential position through its trade and historical links with countries where illegal logging is a problem and through its membership of the European Union and the G8.

According to the UNECE/FAO Trade statistics for 2000 the UK is the fourth largest net importer of forest products (by value) in the world. The public sector, including both central and local Government, consumes approximately 20% of those imports.

In July 2000 the Government made a unilateral declaration that for Government procurement it would actively seek to purchase timber and timber products from legal and sustainable sources. After a slow start we have taken steps to speed up implementation of the policy. In the coming months we will let the final part of a consultancy to prepare detailed criteria for assessing forest certification schemes and other forms of credible evidence, and for an advisory body to carry out these assessments.
We will make clear to suppliers of timber products that we will prefer products that are independently verified as coming from legally logged and sustainably managed sources. Where necessary we will still accept timber products that are legally logged and those that come from forests where credible steps are being taken to achieve sustainability, but we intend to phase these out so that all our purchases meet our criteria.

We recognise, however, that multilateral action is best and that, while a lead in Government procurement is important, much more needs to be done about timber trade in general. Working with partners in the EU and G8 we are seeking to help address the failures in governance and policy, and market failures that cause and sustain illegal logging. This means:

- improving the understanding of the causes and solutions to illegal logging and associated trade;
- communicating this understanding effectively to maintain political will, build a momentum for change and widen the base of support for action;
- promoting a coherent UK, EU and G8 policy and regulatory framework;
- helping to develop tools and systems to tackle illegal logging and associated trade, and;
- supporting regional policy processes that lay the foundations for delivering reforms.

Although these developments focus initially on the significant challenge of illegal logging, we see them as a first step towards achieving sustainability. In the next few months we expect the European Commission to present a proposal for EU action to combat illegal logging.

Also, on the local front, the British Timber Trade Federation has worked with the Government to promulgate a code of conduct to apply to its membership and has negotiated an agreement with Indonesian exporters supported by their Government, which should go some way towards controlling illegal logging. We expect to see more of these agreements emerge as importers respond to the requirements of their customers.

6. **The UK Forestry Partnership for Action**

All of these activities and others are being carried forward in a partnership. The UK Forestry Partnership for Action, made up of WWF, RSPB, Woodland Trust, the UK forest growers and the processing industry, the Timber Trade Federation, the retailers Kingfisher plc and the UK Government. The partnership was announced at the WSSD Summit in Johannesburg this year. The message was that the UK has got its house in order with its domestic forestry industry and is taking the lead to control trade in products from illegal operations. Certification was promoted as important in linking the consumer to environmentally sound purchasing decisions. The UK partnership will continue to promote this message.

The UK Forestry Partnership for Action is also developing an international partnership on forest restoration, building on the UK’s experience of nearly 100 years of restoring forests. The global initiative aims to integrate biological diversity conservation and sustainable use, contributing to the
implementation of the work programmes of the UN Forum on Forests, the Convention on Biological Diversity, and other international programmes.

7. CONCLUSION

So to summarise: you have heard today that wood – a traditional material - can be used in modern ways as a high performance construction material. Wood is an environmentally compatible material with a positive role in carbon storage and with low embedded energy. Building systems using wood frame are thermally efficient. Moreover, wood is generally recyclable, non-toxic and biodegradable. I know of no other building material that can compete with all these benefits.

And if it comes from a forest managed sustainably then it will be part of a sustainable system providing wood and a range of other benefits increasingly valued by the consumer. One way of ensuring the wood is from sustainable forests is to seek wood which has been certified under a respected certification scheme. But not all wood from well managed forests is or will be certified and there probably will always be a need for purchasers and specifiers to have an intelligent and well-informed approach to their choice of timber. It would be a pity if uncertainty of the source or origin of wood influenced specifiers to favour non-wood substitutes which themselves pose environmental problems.

Wood might be considered an old-fashioned, traditional construction material but it is a material which will, I believe, come of age in this next decade as it is increasingly recognised as an environmentally compatible material with a great potential to solve many of the problems of the world – but always, with the important caveat, that it must come from well managed forests.

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**ABSTRACT**

Goods and services derived from forests contribute in various forms to the local socio-economic development: for example, through the provision of subsistence to rural communities living in or around the forests; through the generating of employment and income in rural and urban areas; and through direct contributions to the GDP of industrialized wood, wood fuels and non-wood forest products’ production and trade.

This paper analyses the role, opportunities and challenges of wood and non-wood forest products’ utilization in sustainable development. It addresses the contribution of wood and non-wood forest products towards poverty alleviation, trends in wood utilization and trade, as well as possible socio-economic and environmental impacts of wood products’ substitution. A brief overview of recent wood products industry trends that affect sustainable development is provided, with examples of the increasing number of forest enterprises worldwide that are taking steps towards environmentally friendly forest harvesting practices (such as reduced impact logging) and efficient processing technologies.

The document also highlights some key aspects related to the role of forest products’ utilization and climate change: as potential sinks of one of the major greenhouse gases; as substitutes for energy intensive materials; and as substitutes for fossil fuels.

Finally, this presentation points out steps taken by the international community to better incorporate the sustainable use of forest resources into national and international development objectives.

**Key words:** forest products, wood and non-wood forest products, wood fuels, sustainable development
Utilisation des produits forestiers et développement durable


RÉSUMÉ

Les biens et services provenant de la forêt contribuent de diverses façons au développement socioéconomique local. Ainsi, ils offrent un moyen de subsistance aux communautés rurales vivant près des forêts ou dans les forêts et génèrent des emplois et des revenus dans les zones rurales et urbaines, et la production et le commerce du bois transformé, des combustibles bois et des produits forestiers autres que le bois contribuent directement au PIB.

Les auteurs du document analysent le rôle, les perspectives et les enjeux de l’utilisation des produits forestiers (bois et autres) dans le contexte du développement durable. Ils examinent la contribution de ces produits à la lutte contre la pauvreté, l’évolution récente de l’utilisation et du commerce du bois et les éventuelles incidences socioéconomiques et environnementales de la substitution des produits du bois. Ils donnent un bref aperçu des tendances récentes de l’industrie du bois qui ont des conséquences pour le développement durable et fournissent des exemples du nombre croissant d’entreprises forestières qui, dans le monde entier, prennent des mesures pour favoriser l’adoption de pratiques d’abattage respectueuses de l’environnement (comme l’exploitation à faible impact) et de techniques de transformation efficaces.

Le document met également en lumière certains aspects essentiels du rôle de l’utilisation des produits forestiers dans le contexte des changements climatiques, comme puits potentiels d’un des principaux gaz à effet de serre, comme substituts des matériaux à forte intensité d’énergie et comme substituts des combustibles fossiles.

Enfin, les auteurs exposent les mesures prises par la communauté internationale pour mieux intégrer l’utilisation durable des ressources forestières dans les objectifs nationaux et internationaux de développement.

Mots clés: produits forestiers, bois et produits forestiers autres que le bois, combustibles bois, développement durable.
Использование лесных товаров и устойчивое развитие

Документ, подготовленный директором Отдела лесных товаров г-ном Вульфом Киллманном и начальником отдела по вопросам использования изделий из древесины и изделий из других материалов лесного департамента Продовольственной и сельскохозяйственной организации Объединенных Наций г-ном Олманом Серрано

Резюме

Товары и услуги, полученные от использования лесов, в той или иной форме содействуют социально-экономическому развитию на местах, например путем обеспечения средств к существованию сельским общинам, живущим в лесах или вблизи лесов; путем создания рабочих мест и возможностей для получения доходов в сельских местностях и городах; и путем внесения непосредственного вклада в ВВП в виде промышленной древесины, древесного топлива, производства других лесных продуктов помимо древесины и в виде торговли.

Настоящий документ содержит анализ роли, возможностей и проблем использования древесины и недревесных лесных продуктов в процессе устойчивого развития. В нем рассматриваются характер вклада продуктов из древесины и других продуктов леса в работу по ликвидации нищеты, тенденции в области использования древесины и торговли, а также возможные социально-экономические и экологические последствия замены других изделий древесиной. В документе дается краткое описание последних тенденций в отрасли производства изделий из древесины, которые затрагивают устойчивое развитие, и приводятся примеры постоянно возрастающего числа лесных предприятий, которые реализуют меры по внедрению экологически благоприятных методов лесозаготовок (таких, как меры по снижению отрицательного воздействия лесозаготовок) и эффективных технологий деревообработки.

В документе также рассматриваются некоторые ключевые аспекты, касающиеся роли использования продуктов леса в изменении климата как потенциальных поглотителей одного из наиболее весомых парниковых газов; как заменителей энергоемких материалов и как заменителей ископаемого топлива.

И наконец, в документе приводятся меры, предпринятые международным сообществом для более эффективного введения программ устойчивого использования лесных ресурсов в национальные и международные планы развития.

Ключевые слова: лесные продукты, изделия из древесины, недревесные лесные продукты, древесное топливо, устойчивое развитие.
1 INTRODUCTION

Forests and forest products are often prominent topics in the international agenda dealing with sustainable development. Loss of forest cover and forest degradation, forest products trade, contribution of forestry to GDP and employment, the role of forests and wood products for the mitigation of climate change, the environmental consequences of the substitution of conventional products for wood products, or the relation of forests, forest products and poverty alleviation are some of the specific topics, in which the interconnection of forest products and sustainable development is very relevant. This paper attempts to analyse some of the mentioned interconnections between forest products utilization and sustainable development, as a contribution to the formulation of strategies for the sound use of wood.

2 ROLE OF FORESTS AND FOREST PRODUCTS WITHIN THE DISCUSSION ON SUSTAINABLE DEVELOPMENT

Wood is the most important biogenic renewable material utilised by mankind with forests covering about 30 % of the earth land surface\(^{[1]}\). The role of forests in many natural global processes (carbon cycle, water cycle, etc.), is the most important contribution of forests to global biodiversity and to human socio-economy. When analysing and discussing strategies for the sound use of wood and its contribution to sustainable development, the following aspects related to wood as raw material should be considered:

Forest and trees:

- are the largest contributors to biodiversity;
- play an important role in the global carbon cycle (they can contribute to, but also mitigate greenhouse gas emissions and thus climate change)
- protect watersheds and soils;
- provide wood as the most important renewable material used by mankind;
- provide fuelwood as the most important renewable energy source, particularly in the less developed regions of the world;
- contribute to livelihoods of indigenous people;
- provide a variety of other non-wood forest products, from (complementary) vegetal food and animals, medical plants, fodder for animals, fibres, tools to other items of daily life (e.g. [1]);
- are sources of income for social groups affected by poverty, either through direct trade of forest products (wood and non-wood) or through employment opportunities in forest companies;
- can constitute an alternative income or capital for farmers;
- represent an important landscape element;
- can have recreational functions;
- can have spiritual functions;
- could be a way of land-use competing with other activities, e.g. agriculture;
- are affected by industrial exploitation (species composition, age, structure, etc.).

3  **Forestry contribution to GDP**

The trends of the forestry sector contribution to GDP is not only an indication of the relative economic importance of the sector in national economies or international trade, but it can also provide information about the development patterns of the primary and value added industry activities. Globally, forestry contribution is estimated to be a range between 1 and 4 percent, considering primarily wood and wood products and depending on the applied methodologies. Comparing trends of the last 20 years using the same methodology, preliminary results indicate that forestry share of GDP has decreased from 2 to 1,3 percent. This, in spite of the increased value in absolute terms of forest products production. One of the reasons is the general decline of forest products export unit prices, in particular for solid wood products. On the other hand, this trend shows that the forestry sector has developed at a slower pace than other competitive sectors, partly substituting forest products.

Knowledge about the contribution and trends of GDP to forestry can assist planners and policy makers in their efforts to shape their country development strategies and plans of action. Despite the importance of GDP as an economic and development indicator, there are serious limitations in many countries and at international level, to estimate the forestry contribution. Some of these limitations relate to the lack of reliable statistics and other information. For example, lack of:

- reliable price statistics;
- processing conversion factors;
- reliable statistics on value-added products;
- data base on major non-wood forest products (rattan, bamboo, medicinal plants)
- reliable statistics on fuelwood production, consumption and trade

Therefore, additional efforts are required at national and international level to improve the methodologies, collection, analysis and reporting on data needed to determine the forestry contribution to GDP.

Other aspects related to the role of forest products and sustainable development should be analysed in relation to the biophysical and socio-economic context. The contribution of forestry can differ and be manifold. The following considerations should will highlight particular aspects of forest products and sustainable development:

- Forests, trees and poverty alleviation;
• Environmental comparison of wood products with their substitutes;
• Wood products and climate change.

The analysis of these aspects should provide additional elements to recognize the role forest products can or should play in making progress towards sustainable development.

4  **FOREST RESOURCES AND POVERTY ALLEVIATION**

Around the globe [2]:
• 60 million indigenous people living in the rainforests of Latin America, Southeast Asia and West Africa depend heavily on forests;
• 350 million people living in, or next to, dense forests rely on them for subsistence or income;
• 1.2 billion people in developing countries use trees on farms to generate food and cash.

As the world population grows, some people, urban or rural, remain isolated from the global economy. While trade, technology and information systems become more global, the world’s natural forest area is declining - despite and because of the above-mentioned facts. Further, global climate changes are expected to have drastic impacts on forests and agricultural systems, affecting in particular the most vulnerable communities. This will have major implications for strategies aimed at achieving sustainable development in general, and poverty alleviation in particular.

On one hand, the world’s rapid pace of change means increased challenges for the poor, but on the other hand, it can also provide new opportunities for improved livelihoods based on sustainable use of natural resources. If specific actions are taken, other than the traditional forest products producers, traders and workers can participate in local initiatives that offer employment and income.

At the conclusion of the World Food Summit (WFS) held in Rome in November 1996, the international community committed itself to eradicate hunger in all countries with the target of reducing by half the number of undernourished people by no later than the year 2015. The fundamental importance of national production and distribution of food, sustainable agriculture and rural development, fisheries and forestry, in achieving food security was reaffirmed at the “WFS five years later” and at the World Summit on Sustainable Development in Johannesburg in September 2002.

Forests and forest products “can better contribute” to achieve this goal in various ways. Products and services deriving from forest resources can contribute to poverty alleviation, generating employment and providing income opportunities, also for the poor; and thus they should play a more visible role to development objectives of policy makers.
What people can obtain from forests and trees to improve their livelihoods:

**Subsistence goods** such as fuelwood, medicines, wood for building, rope, bushmeat, fodder, mushrooms, honey, edible leaves, roots, fruits;

**Cash income** through the sale of the above goods, arts and crafts, timber and other wood products;

**Indirect benefits** such as land for other uses, social and spiritual sites, savings, environmental services, including watershed and soil protection, and biodiversity conservation.

Forests resources can thus directly contribute to improved livelihoods and can complement other sectors to progress towards poverty reduction such as food production, education and primary health care. The challenge is to support specific changes that will lead to a greater role for forest resources and forest products in the livelihoods of the poor.

A policy framework is required, which unleashes the poverty alleviation potential of forestry and forest products. It should facilitate poor people to gain access to and manage forest resources according to their needs: people-centred forestry puts people at the centre of development [3-6], and gives them the rights and means to manage forests and tree resources. FAO, in collaboration with DFID and other partners has detected 4 areas of action for a people-centred approach to sustainable forest management [7]:

1. **Strengthening rights, capabilities and governance:**
   - support the poor’ own decision-making power by fostering participatory forest initiatives that provide capacity building, strengthening of group organisations and local institutions;
   - strengthen forest rights of the poor and the means to claim them, such as clear tenures rights, joint forest management agreements, long-term concessions, household forest allocations, etc.;
   - recognise links between forestry and local governance such as representation, transparency, accountability, equitable taxation and increase civil society roles.

2. **Reducing vulnerability**
   - Make safe nets not poverty traps, as forests constitute vital buffers absorbing agricultural risk and reducing vulnerability;
   - Support tree planting outside forests to satisfy subsistence needs to generate additional income;
   - Cut the regulatory burden on the poor and make regulations affordable;
   - Reduce unfair obligations in forest management, especially for small-scale forest managers.
3. Capture emerging opportunities

- Remove the barriers to market entry of small-scale producers of timber and non-timber products, e.g. costly controls when harvesting, transporting and selling such products (in contrast to subsidies to large-scale producers);
- Base land-use decisions on true value of forests; this includes to take into account the opportunity costs of renewing forest resources, or the role of rural people in producing and providing forest goods and services;
- Ensure that markets for environmental services, such as carbon storing, watershed protection, or biodiversity conservation, benefit the poor;
- Support associations and financing for local forest businesses to improve the capacity of local forest businesses to access markets and match supply to demand.

4. Working in partnership

- Simplify policies and support participatory processes, cutting the trends of increased forestry laws and regulations as well as over-structured and under-resourced forest departments to implement them;
- Promote multisectoral learning and action to poverty reduction;
- Enhance interagency collaboration to co-ordinate national development programs and strategies;
- Make NGOs and the private sector partners in poverty reduction.

For poverty alleviation, the focus can not only lie on forestry and forest products, given the increasing population and decreasing forest surface. Improved agricultural production and processing practices can be further vital factors for the conservation and sustainable management of forests as sources of wealth and welfare of the poor.

5. Environmental comparison of wood products with their substitutes

In Europe and Northern America, environmental concerns have more and more entered the public discussion and thus also the marketing strategies of many producers. Since the late 80s, industrial sector exposed to public environmental concerns, such as the cement, aluminium or plastics industries, have systematically assessed and communicated the environmental relevance (and advantages) of their products. The forest and wood based industries were much more reluctant in accepting quantitative analyses of their energy an mass flows, because of the common judgement that wood is such an inherently environmentally sound material that no quantitative analysis is needed to influence consumers’ perceptions. This opinion—although correct if the sustainably managed resource is considered—neglected the fact that most modern wood products are combinations of different materials. Adhesives, paints, impregnation agents, connectors, fasteners,
plastic overlays and other types of secondary products are used to produce the high-quality and reliable wood-based products demanded by the market.

To get a clearer view on isolated negative impacts of some wood-based products, such as VOC emissions of paints, formaldehyde emissions from adhesives, toxic emissions of preservatives, many initiatives have been undertaken—mainly in Europe and Northern America—to assess the environmental relevance of wood products compared to conventional products (e.g. [8-19]).

These comparisons are based on a methodology called life cycle assessment (LCA). In LCA, the material and energy flows related to the production, use, and disposal/recycling of a product “from cradle to grave” are inventoried and assessed based on their environmental relevance.

Up to now, wood-related studies cover comparisons of windows, railway sleepers, floorings, electricity poles, doorframes, paper, constructive elements in landscape architecture, roof and wall constructions, insulation materials, etc.

The results of these studies can be summarised as follows:

- Wood products tend to have environmentally favourable profiles, compared to functionally equivalent products of competing materials;
- Fossil fuel consumption, the potential contributions to climate change and quantities of solid waste are lower for wood products in many cases;
- Impregnated wood products tend to be seen more critically in relation to toxicity issues than their substituting products;
- Incineration of wood products can lead to higher acidification and/or nutrification effects than conventional products, although thermal energy can be recovered;
- While composite products made e.g. out of fibreboard or particleboards make use of a greater portion of round log raw materials than solid wood products, the embodied energy associated with production of wood-based composites is generally quite high. The energy generation for the production of these products can be significant from an environmental point of view.

Industries based on non-renewable raw materials have become increasingly aggressive in recent decades with respect to challenging traditional wood markets, not only with environmental arguments. This tendency is likely to continue, and self-righteousness of the wood industry related to the environmental relevance of their products would be misconceiving actual market challenges.

6 Carbon sink and substitution effects of wood products

In the context of the United Nations Framework Convention on Climate Change (UNFCCC; 1992) and the corresponding Kyoto-Protocol (1997), forests, timber and wood products have appeared in a novel perspective.
The forest sector can contribute towards stabilizing greenhouse gas (GHG) in the atmosphere and thus help mitigating climate change in three ways:

- Reducing or avoiding greenhouse gas emissions;
- Sequester carbon;
- Substitute carbon.

Table 1 shows a sample of potential mitigation activities in land use, land-use change and forestry (LULUCF); not all of them have been accepted under the Marrakech Accords.

<table>
<thead>
<tr>
<th>Project type</th>
<th>Activities</th>
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<tbody>
<tr>
<td>emission avoidance</td>
<td>Forest conservation, reduction of deforestation</td>
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<td></td>
<td>Lengthening rotations and reducing annual cuts</td>
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<td></td>
<td>More natural, uneven-aged, selective forest management</td>
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<td>carbon sequestration</td>
<td>Revegetation</td>
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<td></td>
<td>Afforestation and reforestation</td>
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<td></td>
<td>Agro-forestry</td>
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<td></td>
<td>Conservation agriculture, soil management</td>
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<td></td>
<td>Enhance carbon stores in wood products (mainly in long-lived products)</td>
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<td>Improved cropland and grazing land management</td>
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<td>carbon substitution</td>
<td>Fuel switch to C-neutral, renewable bio-energy</td>
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<td></td>
<td>Switch to wood energy from sustainable sources</td>
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<tr>
<td></td>
<td>Increased use of wood substitutes</td>
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Table 1: Project types and activities for the LULUCF sector ([27, ])

As an instrument aimed primarily at reducing emissions of GHG in an efficient way, the Kyoto Protocol defined three flexible mechanisms; one of them, the Clean Development Mechanism (CDM), includes sustainable development in its dual objectives. Through the CDM, industrialized countries can fulfil a certain percentage of their commitments through carbon offset projects, which also promote sustainable development in the “host countries”. In the Marrakech Accords (2001), only afforestation and reforestation have been accepted as eligible activities in LULUCF under the CDM. Currently, definitions and modalities for these activities are being discussed. Decisions will be taken at COP 9 in Milan, Italy, at the end of 2003.
That forests can remove carbon from the atmosphere and that bio-fuels, e.g. wood-fuels from sustainable forest management can substitute fossil fuels is recognised, even though methodological and technical questions remain. That a larger pool of wood products also helps to mitigate climate change is less well known. However, wood products, particularly those with a long life cycle, or those with a high turnover rate and widespread use, may play multiple roles.

**Wood products as carbon sinks:** Carbon will remain stored in wood products for their life span.

**Substitution of non-wood products:** stimulating use of wood products, e.g. through fiscal policies, may substitute high-energy non-wood products, e.g. cement, glass, steel, aluminium. Wood products tend to require considerably less energy than comparable non-wood products; therefore, less carbon is emitted for a certain application.

**Substitution of fossil fuels via wood and bio-energy from scrap lumber after its service life:** waste wood can substitute fossil fuels, if harmful by-products of combustion are avoided.

**Fossil fuel use during the life cycle of wood products:** Wood products require some energy during production, distribution, maintenance and disposal, e.g. fertilizers, chain saws and skidders, gas, lubricants, glues and coatings. Thus, some greenhouse gases are emitted during production.

Ample research on the role of wood and wood products in mitigating climate change is available([20-27]). A recent study for the construction sector shows, that the sink capacity of lumber is of relatively subordinate importance, given the balance between forest products and carbon stored in the forest and CO₂-emissions over the life cycle of lumber ([21]). Furthermore, the sink in wood products from a fixed area of sustainably managed forests can only be increased up to an equilibrium state which is reached, when the decay of wood products just counteracts new additions to the carbon pool. Much more important in the long-term are continuing carbon savings related to the substitution of high-energy materials, and - most important - the effective and efficient recovery of thermal energy from scrap wood after its useful life.

### 7 Strategies for a sustainable use of wood

Wood is an important raw material globally and will almost certainly be of vital importance in the sustainability equation. Current substitution trends of wood products, the steadily increasing standing volume in temperate and boreal forests, the declining forest areas, in particular in tropical countries, as well as the close relation of rural livelihoods with forests, mainly in the tropics and subtropics, are increasing challenges for the forestry and in particular the wood products sector. The following strategies might help to enable and consolidate the role of forestry and wood products on our way to sustainable living patterns.
7.1 Sustainable forest management

With regard to sustainable forest management practices:

• Provide an equitable long-term access, use and tenure rights for people living in and around forest resources;
• Continue efforts to increase national capacities in the development and implementation of forest management plans;
• Strengthen technology transfer in forestry related activities, such as harvesting, processing, trade and marketing of forest products;
• Develop, use and promote the commercialisation of a variety of wood and non-wood products, including other environmental and social services of forests;
• Develop and promote agroforestry systems

7.2 Sustainable use of non-wood forest products

With regard to the role of non-wood forest products:

• Finalize and test the development of methodologies for the NWFP resources assessment;
• Continue progress in the harmonization and/or elaboration of terms and definitions of NWFP;
• Promote and investigate the production and use of non-wood forest products and their equitable redistribution of benefits;
• Improve statistical information on the production, consumption and trade of NWFP

7.3 Wood and wood-based products

With regard to wood and wood-based products:

• Continue development of wood and wood-base products that are technically sound, functional, cost-effective and with low maintenance requirements (“competitive products”);
• Reduce embodied energy and overall life cycle negative environmental impacts of wood-based products;
• Improve service life (or use span) as aesthetic, functional products with low maintenance needs and easy reparability;
• Improve disassemblability of wood-based products, aiming at maintaining the incineration potential and better substitute fossil fuels;
• Improve recycling technology and systems for reusing materials (under consideration of wood availability and market forces);
• Develop production processes suitable for processing increased proportions of juvenile wood in fast grown species and in small diameter logs;
• Develop technologies for using agriculturally derived fibre alone and in combination with wood to form structural and non-structural composite materials;
• Strengthen ongoing research and associated technology transfer to ensure continuous improvement in wood production, conversion efficiency, product performance, and environmental efficacy;
• Investigate structural and biophysical properties of lesser used species (and especially lesser used tropical species);
• Characterize wood and other bio-based materials to determine fibre qualities and chemical nature;
• Provide easily understandable technical information for architects and other decision-makers to prevent sub-optimal utilization of wood.

7.4 Institutional framework

The following points should be considered when redefining the institutional framework of forestry and forest products, including research needs:
• Reinforce and build capacities of the forest administration at national level;
• Provide support for the development and implementation of national forest programmes;
• Promote the application of a people-centred approach on forest management;
• Provide financial access to small-scale entrepreneurs for the development of market niches for wood and non-wood forest products in rural areas;
• Foster cross-sectoral approach to achieve development objectives’;
• Continue the development of instruments to better recognize the economic value related to the conservation of natural forests, under consideration of environmental and social services;
• Promote the implementation of the instruments provided under the Kyoto Protocol, in particular the Clean Development Mechanism;
• Improve the recognition of watershed and soil protection aspects of forest and trees, in particular in mountainous regions;
• Sustain education efforts to increase the public understanding of forestry and its role in contributing to sustainable development;
• Improve the investigation of socio-economic and environmental relevance of wood products compared to non-wood products in tropical and subtropical countries;

REFERENCES


[1] without regions under permanent iceshields

[2] GDP including forestry and forest products industry (i.e. sawnwood, panels, pulp and paper mills), without the inclusion of non-wood forest products or fuelwood
Sustainability through competitiveness

Paper by Mr. Jeremy Wall,
Principal Administrator, Unit – Forest Based Industries, DG Enterprise, European Commission
What the international dialogue on forests has changed in the role of production in promoting sustainable forest management (SFM)

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Abstract

Since the last 15 years, the international dialogue on forests has changed the perception of the role of production in forestry development.

In the previous and conventional approach, production was clearly opposed to protection, with contradictory objectives and related means. A first logic, promoted by radical environmentalists, was explaining that protection should not take into consideration any change in the ecological structure, as production can bring. Another strategy, carried by the foresters, was trying to compromise as much as possible production and protection. But in both cases, the two concepts were conceived as antagonistic. The Bruntland report in 87 has introduced a major change in stating that the two concepts are basically complementary: sustainable development may only be the result of both ecological, economic and social considerations. In this new conceptual frame, economic sustainability is considered as such, and production has become a positive part of SFM. Specific criteria and indicators, relating to the economic field and linked to production, are promoted in the certification schemes in order to promote sustainability. Ecosystem management has progressively gained some positions in this regard.

As for the theory, one controversial issue remains the mechanisms for production to build multifunctionality, which is usually viewed as a condition for sustainability. On this matter, two conceptual positions are still confronted:

a) A first one where the marketable value (usually assimilated to wood production) is one part of the “full value” of the forest, which may be not the essential, but it is the only part which may be objectively assessed;

b) A second one, where the “wake effect” of the marketable (especially the wood) production on the procurement of other utilities is determinant.

To these two theoretical patterns, correspond different possible policies for promoting a sound use of wood, depending on the local situations. But one of the main limitations to such strategies is the general keeping of positions which are still opposing conservation and production, even among the producers.

A new concept of production promoting SFM is still to be built-up in order to help policy decision makers.

Key words: forest policy, forest economics, wood production, wake effect, multifunctionality, sustainable management.
RESUME

Au cours des 15 dernières années, le débat international sur les forêts a changé le rôle joué par la production de bois dans le développement forestier. Jusqu'alors, dans l'approche conventionnelle, production et protection étaient des concepts clairement opposés, auxquels correspondaient des objectifs et moyens contradictoires. La logique exprimée alors par les écologistes radicaux était que la protection en pouvait provenir que d'une conservation statique des ressources, à laquelle la production s'opposait par définition. Une stratégie alternative, prônée par les forestiers, cherchait à faire un compromis entre production et protection. Mais dans les deux cas, les concepts étaient fondamentalement perçus comme antagonistes.

Le rapport Bruntland de 1987 a radicalement changé cette situation en affirmant que les concepts étaient au contraire complémentaires : le développement durable ne peut provenir que de la prise en compte des aspects à la fois écologiques, économiques et sociaux. Dans ce nouveau cadre conceptuel, la production devient un aspect autonome de la gestion forestière durable, à laquelle elle contribue positivement. Des critères et indicateurs particuliers à la production sont ainsi promus dans les schémas d’écocertification pour promouvoir une gestion durable.

D’un point de vue théorique, une question en débat reste celle des mécanismes liant production et multifonctionnalité, laquelle est généralement considérée comme un facteur de durabilité. Sur la façon d’arriver à un tel résultat, deux conceptions s’opposent :

a) La première prétend que la valeur marchande (généralement assimilée à la production de bois) n’est qu’une partie de la “valeur totale” de la forêt, part qui peut être marginale, mais la seule qu’on puisse évaluer;

b) La seconde explique qu’un « effet de sillage » de la production marchande (en particulier de bois) permet seule de financer les autres utilités forestières.

A ces deux conceptions, correspondent des politiques forestières différentes pour promouvoir le meilleur usage possible du bois, en référence aux situations locales. Mais la principale limite de ces deux stratégies réside dans le fait que les positions exprimées reviennent toujours à opposer production et protection, même au sein des producteurs eux-mêmes.

A en juger d’après le débat actuel, le nouveau concept de production de bois participant positivement à la gestion durable des forêts reste à construire si l’on veut réellement changer les décisions publiques comme indiqué dans les discussions internationales.

Mots clés : politique forestière, économie forestière, production de bois, effet de sillage, multifonctionnalité, gestion durable.
Какие изменения роли производства привнесли результаты международного диалога по содействию обеспечения устойчивого управления лесами

Документ, подготовленный профессором по вопросам политики в области лесоводства Французского института лесоводства, сельскохозяйственного и экологического инжиниринга (ENGREF) г-ном Жераром Бутту, Франция

РЕЗЮМЕ

Международный диалог о роли лесов, ведущийся на протяжении последних 15 лет, изменил представления о роли производства в развитии лесоводства. При применении в прошлом традиционного подхода подразумевалось противостояние производства и мер по охране среды и наличие их прямо противоположных целей и задач. В рамках стратегии, пропагандировавшейся радикальными экологами, утверждалось, что деятельность по охране природы не должна принимать в расчет какие изменения в экологической структуре, вызываемые производством. В рамках другой стратегии, которую предпочитали лесоводы, делались попытки найти по мере возможности компромисс между производством и охраной природы. Однако и в том, и в другом случае обе концепции задумывались как несовместимые друг с другом.

Крутоя поворот был сделан в связи с появлением в 1987 году доклада Брундтланд, в котором говорилось, что обе концепции по сути дела являются взаимодополняющими: устойчивое развитие может иметь место только в результате учета экологических, экономических и социальных факторов. В новой концептуальной структуре экономическая устойчивость рассматривалась в отдельности, а производство становилось положительным фактором устойчивого управления лесами. Конкретные критерии и показатели, относящиеся к области экономики и связанные с производством, стали пропагандироваться в различных сертификационных схемах в целях обеспечения устойчивости. В этой связи на видимое место постепенно стали выдвигаться вопросы управления экосистемами.

Что же касается теории, то по-прежнему остается нерешенным один сложный вопрос, касающийся механизмов производства для создания многофункциональности, которая обычно рассматривается в качестве предварительного условия обеспечения устойчивости. Имеет место противостояние двух концептуальных позиций:

a) в первой рыночная стоимость (обычно привязанная к производству древесины) является одной частью "полной стоимости" леса, что возможно и не является главной стоимостью, а составляет лишь ту часть, которую можно объективно оценить;

b) второй детерминантой является эффект создания "попутного потока", присутствующий в производстве товарной продукции (особенно древесины), и его воздействие на получение других продуктов.

Этим двум теоретическим направлениям соответствуют различные возможные виды политики в области содействия рациональному использованию древесины в зависимости от местных условий. Вместе с тем одним из главных препятствий на пути осуществления подобных стратегий является прочная жизнестойкость позиций, популярных даже среди самих производителей, сторонники которых до сих пор противоставляют концепции сохранения и производства.

По-прежнему остается актуальной задача разработки новой концепции производства, которая строилась бы на принципах устойчивого управления лесами, с тем чтобы содействовать директивным органам в принятии решений.

Ключевые слова: политика в области лесоводства, экономика лесоводства, производство древесины, эффект создания "попутного потока", многофункциональность, устойчивое управление.
1. ENVIRONNEMENT ET DÉVELOPPEMENT : QUELS RAPPORTS ?

Le rapport Bruntland en 1987 a fondamentalement changé les bases philosophiques du débat sur les rapports existant entre le développement et l’environnement.

Dans le maniement des concepts généraux de production et de protection, on peut en effet sommairement distinguer trois étapes successives.

1.1. La croissance économique contre l’environnement

Pendant longtemps, les analyses économiques ne se sont pas soucié de prendre en compte l’environnement.

Bien que dans cet environnement, de nombreux éléments sont partie constituante du cadre d’intervention économique, l’idée prévalente en matière de développement économique est restée jusqu’à la fin des années 1960 que toute croissance économique ne pouvait provenir que d’une mise en veilleuse des préoccupations de conservation de l’environnement.

La stratégie de choix des domaines de croissance se limitait donc à une sélection par priorisation des investissements en fonction de leur impact environnemental supposé. Lorsque des incidences étaient prévisibles en matière de santé notamment (pollution), on essayait de localiser ailleurs les mêmes solutions afin de garantir la même croissance en diminuant les risques. L’ensemble des schémas industriels des années 1950 à 1970 ont été essentiellement bâtis sur cette problématique. Cette tendance a été suffisamment lourde pour caractériser aussi bien les périodes de crise que de croissance économique

L’implantation des grandes unités de fabrication de pâtes, papier et panneaux industriels atteste dans la filière bois de cette opposition conceptuelle entre croissance (assimilée au développement) et environnement. On peut par extension dire de même s’agissant de la promotion des reboisements résineux exotiques, qui est intervenue à la même période dans certains pays européens. Malgré le discours ambiant, une partie de l’exploitation forestière en zone tropicale continue jusqu’à nos jours d’être basée sur de tels concepts.

1.2. Peut-on trouver un compromis entre développement et environnement ?

La montée des préoccupations environnementales, en relation avec l’urbanisation de la société, a néanmoins amené à réfléchir plus avant le lien entre développement et environnement, mais sans finalement changer cette opposition entre les deux notions.

L’idée a alors prévalu qu’entre une croissance économique destructrice de l’environnement, mais aussi des conditions du contexte qui lui permettraient de se continuer dans le temps (ce qui pour les économistes est bien entendu plus grave), on pouvait trouver un compromis. Pour assurer une
meilleure pérennité de la croissance économique, peut-être fallait-il en limiter la vitesse, pour se garantir des marges supérieures dans l’avenir.

Au lieu de ne choisir que des investissements de croissance là où les effets environnementaux pouvaient être minorés, on s’est mis à rechercher un compromis systématique, surtout là où la solution médiane recherchée pouvait être financièrement rentable et où les ressources utilisées disposaient d’une certaine capacité à se renouveler.

La gestion de la ressource forestière est typique de ce point de vue. Depuis le milieu du XIXème siècle en Europe et le début du XXème siècle en Amérique du Nord, les techniques de conduite des peuplements forestiers naturels s’attachent à garantir ce qu’on appelle le rendement soutenu de la production de bois, afin que la ressource soit utilisée de façon régulière et équilibrée au bénéfice des producteurs et de l’économie en général.

Mais dans cette conception, on remarquera que tout en cherchant à mieux contrôler la croissance économique en en limitant certains aspects, les producteurs n’en continuent pas moins cependant de considérer l’environnement comme une contrainte, sans changer au fond l’opposition déjà mentionnée entre les 2 concepts.

1.3. Pour un nouveau type de développement indissociable de l’environnement ?

L’apparition à la fin des années 1980 du concept de développement durable a transformé complètement ce schéma.

Le nouveau concept promu stipule de façon expresse que le développement économique, conçu pour durer, ne peut provenir que d’une prise en compte des considérations environnementales.

Désormais, développement et environnement ne sont plus considérés comme des notions opposées, mais comme visant conjointement la promotion de la durabilité sous ses aspects à la fois écologiques, économiques et sociaux. Toute croissance économique ne peut être conçue indépendamment d’une stratégie de pérennisation de l’ensemble des composantes de la ressource, laquelle garantit justement à cette croissance de pouvoir être continuée sans rupture majeure. Dans une telle optique, comme du reste dans la précédente, on ne peut produire sans conserver, et on ne peut non plus conserver sans produire. Mais les relations entre les deux objectifs ne sont pas contradictoires et susceptibles de faire l’objet de compromis, elles sont nécessairement partie prenante d’une même stratégie de promotion de l’ensemble.

Dans le domaine forestier, l’application d’une telle conception revient à rechercher comme objectif central de tenir compte plus qu’on ne l’a fait jusqu’ici des aspects écologiques et sociaux, comme autant de facteurs positifs, et non plus contraignants, nécessaires à la définition de stratégies économiques.
2. Les implications du débat international en matière de production de bois

Même s’il y a certes un fossé entre les conceptions philosophiques et les comportements constatés, la reconnaissance de ce que environnement et développement sont deux concepts allant de pair, a des incidences concrètes plus importantes qu’il n’y paraît à première vue.

2.1. La production de bois comme élément fondamental de développement durable

Les conséquences les plus immédiates portent d’abord sur une redéfinition du rôle de la production de bois dans le débat sur l’avenir des forêts.

La durabilité provenant clairement et directement de l’intérêt à entretenir la forêt à long terme, produire du bois, sous certaines conditions, devient désormais une condition positive de gestion durable des forêts. Dans le nouveau cadre conceptuel issu du débat international, la durabilité même écologique provient d’une gestion qui vise entre autres à produire du bois. L’attribution à la production ligneuse d’un rôle essentiel (mais pas plus important que celui des considérations environnementales ou sociales) dans le maintien des conditions de durabilité, est affirmé clairement.

Gérer une forêt de façon durable revient désormais, entre autres, à organiser les prélèvements de matière ligneuse de manière à ce que la ressource dans toutes ses composantes, maintienne ses capacités au bénéfice des générations futures. Ceci peut conduire à restreindre le niveau d’exploitation actuel, mais pas toujours. Dans de nombreux cas, le volume des prélèvements compte moins que leur structure propre, et dans certains comme en forêt tropicale africaine, l’introduction de modèles de gestion durable pourrait amener à augmenter les volumes prélevés.

Le débat entre forestiers, industriels et défenseurs de l’environnement s’en trouve du coup complètement changé. Il suffit pour mesurer l’ampleur de ce changement de voir l’intérêt apporté par les défenseurs de l’environnement à l’écocertification de la gestion forestière assortie de l’attribution d’un label à la fois écologique et commercial aux bois tirés des dites forêts. Une telle évolution dans la position des défenseurs de l’environnement montre à l’évidence, que pour (presque) tous, la protection des forêts passe bien par la production de bois.

2.2. La production de bois doit tenir compte des impacts écologiques et sociaux

Produire certes du bois, mais pas n’importe comment.

En mettant en avant la nécessité dans tout acte de gestion forestière de tenir compte d’aspects à la fois écologiques, économiques et sociaux contribuant à la durabilité (triangle magique), le débat international sur les forêts a largement promu comme paradigme de raisonnement la « gestion des écosystèmes ». De quoi s’agit-il ?

C’est une démarche pluridisciplinaire intégrant l’ensemble des aspects de la gestion forestière, et qui est basée sur les étapes suivantes:
partir d’un consensus sur les problèmes à résoudre et sur les grands axes de la gestion à appliquer compte tenu des divers points de vue en présence; définir en particulier les différentes échelles de raisonnement dans l’espace et dans le temps ;

- échanger pour la partager l’information disponible sur la connaissance des aspects économiques, écologiques et sociaux, et valoriser dans l’approche les aspects d’intérêt commun ;

- ne faire des choix de gestion qu’après avoir évalué les impacts possibles et les effets induits sur les autres aspects de la question, ce qui signifie qu’en matière de production de bois, les pratiques à développer doivent être étudiées dans leurs incidences du point de vue écologique et social, la solution finale résultant d’une optimisation.

On voit bien que ce concept définit surtout une nouvelle philosophie d’action impliquant une collaboration entre décideurs politiques, gestionnaires et scientifiques, dans un processus où les rôles respectifs de l’expertise et de la communication sont fixés par des règles du jeu qui s’imposent à l’ensemble des acteurs et bénéficiaires concernés, et où le monitorage repose sur des critères et indicateurs définis. Contrairement aux Etats-Unis, en Europe, l’évolution vers de telles normes est théoriquement simple, puisque certains prémices de cette logique existaient dans l’ancienne approche du compromis entre production et conservation. L’approche doit seulement faire l’objet d’une systématisation et être basée sur des règles plus rigoureuses du point de vue scientifique.

2.3. L’usage du bois produit contribue lui-même à la durabilité

Produire certes du bois, pas n’importe comment, mais également ne pas l’utiliser non plus n’importe comment.

Le bois produit est destiné la plupart du temps à alimenter un marché où des prescriptions existent correspondant aux besoins de la société d’utiliser les produits. Si l’on produit certains types de bois en forêt, c’est qu’ils sont demandés sur le marché. Par conséquent, la façon avec laquelle on utilise le bois une fois produit n’est pas indépendante du type de bois qu’on produit, et donc pas étrangère non plus à la façon avec laquelle on produit ce bois.

La logique économique qui prévaut dans la dynamique des filières bois est celle qui fait que la demande des consommateurs finaux de produits ou celle des bénéficiaires finaux de services forestiers se répercute progressivement de l’aval vers l’amont jusqu’à avoir des incidences finales plus ou moins directe sur les modalités de production de bois en forêt. Dans tous les cas où cette logique se vérifie, cela signifie que la façon avec laquelle le bois est utilisé dans la société détermine les modalités de son exploitation.

Si l’on recherche une gestion durable de la ressource, on peut alors jouer de deux façons :

- en établissant des normes de gestion acceptées par les consommateurs de produits finaux (écocertification de la gestion forestière, sanctionnée au moyen de labels attribués aux bois issus de forêts gérées de façon supposée durable) ;
en assurant par des mécanismes d’entraînement économique (notamment par des fiscalités différenciées et conditionnelles) une utilisation des bois -et donc une demande- qui soit susceptible de promouvoir cette même gestion supposée durable des forêts.

Alors que le débat international s’est fortement concentré sur la première solution de l’écocertification, la seconde piste n’a fait l’objet jusqu’ici que de peu de considération, y compris de la part des transformateurs de produits ligneux.

Elle reste pourtant une option fondamentale, au même titre que la première, de progrès vers la gestion durable des forêts.

3. COMMENT LA PRODUCTION DE BOIS PEUT-ELLE CONTRIBUER À LA MULTIFONCTIONNALITÉ FORESTIÈRE ?

Il n’en reste pas moins que dans les faits, on est encore loin de cette vision nouvelle où production de bois et protection forestière seraient des concepts allant systématiquement de pair et dans le même sens.

Dans la mesure où la production n’est pas la seule utilité des forêts, la question de savoir comment les aspects économiques s’articulent aux considérations en matière sociale et écologique reste entière.

Et dans ce domaine, les réflexes continuent de promouvoir des visions opposant environnement et développement.

3.1. La contribution de la production de bois à la valeur totale de la forêt

Apprécier la contribution de la production de bois à la durabilité dans les domaines écologique, économique et social, revient finalement à mesurer l’importance relative réelle du bois produit dans la « valeur » attribuée à la forêt par la société, cette valeur pouvant bien entendu varier beaucoup selon les lieux en fonction des situations écologiques et socio-économiques. Si la valeur des produits mis sur le marché ne résume pas la valeur totale même subjective que la société attribue à une forêt (laquelle vaut généralement plus que le prix du bois qu’elle produit), c’est que la forêt aurait une valeur totale, incluant la valeur de production de bois, qu’il convient de s’attacher à calculer.

Dans certains pays, où le poids des défenseurs de l’environnement est important et où des enjeux financiers existent en matière de production et/ou de transformation des bois (par exemple en Finlande, en Suède ou encore en Italie), les producteurs se sont attachés à essayer de calculer la part de la valeur marchande (de bois) dans la valeur totale des forêts pour faire prévaloir l’importance de leurs intérêts face à des critiques possibles émanant des écologistes. Les résultats du calcul sont loin d’être probants, les techniques économiques n’étant pas encore à la hauteur de la problématique étudiée.
Les politiques issues d’un tel raisonnement contribuent sans doute à pondérer les objectifs économiques des producteurs par la prise en compte de la nécessité qu’a la forêt de fournir les utilités non marchandes. Pour l’instant, cette conception n’a pas entraîné encore de meilleures relations entre intérêts liés à la production et à la conservation, qui ont parfois été opposés dans cette problématique.

3.2. Faut-il se reposer sur l’effet de sillage de la production de bois ?

Une autre approche est celle développée dans les pays où la production de bois tient une importance considérable dans la politique forestière et où la pression des ONG environnementales n’est pas significative (en France et en Autriche, surtout). Elle consiste à considérer que, dans une économie de marché, les utilités forestières non-marchandes sont des utilités coûteuses, dont la charge ne peut être couverte que par les activités de production, qui -elles seules- génèrent un revenu. Dans une telle approche, la finalité principale de toute forêt reste la production, car c’est de ce fait le seul moyen d’assurer la fourniture des autres utilités forestières.

Si l’on s’en tient à un cadre général, il est clair qu’on ne peut gérer durablement une forêt sans produire, et que de ce point de vue la production est essentielle. Il existe de nombreux cas, en montagne notamment, où la pente crée un handicap économique certain en générant des surcoûts d’accès, où l’on constate déjà un abandon progressif de la gestion productive qui s’avère finalement nuisible à la fourniture des autres services forestiers, y compris de protection.

Mais outre que le rôle de la production peut très bien ne pas être moteur dans de nombreux cas (certaines forêts de montagne ou de littoral, où la protection en peut être assurer qu’en limitant considérablement les autres fonctions, espaces boisés urbains et périurbains), l’évolution récente des prix des bois rend de plus en plus difficile le financement par la production des autres charges de gestion liées à la satisfaction des services non-marchands. Depuis quelques années, le revenu tiré de la vente des produits ligneux en Europe permet de moins en moins d’assurer le financement des autres utilités forestières.

Il peut donc s’avérer très dangereux de retenir une telle stratégie comme dogme de politique publique. Il n’est que de constater combien le fonctionnement –et même l’organisation- des agences centrales de gestion forestière dans plusieurs pays d’Europe sont actuellement l’objet d’un débat difficile lié au changement nécessaire des principes devant guider le financement des actions forestières. La réforme de la PAC des prochaines années traduit également ce souci de ne pas faire dépendre trop la gestion forestière d’un souci de production qui risque de ne pas permettre d’assumer correctement les autres utilités que la forêt est censée fournir.
3.3. Agir à la marge, à travers l’utilisation ?

Tout ne pouvant être attendu des conditions mêmes de production, il s’agit donc d’influer également sur les utilisations finales du bois.

Mais alors comment consommer intelligent ? Quelques pistes ou idées peuvent être proposées.

- En utilisant les qualités mécaniques du bois d’une façon conjointe et complémentaire des autres matériaux concurrents : plutôt que continuer une concurrence qui risque de se jouer par les prix, ou en fonction de la capacité des autres produits concurrents d’être standardisés, pourquoi ne pas intégrer le bois, par exemple dans la construction mais aussi dans l’ameublement et la décoration, de telle sorte qu’il occupe une place partagée et non pas concurrente, au bénéfice des qualités techniques et de l’esthétique (design) ?

- En valorisant autant que faire se peut les avantages écologiques et énergétiques du bois : le bois présente l’avantage de demander moins d’énergie pour sa fabrication que nombre de matériaux concurrents ; par ailleurs, ses capacités de stockage de carbone, même limitées, jouent à son avantage par rapport aux matériaux qui le concurrencent : pourquoi ne pas intégrer le bois, mais à bon escient, pour faire écologique, dans un contexte médiatique où la défense de l’environnement devient une préoccupation culturelle ? Dans ce domaine, l’étiquetage lié à l’écocertification de la gestion n’est pas la seule solution : une promotion des produits peut s’y ajouter.

- En adaptant l’offre à la demande et réciproquement : le bois est un matériau très hétérogène dans sa structure (par essences, et par taille des arbres) et dans sa localisation (dispersion sur le territoire). Pourquoi ne pas transformer ce qui est souvent présenté comme un handicap économique, en un avantage lié à la possibilité d’usages différenciés, donc mieux adaptés aux besoins ou à la ressource existante ?

- En valorisant la qualité par des labels : si le prix de fabrication du bois dans les modèles de gestion forestière durable augmente, comment enrayer la baisse de compétitivité par rapport aux autres matériaux concurrents ? Pourquoi ne pas jouer l’image de qualité qui lui est attachée dans l’opinion, en liant par exemple écocertification et label commercial d’une façon qui assure la promotion des débits de qualité ?

Finalement, on peut se demander si la conduite de ces quelques pistes indicatives de façon conjointe (et peut-être que dans certains cas, l’une ne va pas sans d’autres) ne pourrait pas contribuer, plus encore que les schémas de certification, à une plus grande multifonctionnalité des forêts européennes, dont on pense qu’elle contribue directement à la durabilité de la gestion forestière.
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From good forest management to the sound use of wood: an NGO view

Paper by Mr. Duncan Pollard,
Head of European Forest Programme, WWF International

ABSTRACT

WWF firmly supports the concept of wood as a sustainable material. Building demand-side strategies does however need the context of issues at the resource side. Those in the European industry are familiar with issues affecting supplies such as the low prices for roundwood and the use of recycled wood for panel production. From an environmentalists viewpoint there are others: illegal logging (usually manifesting itself as avoidance of taxes); forest restitution and a "race for cash" before EU membership; increasing protected areas (1.6Mn ha in the last 12 months alone); increasing interest in restoration (of wilderness or naturalness); and climate change which will force us to change the way we manage our forest resources.

Since the early 1990's NGO's have been promoting sustainable forest management, and FSC certification as a key tool connecting forests with consumers. Ten years on NGO's have learned to use market and financial levers to create pressure for change and move from sustainable forest management to sustainable development of forest products.

In WWF we take a holistic "protect, manage, restore" approach to forest conservation. This combines policy work with field projects and involves a focus in western Europe on "markets and lifestyles" as well as "rules of the game". Work on certification now happens not just at the forest level, but along the supply chain to retailers. Our Forest and Trade Networks now work with over 400 companies in Europe to create demand for sustainably managed wood. Producer Groups are a new and exciting natural extension of this work.

We can anticipate that environmental issues will continue to influence global development. NGO's in Europe have a higher approval rating than Governments and corporations. WWF is moving its thinking "beyond certification" to develop new partnerships with industry to help define not just good forest management, but "good processing" and supply chain management. A partnership approach involving governments, corporations and NGO's can be a powerful force for developing "Strategies for the Sound Use of Wood".

Key words: "producer groups", supply chains, certification, "sustainable forest management", partnerships
De la gestion durable des forêts au développement durable des produits forestiers:
le point de vue d’une organisation non gouvernementale

Document établi par M. Duncan Pollard,
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RÉSUMÉ

Le WWF appuie fermement la promotion du bois en tant que matériau durable. Pour élaborer des stratégies du côté de la demande il faut toutefois tenir compte des problèmes du côté de l’offre. Les forestiers européens connaissent bien les questions qui se posent dans le domaine de l’offre, comme la faiblesse des prix des bois ronds et l’utilisation de bois recyclés pour la production de panneaux. Les écologistes en voient d’autres encore: l’exploitation illégale (généralement aux fins d’évasion fiscale); le processus de restitution des forêts et une «course aux liquidités» avant l’adhésion à l’Union européenne; l’accroissement des zones protégées (1,6 million d’hectares au cours des 12 derniers mois seulement); l’intérêt de plus en plus vif pour la reconquête des terres par la faune et la flore sauvages ou le retour à l’état naturel; les changements climatiques qui obligeront les hommes à modifier leurs modes de gestion des ressources forestières.

Depuis le début des années 90, les organisations non gouvernementales se sont efforcées de promouvoir la gestion durable des forêts et le plan de certification mis en place avec le Forest Stewardship Council (FSC), y voyant un élément clé pour établir un lien entre la forêt et le consommateur. En 10 ans, les ONG ont appris à utiliser les forces des marchés et des finances pour faire pression en faveur d’un changement et pour passer de la gestion durable des forêts au développement durable des produits forestiers.

Le WWF a une vision globale de la préservation des forêts qui tient en trois mots: «protéger, gérer, remettre en état». Cette vision conjugue l’action dans le domaine des politiques avec les projets concrets et, en ce qui concerne l’Europe occidentale, comporte également un élément axé sur «des marchés et le mode de vie» ainsi que sur les «règles du jeu». Le travail sur la certification ne se situe pas aujourd’hui seulement au niveau de la forêt mais tout le long de la filière, jusqu’aux détaillants. Nos réseaux «Forêt et commerce» travaillent maintenant avec plus de 400 sociétés en Europe, et cherchent à créer une demande pour le bois provenant de forêts exploitées rationnellement. Les «groupes-producteurs» représentent un prolongement naturel nouveau et exaltant de ce travail.

Il y a tout lieu de penser qu’à l’avenir les questions d’environnement continueront d’influencer le développement mondial. En Europe, les ONG bénéficient d’une image plus favorable que les gouvernements et les entreprises. La pensée du WWF est en évolution: il veut maintenant dépasser le stade de la certification pour mettre en place de nouveaux partenariats avec le secteur industriel de façon à contribuer à définir non pas seulement les éléments d’une bonne gestion forestière mais aussi ceux d’une «bonne transformation» et d’une bonne gestion de la filière d’approvisionnement. Un partenariat associant les gouvernements, le secteur industriel et les ONG peut constituer une force puissante pour mettre en place les stratégies pour une utilisation rationnelle du bois».

От устойчивого лесопользования к устойчивому использованию лесных товаров: точка зрения неправительственной организации

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РЕЗЮМЕ

Фонд активно поддерживает концепцию использования древесины в качестве устойчивого материала. Вместе с тем разработка стратегий по расширению спроса нуждается в решении ряда проблем на уровне ресурсов. Специалисты, работающие в европейской отрасли, знакомы с проблемами поставок, такими, как низкие цены на круглый лес и использование рециклизованной древесины для производства фанеры. Есть и другие проблемы, связанные с охраной природы: незаконная рубка (обычно проявляющаяся в виде уклонения от уплаты налогов); восстановление прав собственности на леса и "гонка за прибылями" в преддверии вступления в Европейский союз; расширение охраняемых зон (1,6 млн. га лишь за последние 12 месяцев); рост интереса к лесовосстановлению (в диких местностях или естественных районах); и изменения климата, которые заставят нас пересмотреть наши методы ведения лесного хозяйства.

С начала 90-х годов НПО широко пропагандирует устойчивое землепользование и сертификацию ЛПС в качестве главного средства, связывающего лес с потребителем. За 10 лет НПО освоили методы использования рыночных и финансовых рычагов в целях содействия переменам и в целях внедрения методов устойчивого развития лесной продукции взамен методов устойчивого лесопользования.

В Фонде мы придерживаемся холистического подхода к вопросам сохранения лесов: "защищать, управлять, восстанавливать". В этом подходе сочетается работа, связанная с осуществлением политики по проектам на местах, с уделением особого внимания в Западной Европе "рынкам и укладам жизни" и "правилам игры". Процесс сертификации сейчас происходит не только на уровне лесов, но и вдоль всей производственно-распределительной цепочки, конечными потребителями которой являются предприятия розничной торговли. Наши лесоторговые сети в настоящее время сотрудничают с более 400 компаниями в Европе в целях увеличения спроса на древесину, полученную в условиях устойчивого лесопользования. Побочным и многообразящим итогом этой деятельности являются новые группы производителей.

Мы предвидим, что экологические вопросы будут впредь оказывать большое влияние на события в мире. НПО в Европе имеют более высокий рейтинг, чем правительства и корпорации. Фонд в своей деятельности выходит далеко за пределы сферы "сертификации", для того чтобы строить новые партнерские отношения с отраслью и расширять понятия и не только рационального управления лесами, но и "рациональной переработки" и управления производственно-распределительной цепочкой. Подход на принципах партнерства с участием правительства, корпораций и НПО может стать мощным средством развития "стратегий в области обеспечения рационального использования древесины".

Ключевые слова: "группы производителей", производственно-распределительная цепочка, сертификация, "устойчивое лесопользование", партнерство.
INTRODUCTION

WWF firmly supports the concept of wood as a sustainable material. Building demand-side strategies does however need the context of issues at the resource side. This paper will consider aspects from throughout the supply chain and provide the view of WWF.

BACKGROUND ON THE WWF EUROPEAN FOREST PROGRAMME

The European Forest Programme of WWF covers a wide geographic area. We have 85 forest officers located from Casablanca in Morocco to Vladivostok in the Far East of Russia. They cover a variety of themes under the banner of "Protect, Manage, Restore". That is, the establishment of effectively managed protected areas; the sustainable management of commercial forest areas; and the restoration of degraded forests. We also work on key threats such as illegal logging, fire and climate change. Our work involves field projects establishing best practice models, backed by policy analysis and advocacy with Governments, and in intergovernmental fora. We have a large proportion of our staff working in western Europe on what we call "markets and lifestyles" - setting new standards and influencing consumers, companies and governments to adopt them. The highest profile part of this work is through our Global Forest and Trade Network, where we partner companies who are committed to sourcing wood products from forests independently certified to a credible international certification standard.

WHY IS THE SUPPLY SIDE AN ISSUE IN CREATING DEMAND?

A key part of creating demand for any product is to create the brand and the image, and design the promotion accordingly. The industry has always been good at some of this. Positioning is easy: wood is an environmentally friendly material. Yet the industry continues to be plagued by images of rainforest destruction. Never mind the relatively minor role that this plays in Europe's wood consumption. The industry is a global one, and needs to have a global solution. At WWF we talk to a lot of companies at a senior level. They are acutely aware that they need a "licence to operate" and also need an ability to communicate their credentials.

As WWF we are aware that here in Europe we need to set an example and adopt solutions that can drive change in other parts of the world. We are also aware that activity within Europe is far from perfect.

High Conservation Value Forests

The industry continues to utilise wood from high conservation value forests (HCVF). (See Annex 1 for a definition of HCVF). In the Caucasus official data shows the harvesting of red data list species. This is exported for use to southern Europe, probably for furniture. In Finland there is continuing conflict between industry and NGO's about the harvesting of old growth pristine forest areas. In NW Russia the harvesting of pristine forest areas for the production of paper and other
products used in Germany and the rest of Europe is even more widespread. These are not one-off examples where one-off mistakes are being made.

Clearly we still need to maintain natural systems and biodiversity: the natural capital of the country - through the creation of formally protected areas, where natural ecosystem dynamics occur. Outside these areas the identification of other HCVF's needs to occur and they need to be managed to maintain or enhance the HCV features to complement the protected area system. The region covered by the WWF European Forest Programme saw 1.6Mn new ha of protected areas last year, though the creation of this biodiversity backbone is not yet in place in many countries. For the EU and Accession countries, Natura2000 is a legal framework that can contribute, though it tends to focus on existing protected areas (which often are present for historical and convenience factors) and not on the valuable forest characteristics. Here in Europe WWF has a partnership with Sveaskog which has recently announced that they will manage 20% of their forest estate for conservation through a system of protected areas and HCVF's. This is a significant step forward, and needs to be compared with an equivalent of only 7% of Europe's forest protected under the IUCN's categories I-IV. What would the supply-demand balance throughout Europe look like if this was repeated across all forests? Various scientific papers and the work of UNECE have indicated that increasing the role of biodiversity conservation is not likely to harm the overall supply-demand balance in Europe. So that's good news for the bison, bear and beaver.

**Illegal Logging**

Whilst we are on the image of the product lets talk about illegal logging. We use the World Bank definition (Annex 2) which covers amongst other things: harvesting without permissions; over harvesting; and also activities where there is contravention of national laws including avoidance of taxes. Not a problem in Europe? Think again. Perhaps the most important cause is tax avoidance. Through our Alliance with the World Bank we have just completed a study in Latvia of the potential impact of a proposed pulpmill on the system of protected areas and on forest management. Our interest is that the investment could and should be a significant driver for positive change. A rough estimate is that by combining all types of tax evasion (timber income, social charges and income tax of forest workers) the dealers of illegal pulpwood have a total cost advantage of 15-20% over law-abiding traders. This occurs in 30-40% of harvesting. The situation is more extreme in Estonia. In terms of the volumes involved illegal logging is perhaps most significant in Russia. This makes life hard for the legitimate operators. It also provides a real bottom line risk for financial institutions and investors. I am sure that the institutions financing the forest industry are not aware of the risk they face. We are now talking to them.
Private Owners

For private forest owners the issues are a little different. The fixed costs of harvesting planning, the safeguards needed to ensure adherence to legislation, and "set-up costs" mean that they have inherently higher costs of production. How do we overcome this? Does the Fair Trade movement provide any solutions or ideas that we can copy? Can certification develop in this direction?

Incentives

Throughout Europe incentives have led to planting of large areas of forests. The incentives have in many cases been rather perverse - fuelling an increase in land prices which has benefited farmers leaving the land but not stimulated good silviculture. It has also led to the establishment of even aged single species crops susceptible to windblow. Worse, many of them are now searching for a market. My home country, the UK is one such case.

Throughout many countries forest laws are also perverse in terms of good forest management. For example they favour the harvesting of older crops over young ones, or focus on sanitation felling. This reduces diversity and the influence of natural processes.

Creating the Right Conditions: the "Licence to Operate"

At some stage the industry has to take a stand. Recent reports by WWF and Taiga Rescue Network on the timber trade between Sweden and Russia, and Sweden and Latvia shows that Swedish companies do not know the source of their supplies, nor the impact of the harvesting operations. They now want to work with us.

Is the constant striving for lower costs the root cause of this? What is the role of private owners - are their in-built higher costs of operations perhaps driving them in the direction of unscrupulous operators? It is clear that no single company or country can change this situation, yet it is in the interest of everybody to do so.

Given the lack of basic protection for forests of high conservation value, or the lack attention given to the promotion of natural processes in forests, NGO's view with some incredulity the push by the Ministerial Conference for Protection of Forests in Europe (the process by which all Forest Ministries come together to agree priorities for Europe's forests) to move away from protected areas as a tool for forest protection.

If we want to build a brand and the positioning of wood as a sustainable product, we have some work to do - no illegal logging, protection of natural capital of a country's forests, and a global framework that can help countries outside Europe also improve and have good forest management.

The WWF World Bank Alliance is considering holding a global conference later this year to discuss the safeguards/guarantees that forest companies and financial institutions should adopt to
ensure that the forest practices are responsible. We have some ideas on what these would look like and I would be happy to share these with anyone this week. We would also be interested to join with other organisations to co-host such an event.

SUPPLY & DEMAND BALANCE

Turning to demand side issues, a prerequisite for strategies for the sound use of wood needs to be the creation of a balanced demand from primary wood processors. There needs to be industrial capacity to process in proportion to its availability sawnwood (where the value is) and small diameter roundwood (to facilitate thinning). Secondly there needs to be mechanisms to allow equitable access by each ownership type: private as well as state. Only in this way can we then push for the adherence to the principles of good forest management across all forest types and provide the flexibility of management options for owners.

The collapse of communism produced a dramatic reduction in demand across many countries in the east, and an overall shift in the supply demand balance in Europe. Broadly speaking Europe has enough forests for commercial timber needs for the foreseeable future. At the same time Europe's forests are expanding at about 100,000ha per annum. However in the last 5 years a new phenomena has been the increased use of recycled wood by the panel industry which has reduced the demand for small dimension roundwood and reduced the level of thinning in Europe's forests. If forests are to deliver value for their owners, so that they in turn can afford to manage for biodiversity new industries need to be created.

PROCESSING OPTIONS

Biomass provides a promising option, but will face competition from short rotation coppice on agricultural lands as the Common Agriculture Policy (CAP) is reformed, and continual rural depopulation drives changing land use. However, the industry needs to speak as one on this issue. It is interesting to see that whilst many forest owners are looking towards biomass, the European Forestry and Forest Based Industries (who include the Confederation of European Paper Industries and the European Confederation of Woodworking Industries), has stated in a recent paper on the Hierarchy of Use of Renewable Fuels that Europe's forests do not have the capacity to supply their industries and the energy sector in a satisfactory way. They believe that energy plantations should be promoted under the CAP. Strangely, the Confederation of European Forest Owners were co-signatories.

The paper interestingly made some valid points about perverse incentives regarding waste and raw materials, but the conclusions on supply availability appear a little self serving, at least from the perspective of the industry federations. This is likely to add greatly to the confusion of policy makers.

The WWF view is that managing forests for biodiversity in Europe needs a variety of management systems linked to a variety of markets, both large and small - distant and local. There
should be a place for biomass plants, which due to their scale will find a local niche role adding strength to local communities and economies as well as options for forest owners and farmers in a way that new modern pulpmills cannot. Where we share concerns with the industry is in the area of perverse incentives. They should be eliminated.

There is a clear role for UNECE to provide an independent view of supply and demand to assist policy makers.

**Sawnwood**

Wealth in forestry still comes from sawlogs, and especially the production of larger dimension sawlogs. One key to improving the wealth of forest owners and the funding of good forest management is to focus on sawntimber production and marketing. This will involve construction markets and high grade interior uses. One significant gap in Europe is the need for common building standards throughout the EU - this can lead to better co-ordinated timber solutions involving the production of standardised components and more value being added in processing facilities. It can create one internal market for wood providing a dynamic environment for the development of the industry.

Looking at the sawmilling industry has led WWF down a new path, and one which also has relevance for this conference. A rough analysis of sawmilling around the world suggests that if sawmills in E.Europe and Russia were as productive on average as those in Scandinavia or N.America then we would need 6Mn ha less forests for commercial use. Of course production efficiencies in the East are increasing rapidly, providing more capacity and lower average production costs. But nevertheless such an insight suggests that our former focus exclusively on certification to drive better performance needs a rapid update.

**Corporate Responsibility Reporting**

Today we are working on Corporate Responsibility Reporting, which is a new concept which looks at more than just the raw material purchasing. Larger companies already report on a wealth of different factors from emissions to air and water, toxic chemical usage, transport methods and energy use. The Global Reporting Initiative and the World Business Council for Sustainable Development are all seeking to develop a global framework. As WWF we have our own view, and have attempted to identify which factors to measure, and also the standards that should be a minimum threshold. We are developing partnerships which will set a powerful basis to define the "licence to operate" that the forest industry needs before it can start to develop a sustainable image, that will be part of promoting wood and wood based products as a sound product.
DEMAND SIDE ISSUES

Our demand-side work builds on the resource side issues highlighted above.

Global Forest and Trade Network

We have over 10 years of experience working with companies to stimulate the demand for certified forest products. Our primary mechanism for this is the Global Forest and Trade Network (GFTN). Margaret Rainey, the Director for Europe of the GFTN is here this week and will introduce this in more detail. However, briefly, this is our primary partnership with several hundred companies in Europe who have committed to a sourcing policy from responsible forestry. Some of these are important strategic partners who are really driving change. They include IKEA with whom we have a partnership which is developing concepts such as High Conservation Value Forests, and certification, but importantly producer groups.

Producer Groups

Certification for many small and medium sized forest managers and producer companies is a tough challenge. Producer Groups is a new approach to the issue. They bring together forest managers and primary processors to assist them move through a stepwise approach to certification. The steps typically involve a commitment to eliminate illegal activity, the embracing of the High Conservation Value Forest concept, improved forest management and finally certification. A timebound action plan ensures that progress is made equally across all members. There is a benefit of this approach. For a small or medium sized producer acting alone in a difficult environment, the commitments needed to achieve certification do not bring a benefit for some time, whilst the costs bring a significant disincentive compared to those who do not change.

This brings us to the second key aspect of producer groups - the linkage to markets which are demanding certified wood products. WWF is beginning proactive work on "market linkages" to facilitate the members of the producer groups with buyers and consumers in the Global Forest and Trade Network. This work is done in conjunction with a variety of partners. It is not really our (WWF) core business. Nevertheless we are keen to stimulate and facilitate it. It would be natural step for us to link such work with industry led promotion campaigns on wood. We would be keen to explore such collaboration.

We have plans to create producer groups in 3 locations within Europe. Here in Romania, in Bulgaria, and in Russia. Our Russian group is already established. We will launch the producer group here in Romania later this year. Our forester officers George Dinicu and Zhivko Bogdanov who are here this week can tell you more about this exciting work here in the region.

Market linkage work will also be carried out in other locations where there are significant areas of certified forests such as Latvia and Croatia.
Specifiers

At the specifier end there are 2 initiatives which seek to promote the sound use of wood, both developed initially in the UK. The first is work with local government on the development of purchasing policies, encouraging the use of timber from responsibly managed sources. The recent use by Horsham Council of over £1Mn of FSC timber is one example of how powerful such work on the ground with local government can be in promoting timber and promoting sustainably sourced timber. The work is not limited to the UK. WWF is carrying out similar work in Belgium and Germany, and soon in Sweden. We have recently published a guide for local Government to help them develop sustainable policies towards timber use and forest management. This all adds to significant promotion for timber.

Also in the UK is the Beddington Zero Energy Development within the London Borough of Sutton. This innovative project uses natural renewable building materials, in energy efficient designs. It will have on site combined heat and power generation. WWF UK is calling on the British government and the UK's devolved assemblies to commit themselves to develop a million sustainable homes by 2012.

Governments around Europe are the largest users and potential specifiers of timber. Promotion of timber use needs to start with them.

Climate Change

A few words about climate change. This subject will be dealt with specifically by my colleague Zoltan Rakonczay later in the week, though it is at best still a wild card. Conserving, protecting and managing forests to provide resilience to climate change introduces supply side issues to the debate on the sound use of wood, whilst sequestration may provide another income stream for owners and provide more tangible (cash) benefits for owners.

CONCLUSION

NGO's such as WWF have a higher approval rating in Europe-wide opinion surveys than companies and Governments. This trust by the public gives us a mandate to work on issues of concern to the public, of which forests is one. However I hope that the insights and the solutions that we can provide also provides us with the basis to engage and work with all of you on the important issues facing the forest sector. I would like to thank the organisers for the opportunity to address the seminar. My colleagues and I will be more than pleased to discuss the issues in more depth with you this week, and share with you some of the insights we have. In this way we hope to contribute to the various Strategies for the Sound use of Wood.
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Annex 1: HIGH CONSERVATION VALUE FORESTS

The High Conservation Value Forests (HCVFs) concept was developed by the Forest Stewardship Council (FSC) in 1999. The concept has subsequently received high interest for its use both within the FSC system and more widely. This rapid uptake reflects the elegance of the concept, which moved the debate away from definitions of particular forest types (e.g. primary, old growth) or methods of timber harvesting (e.g. industrial logging) to focus instead on the values that make a forest important. By identifying these key values and ensuring that they are maintained or enhanced, it is possible to make rational management decisions that are consistent with the maintenance of the important environmental and social values. The HCVF approach is therefore increasingly being promoted for mapping, landscape management and conservation decision-making approaches to forest resources. It is also being used in purchasing policies and environmental safeguards guidelines by banks and corporations. Recently it has begun to appear in discussions and policies of government agencies.

<table>
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<tr>
<th>Table 1: Definition of High Conservation Value Forests</th>
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<tr>
<td>HCVF's are those that possess one or more of the following attributes:</td>
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<tr>
<td>HCV1 Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia).</td>
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<tr>
<td>HCV2 Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.</td>
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<tr>
<td>HCV3 Forest areas that are in or contain rare, threatened or endangered ecosystems.</td>
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<tr>
<td>HCV4 Forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control).</td>
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<tr>
<td>HCV5 Forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).</td>
</tr>
<tr>
<td>HCV6 Forest areas critical to local communities’ traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in co-operation with such local communities).</td>
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FSC Principles and Criteria, February 2000
Annex 2: ILLEGAL LOGGING DEFINITION

Based on the World Bank definition (as published in the WB CEO forum on forests), illegal logging is defined as logging:

- outside a concession area
- in excess of quota
- in a protected area
- without appropriate permits
- without complying with bidding regulations
- without submission of required management plans
- in prohibited areas such as steep slopes, river banks, and water catchments
- protected species (as defined by CITES or other international law)
- with duplicate felling licenses
- using girdling or ring-barking to kill trees so they can be logged legally
- that contracts with local entrepreneurs to buy logs from protected areas
- removing of under/over sized trees from public forests
- reporting high volumes extracted from forest concessions to mask that part of the volume is from non-authorised areas outside of the concession boundaries
- using bribes to obtain logging concessions
- using deceptive transfer pricing and other illegal accounting practices to distort prices, volumes, cash flows and debt service levels (for example some companies will inflate the price of imported inputs such as machinery and deflate prices and volumes of their exports to reduce nominal profits, their tax liability with the host country and to illegally transfer funds abroad.)
- that engages in the illegal transport and trade of timber or the smuggling of timber
- that is processed without the required licenses and that is not in compliance with environmental, social and labour laws
FOREST PROTECTED AREAS

As humans impact on ever-larger areas of the world’s land and water surface, pressures on populations of wild plants and animals increase accordingly. Although a proportion of biodiversity can survive in quite highly modified agricultural or other cultural landscapes, many species need specialised conditions only found in near natural ecosystems. In situ conservation through development and management of an ecologically representative network of protected areas is therefore a cornerstone of national and ecoregional conservation strategies. WWF understands a forest protected area to be:

“An area of forest or woodland especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, through legal or other effective means”

Hence protected areas are areas where biodiversity protection is the primary objective and where suitable legal or other effective means (e.g. customary management systems, agreement as part of third-party certification systems etc) have been established.

WWF believes that it is necessary to create an ecologically representative network of effectively managed protected areas to protect a viable sample of all different forest types. Development of such a network involves: identification of the most suitable areas for protection using best available scientific knowledge; a process of negotiation and advocacy to establish the protected area; followed by planning and capacity building, to ensure effective management; and a process of monitoring and evaluation to check that protected area values are being maintained. Protected areas are only effective in the long term if local communities support them and therefore ensuring the participation of all relevant stakeholders is an important function of management.

WWF will work with governments, forest owners and local communities to help develop and maintain a viable network of forest protected areas around the world by:

- Developing, implementing and promoting a methodology for the systematic planning of networks of protected areas within ecoregions
- Helping to identify and gazette new protected areas, through mechanisms such as Gifts to the Earth, the Yaoundé Summit and the World Bank/WWF Forest Alliance
- Integrating protected areas into a wider ecoregional conservation strategy through the triple approach of “protect, manage and restore”, using tools such as the High Conservation Value Forest methodology and the landscape approach
- Promoting the World Commission on Protected Areas’ framework for assessing management effectiveness of protected areas to both monitor and facilitate adaptive management, with the Rapid Assessment and Prioritisation Methodology for protected area systems and through site-based approaches.
- Undertaking advocacy in support of the creation and effective management of forest protected areas through mechanisms such as the Convention on Biological Diversity
Strategies for the sound use of wood, March 2003, Romania
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POSITION

PAPER

January 2002

One of a series of position papers produced as WWF’s response to the WWF/IUCN Forests for Life strategy and WWF’s current five-year target-driven programme on forests

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• Assisting IUCN in preventing dilution or misinterpretation of the World Commission on Protected Areas’ definition of protected areas

• Ensuring stakeholder involvement in and support for protected area networks, by building and implementing methods of participation, including co-management, supporting community-managed protected areas

• Lobbying for increased resources for protected areas

• Running pilot field projects in co-operation with partner organisations

• Inspiring people about the role and potential of protected areas to provide many other values – e.g. recreation, tranquillity, exercise – and encouraging their support for the creation and maintenance of a global system of protected areas

FOREST CERTIFICATION

Forest certification is a system of forest monitoring, tracing and labelling timber, wood and pulp products and non timber forest products, where the quality of management from environmental, social, and economic perspectives is judged against a series of agreed standards. The key to forest certification is the development of a system that combines auditing forest practices with tracing forest products. Discussions about certification began in the early 1990s. To avoid confusion, and provide an overall system for monitoring and assessing certification systems, the Forest Stewardship Council was established in 1993. The FSC agreed a general set of Principles and Criteria in June 1994. Forest certification is thus finishing its first decade of existence. Its proven benefits range from environmental protection to socio-economic improvements.

WWF believes that forest certification is a tool to promote:

• Good forest management that gives weight to social values, environmental conservation and economic benefits

• Conservation of biological diversity in managed forests including High Conservation Value Forests (see separate position paper)

• Mechanisms to ascertain the ownership or use rights for local communities and indigenous people

• Frameworks for resolution of social conflict over utilisation of forest resources

• Transparency of both forest management and the forest products trade

• Provision of a credible guarantee of legal and responsible forest management to forest industries, timber trade, consumers of forest products and other stakeholders (which also has the potential to be instrumental in helping to curb illegal logging

To date, certification has been carried out mainly in industrial production forests. This has helped to establish recognition of certification processes with a range of stakeholders, whilst providing market benefits to those participating companies.

WWF thinks that it is both desirable and feasible to extend the benefits of certification significantly beyond these industrial production forests, working particularly with community managed forests and those under the control of indigenous peoples.
WWF will work with responsible members of the timber trade and other stakeholders to further advance certification, by:

- Striving to widen and strengthen the array of incentives for certification outside direct market benefits (e.g. reinforcement of the rights and values of indigenous peoples)
- Promoting the development and implementation of mechanisms to help local and indigenous communities and small forest owners access certification
- Supporting the FSC as the only credible system currently available
- Carrying out periodic objective evaluations of the FSC and other schemes, thus helping them to maintain and increase their quality and efficiency
- Encouraging periodic objective comparisons of all schemes, extracting key messages and communicating them to different audiences
- Working at national and regional levels on the development of standards and delivery mechanisms to encourage greater stakeholder participation in discussions on forest management standards
- Developing forest certification among a diversity of global regions, forest types and land tenure regimes, including developing countries and economies in transition

* Specific policy papers regarding mutual recognition, the Forest Stewardship Council and PEFC have been prepared.

CERTIFICATION SCHEMES: FSC

The independent third-party certification of socially and environmentally sustainable forest management is an important market mechanism allowing producers and consumers to identify and purchase timber and non-timber forest products from well-managed forests.

The Forest Stewardship Council (FSC) is a non-profit membership organization open to all interested stakeholders at global, regional, national, local levels. It provides an equitable global framework for the accreditation of forest certification schemes and endorsement of national standards. A growing number of national standards and certification schemes recognize each other under the FSC umbrella and more are seeking FSC endorsement and accreditation. The endorsement of national forest management standards, based on FSC’s global principles & criteria, ensures compatible global standards development reflecting balanced and equitable decision-making. The FSC principles & criteria require legal compliance, recognition of land use rights including traditional rights, resolution of social conflict related to the utilization of forest resources and identification, recognition and preservation of High Conservation Value Forests.

FSC currently enjoys the support of most national and international environmental NGOs, unions, social groups, indigenous peoples, private, communal and state forest owners, timber industries, scientists and numerous individuals in more than 60 countries worldwide. All decision making in the FSC and its national and regional initiatives is based on a comprehensive consensus between environmental, social and economic interests. It currently offers the only certification system for good forest management that is globally applicable and thus ensures equal access to global markets for forest products in all continents. The FSC is based on the certification of performance of forest management against measurable standards. Over the past years the FSC has proven, that, through great flexibility in it’s certification approaches
(individual certification, group certification, etc.), FSC certification is accessible to large as well as small
forest owners and private as well as industrial or governamental forest owners in all forest regions
worldwide.

The FSC provides credible independent verification of good forest management and is currently the only
certification scheme that ensures environmentally responsible, socially beneficial and economically
viable management of forests. It provides credible tracking of forest products from forest to consumer
through rigorous independent verification of the entire chain-of-custody. In contrast to other competing
certification schemes, it provides a credible guarantee to forest industries, processing companies,
retailers, consumers and others that forest products carrying the FSC label come from well managed
forests.

*WWF believes* that the scheme offers the best way forward with respect to forest
certification and that:

- The logo of the FSC currently is the only credible label for good forest management;
- The statutes and principles & criteria of the FSC provide a clear and comprehensive
  reflection of the intentions and agreements at the Rio summit in 1992 and are the basis for
  development of any standard setting and/or certification initiative worldwide;
- The standards of the FSC are the minimum requirement for any management of forests
  anywhere in the world;
- The certification requirements and procedures of the FSC are the minimum requirement for
  any credible certification of forest management and chain–of-custody
- The statutes, principles & criteria and accreditation system of the FSC are minimum
  requirement, and an appropriate framework for worldwide agreements recognizing
  substantive equivalence between national standards or between certification systems

*WWF will work with the forest industry, governments and NGOs* to help the FSC by:

- Promoting new national standards and/or working groups recognised by the FSC
- Promoting the labelling of wood-production from FSC certified forests
- Supporting the FSC through forest and trade networks and development of community
  management protocols and use of High Conservation Value Forest tools
- Working with the FSC to develop forest certification amongst a diversity of global regions,
  forest types and land tenure systems
CERTIFICATION SCHEMES: PEFC

The Pan European Forest Certification (PEFC) scheme was developed by as an umbrella system to endorse national certification initiatives. Its statutes allow national initiatives to vary greatly in terms of development approach, standards, certification process and governance. However, formal endorsement under the PEFC umbrella system implies that each endorsed national scheme is fully aware of, recognizes and endorses the PEFC itself and all other national schemes accredited under this umbrella. Research on the statutory and procedural framework of the PEFC confirm earlier concerns of WWF that:

- PEFC does not require:
- Verification of legal compliance of forest management certified under its national schemes. Thus, the PEFC label does not guarantee that the timber certified originates from legal forestry operations.
- The comprehensive implementation of international agreements and conventions (e.g. the Convention on Biological Diversity).
- The identification, recognition and protection of high conservation value forests. It fails to recognize the rights of indigenous peoples and does not provide a comprehensive framework to resolve social conflict.
- Assessment of forest management against a measurable performance standard. Environmental, social and legal conflicts related to PEFC certifications across Europe show that national PEFC schemes focus on the certified organizations’ management systems rather than independent verification of forest management. Furthermore, random sampling of forest holdings is not applied systematically, but it appears that certificate holders have significant input into sample size, location and content.
- PEFC was created by the forestry sector not taking into account balanced and equitable decision-making with civil society. Full membership and participation in PEFC voting Council is limited to representatives of national PEFC bodies based on the country’s annual harvest. Extraordinary members (social and environmental NGOs, consumer groups) have no access to voting. Equal participation of interested parties and balanced decision-making among interest groups, as agreed in the Rio agreement, Agenda 21 and the ISO regulations, is not intended.
- PEFC’s claims are vague and misleading. Claims are made that consensus has been reached between all major stakeholders. However, most national and all international environmental organizations in Europe did not participate in any part of PEFC and reject PEFC. Claims are also made that forest management is sustainable. However, evaluation of performance of forest management against a measurable performance standard is neither required nor has it been undertaken consistently. Claims made on products are not consistent with ISO regulations and the current guidelines for verification of the chain-of-custody and product labeling do not guarantee traceability of products from the forest to the consumer.
- PEFC lacks transparency and limits access to information. Many decisions and certification reports are not publicly available.
• PEFC neither ensures commitment of forest managers nor guarantees that timber comes from well-managed sources. While certificates in other sectors purposely recognize individual enterprises for special achievements, PEFC encourages the certification of entire forest regions without recognition for the commitment of the individual forest owner. Thus PEFC is neither likely to recognize special achievements, nor able to identify poor practice. Regional certifications in Finland, Norway, Germany and Austria show that national PEFC schemes were unable to clearly identify and/or improve deficient forestry operations in any region certified. Instead they legitimized current practice throughout the regions certified.

• PEFC does not have any provision for certification of tropical and other non-European timber. It therefore discriminates against timber products from well-managed forests outside Europe, especially from tropical regions. It is possible that PEFC qualifies as a barrier to international timber trade.

WWF believes that although individual national certification schemes under PEFC do address some of the above points and could potentially encourage improved forest management, the PEFC’s requirements and procedures cannot guarantee credible verification of good forest management throughout the system. WWF therefore, does not recognize the PEFC as an appropriate system to improve forest management, encourage preservation of biodiversity, solve social conflict and provide a credible guarantee of good forest management.

CERTIFICATION: MUTUAL RECOGNITION OF SCHEMES

Since forest certification became a significant market mechanism to promote sustainable forest management, there has been a proliferation of certification schemes around the world. These vary widely in their standards, means of verification and in the degree to which decisions are open to different stakeholders.

There is currently a fierce debate about the practicality and implications of creating links between the various schemes, including the possibility of “mutual recognition” of certification offered by different certification bodies. Whilst such a recognition system would have clear advantages to users in the case of schemes with similar aims and level of stringency, it risks undermining the whole purpose of certification if “weaker” schemes are given equal weight to those that have developed careful and responsible certification procedures.

WWF believes that it is not within WWF’s mandate to produce a framework for “mutual recognition”. This is the responsibility of those certification initiatives that may wish to enter into such types of agreement. However, WWF recognises the potential value of a framework that would allow for the evaluation and comparison of different certification initiatives. Such a framework must consider both the system and performance (i.e. input and output) aspects of certification initiatives.

To date, the frameworks for evaluating certification initiatives that have been published rely on system aspects and neglect performance evaluation. In addition, they rely on questionnaires filled in by the initiatives in question, which casts doubt on the independence and reliability of the data. They cannot therefore be considered to be adequate at this time.
It is very difficult to compare the performance on the ground of different certification initiatives without making a direct comparison in the field. Therefore, WWF considers that any credible evaluation or comparison of certification initiatives should include a number of joint certification exercises. It is possible that following such exercises, careful analysis and discussions may lead to mutual recognition between the certification initiatives concerned, which WWF would, in principle, welcome.

WWF reiterates that for the time being, only certification under the FSC system can be considered to reach satisfactory performance levels and thus provide an adequate incentive for improving forest management worldwide.

ILLEGAL LOGGING AND FOREST CRIME

Introduction
The global trade in illegally extracted timber is a multi-million dollar industry. Illegal logging: occurs when timber is harvested, transported, processed, bought or sold in violation or circumvention of national or sub-national laws. Although generally portrayed as a problem in tropical forests, illegality also occurs in developed countries and economies in transition. Even those countries that pride themselves on good domestic management are not exempt. Illegal activities have a particularly devastating impact on biodiversity because they often deliberately target remaining pristine forests, including protected areas, which contain the highly valuable hardwood species that have been logged out elsewhere. Forest crime also affects human communities through loss of natural forest resources and sometimes through intimidation and violence. The hundreds of millions of dollars of tax revenues lost around the world as a result of forest crime also has a wider social impact.

WWF believes that illegal logging and other forms of forest crime are part of a larger problem that includes issues of forest governance and corruption. They extend far beyond some individuals violating resource-management laws. WWF uses the term “illegal logging and forest crime” to include both large and small-scale timber theft and a variety of issues such as transfer pricing, breaching tax rules, any illegal aspects of timber sourcing and circumvention of concession agreements through bribery or deception. Poor governance and forest management can also lead to increased access to, and unsustainable utilisation of forests and an increase in activities such as illegal mining, bushmeat hunting and settlement. There is also a whole range of corrupt activities, which has the cumulative effect of reducing effectiveness of governance even if the precise letter of the law is not breached. Up to 65 per cent of WWF’s Global 200 forested ecoregions are threatened by illegal logging. WWF believes that illegal logging and forest crime are best stopped using a combination of existing tools and the development of new policies:

WWF will work with partners, international organisations and governments to:

- Promote improved transparency and enforcement of existing laws. Where necessary encourage amendment or drafting of new legislation and strengthening of implementation
- Promote independent monitoring and auditing schemes such as that provided by the Forest Stewardship Council for forest management and tracking wood products from the forest to the end user
- Encourage consumer countries to provide aid and technical assistance to producer countries to address the root causes of forest crime (including poverty alleviation)
• Support Global Forest and Trade Networks linking buyers and consumers of certified forest products
• Work to build human resource and institutional capacity to plan and manage the forest estate (protected areas, production forests and community-managed forests)
• Assist the implementation of systems for the verification of legal compliance, especially in countries where certification will take some time to develop
• Promote and encourage the use of government public procurement to specify timber and wood products from legal and sustainably managed forests
• Support the adoption of voluntary bilateral trade agreements that ensure the supply of legal timber as a first step in applying responsible procurement policies
• Raise awareness of the social and economic impacts of illegal logging and forest crimes amongst key audiences: governments, business, industry and consumers
• Increase the use of CITES as a tool against timber-related crime
• Engage with financial institutions to ensure adequate forest policy safeguards are in place so that investments do not facilitate illegal logging and forest crime

HIGH CONSERVATION VALUE FORESTS

High Conservation Value Forests (HCVFs) are defined by the Forest Stewardship Council as forests of outstanding and critical importance due to their high environmental, socio-economic, biodiversity or landscape values. WWF is developing and extending the HCVF concept in its wider protect-manage-restore programme. HCVFs comprise the crucial forest areas and values that need to be maintained or enhanced in a landscape. HCVFs are found across broad forest biomes (tropical to boreal), within a wide range of forest conditions (largely intact to largely fragmented), and in ecoregions with complete or under-represented protected area networks. HCVFs could be old-growth forests in Siberia, habitats of threatened orang utans in Southeast Asia or the sacred burial grounds of a North American first nations people. Although originally designed as a tool to help certification, the HCVF concept is being extended to more general conservation planning including the design of representative networks of protected areas and buffer zones.

The identification of HCVFs requires a multi-scale approach. First a rapid assessment and mapping of potential HCVF areas is made at a global or continental scale, based on indicators of biologically or environmentally important forest values that can be mapped at this broad scale. Next, these areas are further refined within ecoregions and a more detailed investigation within a given landscape delineates actual HCVFs, including local stakeholder consultation to identify forests that meet community needs and maintain cultural identity, and scientific research to identify biologically important forest stands and those critical for maintaining ecosystem functions and populations of endangered species.

WWF believes the first priority is to ensure that HCVFs are adequately represented in protected area systems. In practice, many HCVFs will continue to be managed outside protected areas and here approaches will vary – e.g. enhanced management or long-term "no-cut" reserves – but should always aim to maintain HCVF values. In regions where the forest is largely degraded, HCVF management should be consistent with a forest landscape restoration strategy (see separate position paper) that addresses ecological, social and economic objectives. Two principles are paramount: (1) HCVFs are managed to maintain the attributes that are of high conservation value, and (2) management employs the
**precautionary principle**, which requires that where the effects of extraction and other management are unknown, values are insured through a cautious approach.

WWF calls on producers, retailers and investors in the forestry, agricultural, mining and petroleum sectors and governments to ensure that their business activities do not promote the clearing or degradation of HCVFs.

**WWF will work with partners to identify and protect HCVFs by:**

- Developing tools for identification of HCVFs that are applicable around the world, particularly through pilot projects and dissemination of the lessons learned
- Developing tools and activities for the adequate protection of HCVFs that are applicable around the world
- Working with the Forest Stewardship Council in developing detailed guidance on the application of FSC’s Principle 9 that covers HCVF
- Co-ordinating with other organisations, so that a HCVF approach can integrate conservation agendas
- Working to ensure, where appropriate, that development of the HCVF concept is coordinated between interested organisations
- Further developing the concept of HCVFs as a useful guide for fulfilling ecologically friendly procurement policies for forest products
- Promoting and helping to apply the HCVF concept with forest managers and forest management certifiers in selected ecoregions
ROUNDTABLE DISCUSSION OF STAKEHOLDERS
Confédération Européenne des Propriétaires Forestiers

Contribution of Ms. Natalie Hufnagl, Secretary General, Confédération Européenne des Propriétaires Forestiers (CEPF), Belgium

Brief information on the CEPF: The CEPF is the umbrella organisation of family forest owners in Europe assembling currently 22 national forest owners associations representing some 15 million family forest owners in the Pan European Region.

**Wood and lifestyle – meeting the consumers’ needs in the 21st century**

*What is our big challenge?*

We need to personalise again the use of wood and wooden products in its manifold aspects. And thus succeed in overcoming the slaughterhouse effect – consumers need to build an understanding for sustainable forest management and its product: wood.

Without sustainable forest management there will be no roofs and floors, beds and wardrobes, chairs and tables, toys and books, violins and clarinets, toilet paper and tissues, pencils and diaries.

In former times the relation between man and the unique material wood was natural – wood and wooden products responded to many consumers needs and the understanding for its “production” was clear and understandable to everybody.

Currently there are only two products that do not encounter the slaughterhouse effect: Firewood and Christmas trees.

Urban societies have an increasing virtual perception of nature and nature management and thus sustainable forest management.

It is the task and responsibility of those that are engaged in sustainable forest management to seek alliances with decision makers on local and regional level to bring a natural understanding of wood and its production back into consumers’ minds. For example architects are well placed to have a positive influence on peoples decision when it comes to building material and interior furnishing.

Consumers need to discover wood again as the unique material that meets their needs for individualism and personal lifestyle.

Forest owners can help this development in marketing the quality of local timber and thus enable the consumer to build up a direct relation to the sustainable forest management in his/her region.

The consumers need to regard the forest owners as their partners in achieving their very personal sustainability goals when choosing wood and wood based products for their daily lives.
SESSION I: WHAT IS SOUND USE OF WOOD?
TOPIC 1.1:  LIFE CYCLE ANALYSIS
Comparison of wood products and major substitutes with respect to environmental and energy balances

Paper by Messrs. Arno Frühwald, Johannes Welling, Mohammad Scharai-Rad
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ABSTRACT
Wood is a renewable material and energy source with a very long history. Wood utilisation for material purposes and energy uses has increased during the last decades due to growing world population and "poor man’s energy crisis" respectively. Destruction of forests has led to a world-wide discussion about the use of wood and the management of forests. Sustainable energy supply is one of the mayor factors for mankind's development. Renewable energy sources gain importance as well as low energy consuming technologies. Wood is a renewable material with a long-term perspective. Wood production in the forests requires little energy only (~ 1% of the energy content of wood). Manufacturing of wood-based semi-finished and finished products as well requires little energy; in almost all cases much less than the energy content of the wood employed for the manufacturing of the products. Wooden houses, furniture etc. need less energy for manufacturing than the energy that - considering the whole life cycle - can be provided by burning residues occurring during processing or by utilising the energy contained in the wooden product itself at the end of the life cycle.

Wood is a material for at least two or three cycles of utilisation: First it is used as a product (i.e. timber, panels, building component, furniture), secondly it is used in a material recycling process (i.e. wood-based panels partially produced from recycled wood), and thirdly it is used for energy generation. No other renewable material can meet these advantages in terms of volume and economy. Materials competing with wood are numerous: PVC for windows, steel and concrete for large constructions, bricks for wall in houses, plastics for windows and furniture, etc. There may be some (technical) advantages of these competing materials, but the energy balance and the environmental balance (i.e. based on LCA criteria) are dramatically worse compared to wood. Wood products require very little energy for their manufacture compared to other products based on competing materials and for this reason the LCA-profile for wood products is of clear advantage. Wood processing has, in addition to a low energy consumption, clear advantages expressed in terms of environmental indicators like acidification, ozone formation, toxicity potential and, above all, the global warming potential.

The paper provides basic data and examples for wood-based and non-wood-based products.

Key words: wood products, LCA, energy balance, building sector
Les produits du bois et les principaux matériaux concurrents:
Comparaison du point de vue de la protection de l’environnement et du bilan énergétique

Document établi par M. Arno Frühwald, Professeur de technologie du bois,
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RÉSUMÉ

Le bois est un matériau et une source d’énergie renouvelables utilisé depuis la nuit des temps. L’utilisation du bois comme matériau et comme combustible a progressé au cours des dernières décennies du fait de l’accroissement de la population et de la «crise énergétique du pauvre». La destruction des forêts a suscité un débat mondial sur l’emploi du bois et la gestion des forêts.

L’approvisionnement durable en énergie est l’un des principaux facteurs du développement de l’humanité. Les sources d’énergie renouvelables tout comme les techniques d’économie d’énergie gagnent en importance.

Le bois est un matériau renouvelable offrant de bonnes perspectives à long terme, à condition que les forêts soient gérées dans des conditions garantissant leur durabilité. La production de bois en forêt nécessite très peu d’énergie (environ 1 % de la valeur énergétique du bois). Il en va de même pour la fabrication des produits dérivés du bois finis et semi-finis, qui requiert dans presque tous les cas beaucoup moins d’énergie que la valeur énergétique du bois employé. Les maisons à ossature en bois, le mobilier, etc., sont fabriqués avec moins d’énergie, et cette énergie peut provenir des déchets de transformation ou de produits en fin de cycle d’utilisation. Les produits du bois permettent donc une utilisation de combustibles fossiles-zéro!

Le bois a au moins deux ou trois cycles d’utilisation: c’est d’abord un matériau utilisé tel quel (bois d’œuvre, panneaux, éléments de construction, mobilier), ensuite un matériau recyclé (produits pleins dérivés du bois récupérés pour la fabrication de panneaux) et enfin un combustible. Aucun autre matériau ne remplit ces trois fonctions et donc ne peut rivaliser avec le bois en termes de volumes et d’économies!

Les matériaux concurrents sont nombreux: PVC pour les fenêtres, acier et béton pour les grandes constructions, briques pour les murs des maisons, matière plastique pour le mobilier, etc.

Ces matériaux concurrents présentent quelques avantages (techniques) évidents mais leur bilan énergétique et leur bilan pour la protection de l’environnement (établi selon les critères de l’analyse du cycle de vie) sont particulièrement négatifs par rapport au bois. La fabrication des produits du bois consomme très peu d’énergie par rapport à d’autres produits à base de matériaux concurrents, raison pour laquelle les résultats de l’analyse du cycle de vie sont nettement favorables aux produits du bois. Outre sa faible consommation d’énergie, la transformation du bois présente de grands avantages en ce qui concerne les indicateurs environnementaux, comme l’acidification, la formation de l’ozone, le potentiel de toxicité et, surtout, le risque de réchauffement de la planète.

Le document contient des données de base, illustrées par des exemples, pour les produits du bois et les produits concurrents. On y trouvera aussi une liste de documents de référence.
Сопоставление изделий из древесины и их основных заменителей с точки зрения обеспечения экологического и энергетического баланса

Документ, подготовленный профессором лесопользования Научно-исследовательского центра по лесоводству и лесным продуктам, Германия, г-ном Арно Фрюхвальдом

РЕЗЮМЕ

Древесина издавна является возобновляемым материалом и источником энергии. Масштабы использования древесины для производства материалов и энергии в последние десятилетия значительно возросли в связи с ростом населения мира и появлением "энергетического кризиса бедняка". Уничтожение лесов вызвало оживленные дискуссии во всем мире по вопросам использования древесины и упражнения лесами.

Устойчивое снабжение энергией - это один из основных факторов развития человечества. Повышается значение возобновляемых источников энергии и низкоэнергозатратных технологий.

Древесина, будучи возобновляемым материалом, обладает большим будущим. Непременным условием этого является устойчивое лесопользование. Заготовка древесины в лесах нуждается в небольших объемах энергии (~ 1% энергосодержания древесины). Немного энергии требуется и для производства из древесины полуфабрикатов и готовых изделий; в любом случае для производства продуктов из древесины расходуется значительно меньше энергии, чем содержащийся в ней энергозапас. Строительство домов из дерева, производство мебели и т.д. требуют значительно меньших объемов энергии, чем сумма той энергии, которая может быть получена в результате переработки отходов или продуктов древесины после их утилизации. Изделия из древесины, таким образом, являются продуктами с нулевым содержанием ископаемой энергии!

Древесина как материал имеет, по крайней мере, два или три жизненных цикла: во-первых, она используется как продукт (т.е. лесоматериалы, панели, строительные материалы, мебель), во-вторых, как переработанная твердая масса для, например, изготовления панелей, и, в-третьих, как источник энергии. Никакой другой возобновляемый материал, кроме древесины, не имеет стольких преимуществ с точки зрения объемов и экономии!

Существует много материалов, конкурирующих с древесиной: ПВХ, используемый для оконных рам, сталь и бетон - для крупных строительных работ, кирпич - для возведения стен домов, пластмассовые материалы - для производства мебели, и т.д.

Определенные (технические) преимущества этих конкурирующих материалов не вызывают сомнений, однако их энергетический и экологический баланс (например, основанные на критерии АЖЦ) неизмеримо хуже по сравнению с древесиной. Изделия из древесины нуждаются в весьма малых объемах энергии для их производства по сравнению с другими продуктами, использующими конкурирующие материалы, из-за чего профиль АЖЦ для изделий из древесины имеет явные преимущества. Обработка древесины в дополнение к низкой энергоемкости ее обработки обладает и четкими преимуществами в экологических показателях, таких, как подкисление, образование озона, потенциал токсичности и прежде всего потенциал глобального потепления.

В документе излагаются основные данные и приводятся примеры производства изделий из древесины и из других материалов. В нем имеются также ссылки и на различные справочные материалы.
INTRODUCTION

Over centuries, but especially during the last decades, wood and wood-based products had to face strong competition from substitute materials, such as plastics, concrete, steel glass or aluminium, as these materials appear to offer wider options to the customers. Some factors that can influence customer's decisions on what kind of end products to acquire include marketing efforts, product prices, quality, durability and image.

Conflicting and often opposing views exist about the environmental consequences of using wood products. On the one hand, environmental concerns related to deforestation, forest degradation and loss of bio-diversity lead to a negative image of wood products, in particular when the products are manufactured from wood from the tropics. On the other hand, a wide range of producers and consumers are aware of the positive environmental aspects of using wood. However, it should be noted that many environmental advantages of wood products had not been scientifically evaluated and proved until the early 1990s, when the life cycle assessment (LCA) approach was developed.

This paper tries to provide some factual information on the environmental and energy balances of wood in certain products compared to major substitutes, applying the LCA methodology. It intends to assist policy-makers, producers, consumers and other interest groups to better understand the environmental benefits of using wood instead of non-renewable raw materials. Results presented refer to houses, sheds, window frames and flooring.

ENVIRONMENTAL IMPACTS AND ENERGY BALANCES OF WOOD PRODUCTS AND MAJOR SUBSTITUTES

LCA comparison was developed for the following product groups:

- Single-family houses (raw construction only, all of approximately the same k-value)
  a) Blockhouse
  b) Timberframe house
  c) Conventional brick house
- Simple three-storey building
  a) Building 1 made of 1000 tonnes of wood and 60 tonnes of steel
  b) Building 2 made of steel only
- Window frames (lifetime 30 years)
  a) Wood
  b) PVC
  c) Aluminium
- Flooring materials
  a) Wood flooring
  b) PVC flooring
  c) Linoleum
Single-family houses (raw construction)

Three different types of single-family houses with approximately the same heat transition coefficient (k-value) were compared: a) timber-frame house, b) blockhouse and c) conventional brick house. The analysis was conducted for two cases, Case A: No thermal utilisation of waste wood and Case B: Thermal utilisation of waste wood.

Case A: No thermal utilisation of waste wood

In case A, the potential of energy generated by thermal utilisation of waste wood recovered during demolition of the house at the end of the life cycle was not considered in the LCA study. The potentials of the impact categories regarding global warming, acidification, eutrophication and photochemical ozone creation were calculated on the basis of energy consumed for production of building materials and construction of the single-family houses concerned. The results obtained can be summarised as follows:

- The house with the lowest share of wood-based building materials (brick house) shows the most unfavourable impact assessment results in comparison with the other two house types.
- Despite the highest amount of wood and wood-based materials, the blockhouse seems to be environmentally less favourable than the timber-frame house.

Case B: Thermal utilisation of waste wood

At the end of life cycle, the CO2-neutral waste wood substitutes the fossil fuels as biomass for energy generation. The analysis of the environmental impact is based on the net energy consumption which is the difference between the energy input and the energy generated by the thermal utilisation of renewable waste. The results obtained lead to the following conclusions:

- The real environmental impacts of the three house types are in this case notably lower than in Case A.
- The blockhouse is environmentally the most favourable family house followed by the timber-frame house and the brick house.
Table 1: Life cycle impact assessment without considering the wood based waste

<table>
<thead>
<tr>
<th>House type</th>
<th>Impact potential</th>
<th>Unit</th>
<th>Production</th>
<th>Construction</th>
<th>Total Case A</th>
<th>Total Case B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framework house</td>
<td>GWP100 kg CO₂ eq.</td>
<td>70100.00</td>
<td>24752.00</td>
<td>94852.00</td>
<td>79248.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AP kg SO₂ eq.</td>
<td>156.37</td>
<td>55.21</td>
<td>211.58</td>
<td>176.78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EP kg phosphate eq.</td>
<td>13.32</td>
<td>4.70</td>
<td>18.02</td>
<td>15.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>POCP kg ethene eq.</td>
<td>4.03</td>
<td>1.42</td>
<td>5.46</td>
<td>4.56</td>
<td></td>
</tr>
<tr>
<td>Blockhouse</td>
<td>GWP100 kg CO₂ eq.</td>
<td>71546.00</td>
<td>24752.00</td>
<td>96298.00</td>
<td>52957.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AP kg SO₂ eq.</td>
<td>159.59</td>
<td>55.21</td>
<td>214.81</td>
<td>118.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EP kg phosphate eq.</td>
<td>13.59</td>
<td>4.70</td>
<td>18.30</td>
<td>10.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>POCP kg ethene eq.</td>
<td>4.12</td>
<td>1.42</td>
<td>5.54</td>
<td>3.05</td>
<td></td>
</tr>
<tr>
<td>Brick house</td>
<td>GWP100 kg CO₂ eq.</td>
<td>85277.00</td>
<td>29702.00</td>
<td>114980.00</td>
<td>108400.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AP kg SO₂ eq.</td>
<td>190.22</td>
<td>66.26</td>
<td>256.48</td>
<td>241.81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EP kg phosphate eq.</td>
<td>16.20</td>
<td>5.64</td>
<td>21.84</td>
<td>20.60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>POCP kg ethene eq.</td>
<td>4.91</td>
<td>1.71</td>
<td>6.61</td>
<td>6.24</td>
<td></td>
</tr>
</tbody>
</table>

* eq. = equivalent

![Graph 1](image1.png)

![Graph 2](image2.png)

![Graph 3](image3.png)

![Graph 4](image4.png)

Fig.1: Comparative visualisation of selected environmental impact categories of single-family houses, Case A (total energy) and Case B (net energy consumption)
Simple (three-storey) buildings

Two buildings are compared, Building 1 consisting of 1000 tonnes of wood and 60 tonnes of steel and Building 2 only of steel. Two cases are analysed, Case A: Total energy consumption excluding the thermal utilisation of waste wood and Case B: Net energy consumption including the thermal utilisation of waste wood.

Case A: Total energy consumption

The total energy inputs for Building 1 and Building 2 are 5460 GJ and 17 000 GJ, respectively. Even without thermal utilisation of waste wood, the wood building shows significant advantages which indicates the dominance of wood as an environmentally sound building material. The results obtained show that compared to Building 1 the environmental burdens caused by Building 2 are more than three times higher.

Case B: Net energy consumption

At the end of life cycle, the waste wood from Building 1 is considered as a CO2-neutral energy source which provides an additional 7 290 GJ of energy and replaces fossil energy of the same amount. The substitution of fossil fuel results in the reduction of the corresponding amount of emissions in the atmosphere. Therefore, in Table 2, the figures for impact potentials have negative values and show the importance of timber as an environmentally sound building material. The energy input for Building 2, however, remains at the high level of 17 000 GJ.

Table 2: Environmental impact resulting from simple three-story industrial buildings (hall)

<table>
<thead>
<tr>
<th>Impact</th>
<th>Unit</th>
<th>Case A (Total energy consumption)</th>
<th>Case B (net energy consumption)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWP100</td>
<td>kg CO2-eq.</td>
<td>Building 1 (from wood &amp; steel) 1</td>
<td>Building 2 (from steel) 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,096,000</td>
<td>3,410,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1,463,000</td>
<td>3,410,000</td>
</tr>
<tr>
<td>AP</td>
<td>kg SO2-eq.</td>
<td>2,445</td>
<td>7,613</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-3,264</td>
<td>7,613</td>
</tr>
<tr>
<td>EP</td>
<td>Kg phosphate-eq.</td>
<td>208</td>
<td>648</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-278</td>
<td>648</td>
</tr>
<tr>
<td>POCP</td>
<td>kg ethene-eq.</td>
<td>63</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-84</td>
<td>196</td>
</tr>
</tbody>
</table>

Fig.2: Comparative visualisation of selected environmental impact categories of three-storey building, Case B (net energy consumption)
Window frames

The subjects of investigation were windows made from aluminium, PVC and wood. It is assumed that the glazing is the same for all three frame types and, therefore, the glass is not included in the analysis of impact assessment. The functional unit is a two-wing window of 1650 mm * 1300 mm. The window frames have a lifetime of 30 years; maintenance during the use phase is included.

The results achieved lead to the following conclusions:

- For all impact categories concerned the environmental burden of wooden windows is the lowest.
- Regarding the wooden window, waste wood can replace fossil fuel so that the environmental impact is reduced.
- Acidification potential (AP) of the wooden window amounts to only 40 percent to 47 percent of that of aluminium and PVC windows.
- Concerning the eutrophication potential (EP) and the photochemical ozone creation potential (POCP), the results for the wooden window are around two-thirds of that for other windows.

The following are differences in the impact potentials for various modules:

Concerning the global warming, the lifetime impact of a windows is high. Due to the periodical treatment with paint, lacquer or other chemicals, the wooden window results in having the highest GWP impact followed by PVC and aluminium. However, when the entire life cycle is considered, the wooden window is the most favourable product and the PVC and aluminium windows are placed second and third, respectively.

With regards to AP and EP, the effect resulting from window transport is almost the same for aluminium and PVC as frame material and considerably higher than for the wooden window. In the case of POCP, the transport effect is again for the wooden window the lowest followed by aluminium and PVC windows.

From the viewpoint of frame material, the wooden window shows the lowest AP, EP and POCP. Aluminium and PVC are alternately placed second and third.

Concerning the environmental impact of lifetime, AP, EP and POCP are for the three window types almost the same. However, the wooden window shows a slightly higher potentials than the other window types.
Flooring materials

The analysis of flooring materials includes the ecological comparison between wood, PVC and linoleum. Basic data used in the study were taken from Åsa Jönsson (1995). Whereas the methods applied by Jönsson for comparing wood, PVC and linoleum flooring materials differ from the LCA method, the resulting impact assessment within the framework of this study based on Jönsson's data was conducted according to ISO 14042.

The analysis includes the importance of wood as substitute for fossil fuels as well as the environmental impacts of different flooring materials. The results obtained lead to the following conclusions:

- Pinewood as flooring material consumes the lowest amount of energy (electricity and fossil) followed by linoleum and PVC.
- Burning wood at the end of life cycle has no negative effects, because the CO₂ released was removed from the atmosphere by photosynthesis.
- Non-renewable materials as components of linoleum and PVC cause negative effects due to the additional CO₂ released to the atmosphere.
- Besides the CO₂-neutrality, the renewable waste can substitute equivalent amount of fossil fuels leading to the reduction of CO₂ in the surrounding atmosphere.
• PVC shows the highest GWP (4.2 kg/M2) which is 2.5 times more than that of linoleum (1.6 kg/m2), while the effect of wood is very small (0.42 kg/m2) and can be more or less neglected.

• With regard to AP, PVC again shows the worst record followed by wood and linoleum, and the fact that wood shows higher potential than linoleum might be related to the incineration process.

• The ecologically most unfavourable result for wood flooring is the relatively high EP, whereas PVC flooring shows the lowest ER concerning POCP, however, wood as flooring material is the best, whereas PVC and linoleum are placed second and last respectively.

CONCLUSIONS

Wood is an environmentally friendly building material. It is CO₂-neutral and it is produced in a sustainable way, at least in Europe. But, the subjective impression that with respect to environmental aspects wood products are superior than the competing products can also be proved by hard facts. The results of the comparative LCA studies clearly indicate that wooden products and products systems based on wood show advantages in most environmental impact categories. This rather positive result is not surprising for wood technologists and LCA experts with timber related background.

In decision making processes environmental aspects have become more important during the last decade. The question which can be raised in this contexts is: Why do wooden products still have to face such strong substitution pressure?

There are many reasons. First of all, the environmental behaviour is not the only aspect that influences the decision in favour or against a product. Other features, such as technical behaviour, regulatory affairs (standards, building codes, fire protection directives, etc.), durability, image, habits and, last but not least, the costs of the product, heavily effect the decision. We all know that wood based products also have some disadvantages. Wood shrinks and swells, it is prone to biological attack which may end in total deterioration, it needs continuous attention and maintenance, it can burn, etc.. Customers may rate such behaviour very differently. In addition, cost effects should not be forgotten.

In order to better understand why wooden products still have to face substitution one should consider the following list of preferences in decision making process of many customers.

1) Regulatory affairs often direct the decision in a certain direction. This can hardly be influenced by the customer. An example for such an obstacle are the fire hazard regulations in many countries, which prohibit or restrict the use of wood in many building types.

*Necessary measures: Work towards wood friendly building codes, where ever this is necessary and reasonable!*
2) Technical superiority is very important when it comes to decision making. Customers tend to choose the technically best and most durable solution whenever the costs for this solution are still reasonable.

*Necessary measures: Design wooden products and product systems technically sound so that they will stay in service for a long time! Low durability and high maintenance efforts will negatively affect the image of wood and the customers' perception on the long term.*

3) Wooden products and product systems must be cost effective and competitive! Higher prices for wooden products compared to competing products can only be justified if there are other features, such as very positive image, aesthetics, technical superiority (e.g. better insulation properties), which are rated high by the customers.

*Necessary measures: Produce wooden products cost effective in order to be competitive!*

4) The knowledge about the advantages of using wood in constructions is rather limited. This is not only the case for architects, also the end users often do not know enough about wood. This limited knowledge often leads to wrong utilisation of wood and consequently to problems which negatively affect the image of wood.

*Necessary measures: Provide easy to use and understandable technical information to architects and end users! Advertise the advantages of wood in an appropriate way!*

5) Many environmentalists still believe that trees should stay in the forest in order to preserve nature. Certainly environmental preservation is an important task, but there are environmentally sound forest management systems which secure sustained utilisation of forests without endangering the nature.

*Necessary measures: Inform environmentalists and politicians about environmentally sound forest management systems and possibilities for sustained utilisation of renewable resources!*

**LITERATURE**

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TOPIC 1.2: COMPETITIVITY OF WOOD – IS WOOD LOSING MARKET SHARE?
The competitive climate for wood products and paper packaging; the factors causing substitution with emphasis on environmental promotion

Paper by Jan Hagstedt, Senior Advisor, Nordic Timber Council, Sweden

ABSTRACT

Wood and paper were early materials. When few other materials were obtainable, wood was used for a multitude of purposes. Following the advent of new technology and cheap energy materials like reinforced concrete, plastics, steel and aluminium often replaced wood. Lately however the environmental cost for pollution, the use of finite energy recourses and the so-called Green House effect has entered the agenda, as has the whole concept of a sustainable society.

Wood is a truly sustainable material, provided forestry operations are carried out in a responsible way, not only regarding forestry volume and reforestation, but also regarding wild life, flora and fauna and socio-political aspects on forestry. Obviously the environmental strength of wood and paper products is based on responsible forestry. This presentation is made under the assumption that such a responsible forestry operation will be maintained.

The competitive climate for wood products and paper packaging is a complex of many variables and influencing factors. On one hand wood is often highly regarded from environmental, emotional and practical reasons. People like wood. On the other hand specifiers and ordinary people may choose something else. To know why is critical in order to remedy the situation.

The decision process is also complex. Wishes of a producer or a specifier may differ from the end users, based on different preferences and/or perceived practicality or economy.

It is not unusual that someone else than the end user makes the critical decision about materials, occasionally based on erroneous or incomplete information or the decision maker is simply not convinced that wood is the best choice. Steel studs for partition walls may serve as an example. They are not cheaper than wooden studs and not better for the end user, but may be better for the builder. Powerful R&D, lobby and promotional efforts by other materials have a strong influence too.

Wood is thus part of a complex market space. Many different trends and movements occur, sometimes overlapping, sometimes in different or even opposite directions. Examples: Building codes, fashions, environmental trends, DIY and new trade patterns and the current trend towards a sustainable development, where wood has almost all the advantages. The
combined effect of all these trends or movements is reflected in the actual use of different materials, i.e. what is actually bought and used at a given price/quality ratio.

If the world population and the economic growth should increase by 100% in 25 years, i.e. in developing countries, it appears unlikely that the world’s forest recourse, although satisfactory now, can grow at the same pace or even be maintained. Then large numbers of people in such a population growth would either risk living in poor circumstances, or put a lot of strain on available energy resources and on the environment, since most of the competing materials originate from finite resources, pollute and use more energy.

So is there such a thing as a desirable or optimal substitution, seen from a resource point of view or based on function and fulfilment of needs? The answer to what is a sound use of wood can be: *A sustainable society based on sound environmental principles. Wood meets all requirements and should be used more to reach these goals.*

**Key words:** sustainability, environment, competitive climate, and substitution

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**L’environnement concurrentiel des produits du bois et des emballages papier; les facteurs de substitution dans un contexte de protection de l’environnement**

Communication de M. Jan Hagstedt, Conseil nordique du bois (Suède)

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**RÉSUMÉ**

L’utilisation du bois et du papier est très ancienne. Le bois était utilisé dans de nombreux domaines quand peu d’autres matériaux étaient disponibles. Avec l’apparition de nouvelles techniques et une énergie à bas prix, des matériaux comme le béton armé, les matières plastiques, l’acier et l’aluminium ont souvent remplacé le bois. Cependant le coût écologique de la pollution, l’utilisation de ressources énergétiques finies et l’”effet de serre”, ainsi que le concept général de développement durable, sont récemment devenus des sujets de préoccupation.

Le bois est un matériau réellement renouvelable, à condition de respecter une condition importante: les opérations forestières doivent être effectuées de manière responsable en ce qui concerne non seulement le volume de bois coupé et le reboisement, mais également la faune et la flore, ainsi que les aspects sociopolitiques de la gestion des forêts. Il est évident que l’atout environnemental des produits du bois ou en papier repose sur une gestion forestière responsable.

Dans la présente communication, l’auteur part du principe que les forêts continuent à faire l’objet d’une gestion responsable.

L’environnement concurrentiel des produits du bois et des emballages papier est constitué d’un grand nombre de variables et de facteurs différents. S’il est vrai que le bois est souvent hautement estimé pour des raisons pratiques et affectives – les gens aiment le bois – il est également vrai que les spécificateurs et les consommateurs ordinaires sont parfois amenés à choisir d’autres produits que le bois.
Le processus de décision est complexe et les désirs d’un producteur ou d’un spécificateur diffèrent parfois de ceux de l’utilisateur final pour des motifs, à tort ou à raison, de commodité ou d’économie. Les poteaux d’acier utilisés dans les cloisons illustrent bien cette idée: ils ne sont pas moins chers que les poteaux en bois et ils ne sont pas plus avantageux pour l’utilisateur final, mais ils sont probablement plus faciles à utiliser. Or, il n’est pas rare que, dans la chaîne de valeur, ce ne soit pas l’utilisateur final qui décide du choix des matériaux. Il arrive aussi que la décision soit basée sur des informations erronées ou incomplètes ou que celui qui prend cette décision ne soit tout simplement pas convaincu que le bois est la meilleure solution. À noter aussi que le secteur du bois déploie moins d’efforts en matière de recherche-développement et de promotion que les secteurs qui produisent d’autres matériaux.

Le bois est situé sur un marché complexe. Des tendances et des mouvements divers se produisent; parfois ils se rencontrent, parfois ils divergent, voire s’opposent. Cela est le cas en particulier lorsque les matériaux sont visibles: des modes, des comportements écologiques et des modèles apparaissent dans le domaine du bricolage et du commerce. À l’heure actuelle, le développement durable est une tendance assez forte et, dans ce domaine, le bois possède presque tous les avantages par rapport à ses concurrents. L’effet combiné de tous ces facteurs se reflète dans l’utilisation finale des différents matériaux, déterminée par leur prix.

Pour conclure, peut-on parler de substitution souhaitable ou optimale du point de vue des ressources ou de la fonctionnalité et de la satisfaction des besoins?

Si, par exemple, la population et la production de la planète augmentaient de 100 % en 20 ans en Extrême-Orient et dans les pays en développement, il paraît improbable que les ressources forestières mondiales, quoique suffisantes aujourd’hui, puissent augmenter au même rythme ou même se maintenir. Une grande partie de la population risquerait alors soit de vivre dans la pauvreté, soit de faire subir une pression considérable aux ressources énergétiques disponibles et à l’environnement.

**Конкурентный климат для продуктов из древесины и упаковочных материалов из бумаги: факторы, приводящие к замене с особым учетом экологических требований**

Документ, подготовленный г-ном Яном Хагштедом,
Северный совет по лесу, Швеция

**РЕЗЮМЕ**

Древесина и бумага используются с давних времен. В отсутствие каких-либо других материалов древесина имела множество различных применений. С появлением новых технологий и с падением цен на энергоресурсы строительные материалы, такие, как железобетон, пластмасса, сталь и алюминий, все чаще стали употребляться взамен древесины. В последнее время всё большее значение приобретают такие факторы, как экологические издержки в связи с загрязнением окружающей среды, ограниченные энергетические ресурсы, так называемый парниковый эффект, равно как и вся концепция устойчивого развития.

Древесина поистине является устойчивым материалом при условии соблюдения одного важного условия: лесозаготовительные работы должны осуществляться ответственным образом с учетом не только объемов лесозаготовок и масштабов лесовосстановления, но и таких аспектов, как ресурсы живой природы, флоры и фауны и социально-политические аспекты лесоводства. Очевидно, что общий экологический потенциал продуктов из древесины и бумаги в своей основе имеет ответственное лесоводство.
Настоящий документ подготовлен, исходя из посылки, что лесоводство будет неизменно осуществляться ответственным образом.

Конкурентный климат для продуктов из древесины и упаковочных материалов из бумаги представляет собой сложное переплетение различных переменных и внешних и внутренних факторов. С одной стороны, древесина в силу практических и эмоциональных соображений высоко ценится людьми, которым, как правило, нравятся продукты из дерева, с другой стороны, специалисты и даже простые люди могут порой предпочитать другие материалы помимо продуктов из дерева.

Процессы принятия решений носят сложный характер, а предпочтения производителей или специалистов могут отличаться от предпочтений конечных пользователей в зависимости от тех или иных правильных или неправильных представлений, основанных на соображениях практического порядка или на необходимости экономии средств. В качестве примера можно привести использование стальных болтов для крепления внутренних стен зданий. Они не дешевле, чем деревянные штыри, и не лучше для потребителя, но с ними удобнее работать. Часто бывает так, что некто в стоимостной ценопоке должен принимать критические решения в отношении выбора тех или иных материалов. Порой такие решения даже строятся на ошибочной или неполной информации, или лицо, принимающее решение, просто далеко не убеждено в том, что дерево представляет собой наилучшее решение. На процесс принятия решений оказывают также влияние огромные усилия, которые предпринимаются в области исследований и разработок, широкая пропаганда других материалов, а также ограниченная активность сектора лесного хозяйства.

Древесина занимает часть очень сложного рыночного пространства, в котором сталкиваются многочисленные отличающиеся друг от друга тенденции и направления деятельности, порой перекрывающие друг друга и нередко идущие в различных или даже противоположных направлениях. Это особенно характерно там, где материалы находятся на виду. Существуют различные течения моды, экологические тенденции, тенденции в секторе товаров для домашних мастеров и в области торговли. Одной из таких общих и достаточно сильных тенденций является движение в направлении устойчивого развития, в котором древесина обладает всеми преимуществами по сравнению с конкурирующими материалами. Совокупный эффект всех этих тенденций или движений находит свое отражение в реальном использовании различных материалов, приобретаемых за определенную цену.

И наконец, можно задаться вопросом, а существует ли вообще такое явление, как разумная или оптимальная замена, которое рассматривается с ресурсной точки зрения или основывается на функциях и потребностях?

Если, к примеру, население мира и темпы экономического развития увеличатся за 20 лет на 100%, скажем, на Дальнем Востоке и в развивающихся странах, то маловероятно, что лесные ресурсы мира, состояние которых сейчас вполне удовлетворительное, смогут расти теми же темпами или сохраняться на том же уровне. При таких темпах роста населения большому числу людей грозит снижение уровня жизни, а имеющиеся энергетические ресурсы, а также окружающая среда будут подвергаться все большему давлению.
INTRODUCTION AND MODELS

In many complex processes, one of the difficulties is to find out what is actually happening in what appears to be happening. What are the drivers and the non-visible undercurrents? Once we know that it is much easier to understand and explain what is taking place. For that purpose, a model can be useful.

A model, a map for instance, is by definition a simplification of reality but can help us understand and is no doubt quite useful. Alvin Toffler used an interesting wave model for complex trends in his book “The third wave”. Different trends may vary in strength and direction. Each trend is here represented by a wave system. When two wave systems meet, the top of one system may meet the bottom in the other, and the result is no change. If two tops meet, the effect is doubled. The wave systems are superimposed and the resulting trend is the total sum of the different waves.

Substitution may be described with such a model. One obvious first wave was the one that occurred when a widespread use of wood was replaced by so-called more modern materials. The early driver here was perceived practicality at a favourable cost benefit ratio. This wave was further enhanced by new technology and knowledge about such new materials. At the same time, less development activities of wooden products took place.

This led to a second wave that we might call opinion or technology fashion. Decision makers believed that other more “modern” materials should take over from wood. This strengthened their position and weakened wood products even further.

In the third wave that we can see now sustainability and environmental issues enter the picture.

They can be used in a defensive way like the issue of certification or offensive as when we call for a sustainable use of materials.

These largely objective variables later tend to lead to more subjective opinions, waves, making people think: “Wood is environmentally sound and I support that!” Suddenly wood may find itself in Vogue. At the same time we can see that the perceived rationality of other materials than wood, to a large extent was based on cheap energy, the use of finite resources, and on the fact that polluters did not have to pay the costs of the pollution they created or took part in. If they were to bring these factors into the picture or pay the costs for cleaning the environment, additional health care etc the cost/benefit ratio would look less favourable for such materials.

In a well-functioning democracy, new findings for instance by researchers, NGO’s or others eventually results in a new picture of things, a new paradigm, as was the case after the Rio and the Kyoto meetings. The new paradigm spreads in wider circles until it becomes politically useful. Politicians will grab the opportunity to meet current trends or collect...
voters on these grounds. Besides speaking about it one way of showing their interest is to change rules and regulations to steer closer to what they find is politically correct.

So rules and regulations are gradually changed. And through many channels an opinion wave is created in wider circles and the cost/benefit ratio eventually changes in favour of sustainable materials like wood.

When checking such a model with what actually happens in different parts of the world we can clearly see big differences. Some of the general trends are similar but the magnitude is different, so much fact that the usage picture does not look the same at all. Compare for instance North America with Europe or individual countries in Europa with each other. Intense wood using areas may use 10 times more wood per capita than low wood using ones. Some of these differences may be explained by different climates and domestic raw material supply, but it looks like traditional cultural- and building habits plays an important role as well.

Naturally in the wake of such habits one will find lots a very tangible factors like: Lack of skilled labour, rules and regulations that are not applicable for wood, products not available, engineers not possessing necessary knowledge for specifying wood products, distribution not supplying the right goods/products etc.

Naturally such factors will seriously hamper the use of wood.

**THE COMPETITIVE CLIMATE AT A GRASS ROOT LEVEL**

Not all of us will wake up in the morning with a strong urge for logs, planks or 2”x4”. We would rather have a breakfast and then we do not want flour and water, we rather like to have some coffee, bread and butter, that is rather a meal then merely the ingredients.

Applied to wood: We may want new windows, a floor or even a new house (B) but not primarily the planks, the raw material (A). Unlike most competing materials wood is often offered more or less as a raw material. That is many time an obstacle since one may not know/be able or want to transfer the raw material into a finished product.

Once the industry knows how to move from A to B, from raw material to product, a substantial part of the problem is solved.

At the other end of the scenery we find our competitors. They provide well-defined products most of which are available in the distribution chain with well-specified properties known to specifiers.

Also the competitors try harder to extend the products to systems and services.

With uPVC windows for instance there is often an instalment service linked to the physical window and instructions, although some say that what the producers claim as “maintenance free” really means there is no way to maintain these windows.
Still the difference in approach is striking. If a house owner in the UK wants his windows replaced he can just say yes to one of many telephone salesmen, go away for the week end and new glossy uPVC windows cut to size will be installed in his house, when he gets back on Monday morning.

If however he prefers wood, he will have to find out which species to choose, search for a manufacturer, a carpenter and often a painter. In other words his life will be rather more complicated.

The assumption that products are a better option for end users is supported by the fact that when finished wood products are available they may be very successful too.

Wooden floors for instance, where a whole range of products is available, are very successful at the moment. Wooden furniture is another example. IKEA is a successful worldwide provider of products with efficient marketing and distribution methods.

On the other hand finished products of other materials than wood normally have a shorter product cycle, whereas wood can last very long in many areas of uses.

A very specialised product is by definition less generic and thus more vulnerable to changes.

Wooden planks and brick stones are close to being raw materials. Both can be used to build many types of houses. A wall sized concrete block on the other hand is meant for a certain type of building or building system and cannot normally be used for other, different buildings.

The overall conclusion however is that wood is losing ground, since it does not always come as products. And therein lie both an obstacle and a great potential, if the wood based industries get their act together.

And - wood is a highly versatile material with a fairly long product cycle.

THE RESULTING TRENDS IN SUBSTITUTION

Current substitution trends and underlying mechanisms are described with numerous examples in the report:


Most of the findings in the study are still valid and therefore they will not be repeated here. Some changes in the situation may have occurred though.

The environmental movement and the calls for a sustainable society have moved from the pioneering stage to more of a normal everyday issue.
Many persons that used to represent NGOs are now actually representing GOs and some former demonstrators act from governmental positions, and both the issues and the persons themselves are better enlightened and matured. But the environmental conviction stays.

The common knowledge is also better. A slogan like “Save a tree – use PVC” is less credible today.

Much of the excitement within the industry about the environment issue was based on a fear/benefit expectation.

Fear, for being positioned as non-environmental friendly. The benefit expectation was of course that the industry hoped that an environmental friendly product should mean a significant boost of sales. It seems now that very little of that happened overnight. The penalty was mild and the benefits moderate.

Still the potential loss of being environmentally wrong was, in the minds of most company reps, potentially very dangerous.

We can take the certification issue as an example. To provide products from certified forests was seen as very important in many parts of the world, despite the fact that hardly anyone noticed a strong consumer interest for buying these products, let alone paying a premium for the certification. Initially there were some advantages in the retailing link of the distribution chain. But now when almost all suppliers provide certified wood that comparative advantage evaporated.

The final result seems to be credibility of some suppliers and also improved forestry methods, sometimes marginally and sometimes better than so. But destructive deforestation, taking place in some corners of the globe, was only marginally affected and still remains.

Certification for many had the character of removing a threat, or guilt from choosing wood. However it also provides a solid base for a sound and increased use of wood. And it makes it easier to position wood as a truly sustainable material.

But if we adapt the concept of a sustainable use of materials that concept should of course by definition cover the whole life span of a material/product and then certification is only one of several important aspects.

For packaging material, perhaps more subtle to consumer opinions than solid wood, the new environmental attitude already brought some changes. Fewer producers now put smaller electronic gadgets in polystyrene packaging. Cardboard is the preferred choice.

But to capture increased shares of the market in other areas many other actions are needed.

When looking at this we need to establish the state of the art, which no doubt differs a lot for instance between North America and Europe.

*North America* has a high per capita usage of wood and price competition is fierce. But wood can also be seen as a material with such a strong position in the market that the major problem is to maintain or defend that situation.
The attackers as it seems are mainly the steel industry that normally relies on shipbuilding and the automobile industry and a few other heavy uses of steel. When those markets are quiet or saturated, the steel industry will have to look at the housing and construction markets.

Their most important tools are product development and promotion/marketing of products and system solutions.

There is little doubt they have put timber-framed building under pressure here.

*In Europe* on the other hand wood can be seen as the aggressor, trying to capture market share from the more traditional materials like brick and block, reinforced concrete, glass and steel, uPVC etc. Competitors inspired the tools used for that purpose.

That work has already produced some fruition and wood is gaining market shares in housing flooring etc. Many believe we are in for a renaissance of wood. We can see revitalized interest among the general public and an increasing interest among politicians and authorities.

On the other hand trade and industry may be more traditionally oriented. Some industries used to live behind protective national curtains, created by local or national rules and regulations. Some industries were not able to carry out product development, since the national markets were too limited for the product series needed to reach profitability.

Many believe that when the European Union gradually will start to function as was the intention, as a free market, we will go in the same direction as the US. Results should then be more products made of wood, such as engineered wood, and a higher market share.

**The Global Perspective**

Also the fact that EU is self-supporting in wood, actually one of the most important surplus areas, and that wood can replace materials that need a lot of imported energy such as oil, will support a generally positive attitude to use more wood.

That should clearly fall within the boundaries of “sound use of wood”.

It is very interesting though to see if areas with a forest shortage will have a similar attitude. In China for instance they are very concerned about having too little forest and they have since long tried to cut down the use of wood as a way to save their existing forests. It is evident then that the Chinese authorities do not regard more use of domestic wood as “sound use of wood”.

With a booming construction sector this will by necessity lead to the use of materials that are more resource consuming and polluting than wood implying negative effects on the environment and on non-sustainable resources.

South America, Africa and South East Asia have a great potential for growing more wood through improvements in forestry operations and thus also increase the use of wood. On the
other hand here is where most people are in doubt if the present forestry can be termed as responsible and then if such a scenario should be called a sound use of wood. A continued destruction of tropical rainforests is, of course, a global threat.

In the very long perspective (or perhaps not quite so long), one can imagine a development that originally took place in smaller regions. Wood was brought from the forests to where it was needed and used, or later from one part of a country to another, or now, from one part of a continent to other parts of that continent.

On a global level one could in principle do the same, provided transport costs were reasonable and there was enough wood available. And to some extent we can see this development taking place already. Canadian and US wood has been sold to Europe for long. Now European wood is sold not only to the Middle East but also to the foreign East and US in large quantities.

By the same assumptions, that wood is available, responsible forestry is maintained and the costs, all aspects included are reasonable; one could conclude that intercontinental production and usage could very well be a sound use of wood.

But naturally there is no simple answer. The answer will be given when all the cost implications and all the pros and cons are counted.

**CONCLUSION**

Wood is part of an interesting complex of factors and influences. The combined effect of many interacting factors results in the actual use of wood in different regions. Sustainable development and environmental issues are important foundations, but not the only ones to be considered for an increased sound use of wood.

Some statements that could be useful to keep in mind:

- Wood did not pollute the water or the air, others did.
- Wood did not deplete existing finite resources like oil and ore, others did.
- Wood absorbs carbon dioxide, other materials do not.
- Wood produces oxygen, other materials do not.
- Wood can be produced forever helped by the sun, other materials can not
- Wood can at the end of the life cycle be used as fuel, other materials can normally not

The sound use of wood based on sustainable and from all respects responsible forestry operations is extremely favourable. In fact wood is such an outstanding material that it is difficult even to imagine such a material had Mother Nature not invented it already.

A sound use of wood should be the consumption we arrive at, the consequence of, a sustainable society based on sound environmental principle. Wood meets all requirements and should be used more to reach these goals especially where wood is a natural and
abundant resource and perhaps also in other areas if the true cost picture turns out to be favourable.

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Potentials for the European woodworking industries to enhance the use of wood

Paper by Mr. Jeremy Wall,
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TOPIC 1.3: IS INCREASED CONSUMPTION OF WOOD SUSTAINABLE?
Outlook for long-term supply of and demand for forest products on the European Forest Sector Outlook Studies

Paper by Mr. Kari Kangas,
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ABSTRACT

The projections prepared for 37 ECE countries suggested that, in general, consumption of all forest products is growing, but slower than the economy as a whole. Over the next two decades consumption growth will be supported by dynamic development in the eastern part of Europe, but after successful convergence growth is likely to slow down further. The projections are provided up to 2030. This period is significantly characterised by an increasing role of countries currently having economies in transition. The current rates of per capita consumption in the CEEC and CIS are low compared to the EU, most notably in paper products. A significant catching up is expected over the projection period, fostered by relatively higher economic growth. In absolute terms, paper consumption is more than trebling in the CEEC, while the CIS countries are expected to consume almost five times more paper than currently. An increasing share of forest products, sawnwood in particular, are expected to be produced in the CEEC and CIS.

Forest products are facing competition in all their uses, from other materials but also inside the sector. Product improvement and development of new products must continue if forest products are to maintain their competitiveness. Competition with prices is especially critical for standard products. Further, consumer preferences should not change to disfavour forest products. Nor may policies discriminating against forest products be present if growth is to be maintained. These depend on the ability of the sector to promote forest products in terms of basis in renewable material and of governments to accept that wood is a truly environment friendly raw material. In addition to baseline scenario, two alternative development paths for economic and policy environment were described based on policy analysis conducted by UNECE/FAO and the consequent impacts on the forest sector were analysed.

Key words: demand, supply, trade, economic forecasting, econometric analysis, forest industry, scenario analysis.
Perspectives de l’offre et de la demande de bois à long terme d’après les Études des perspectives du secteur forestier en Europe


RÉSUMÉ

Les prévisions établies pour 37 pays de la CEE donnent à penser que, d’une façon générale, la consommation de produits forestiers progresse, mais plus lentement que l’économie dans son ensemble. Pour les 20 prochaines années, la croissance de la consommation sera soutenue par un développement dynamique en Europe orientale, mais quand celle-ci aura rattrapé son retard, la croissance se ralentira probablement de nouveau. Les prévisions portent jusqu’en 2030. La période est nettement marquée par un rôle grandissant des pays actuellement en transition. Dans les pays d’Europe centrale et orientale et les pays de la CEI, les taux actuels de consommation par habitant sont bas, comparés à ceux de l’UE, en particulier pour les papiers et cartons. Ils devraient progresser de façon significative pendant la période visée, sous l’impulsion d’une croissance économique relativement forte. En valeur absolue, la consommation de papier devrait plus que tripler dans les pays d’Europe centrale et orientale et il est prévu que les pays de la CEI consomment près de cinq fois plus de papier qu’aujourd’hui. Une part croissante des produits forestiers, les sciages en particulier, devrait provenir des pays de cette sous-région.

Toutefois, l’analyse économétrique comporte diverses hypothèses, notamment celle que la compétitivité des produits forestiers reste constante. Les produits forestiers sont concurrencés dans toutes leurs utilisations par d’autres matériaux mais se concurrencent entre eux. Pour que les produits forestiers restent compétitifs, il faut continuer d’améliorer les produits existants et en élaborer de nouveaux. La concurrence en matière de prix est particulièrement critique pour les produits standard. En outre, il ne faudrait pas que le comportement des consommateurs change au détriment des produits forestiers. De même des politiques de discrimination à l’égard de ces produits nuiraient au maintien de la croissance. Tout dépend de la capacité du secteur de promouvoir les produits forestiers en tant que matériau renouvelable et de la reconnaissance par les pouvoirs publics que le bois est une matière première vraiment favorable pour l’environnement. Parallèlement au scénario de base, deux autres possibilités de développement politique et économique ont été présentées à partir d’une analyse des politiques réalisée par la CEE-ONU et la FAO et les conséquences pour le secteur forestier ont été analysées.

Mots clefs : demande, offre, commerce, prévisions économiques, analyse économétrique, industrie forestière, analyse de scénario.
Долгосрочные перспективы в области спроса на древесину и ее предложения на основе перспективных исследований по лесному сектору Европы

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Резюме

Согласно прогнозам, подготовленным для 37 стран - членов ЕС, валовое потребление всех лесных продуктов неуклонно возрастает, но более медленными темпами, чем экономика в целом. На протяжении следующих двух десятилетий рост потребления будет сопровождаться динамичными темпами развития в восточной части Европы, а после успешного завершения процесса присоединения к Европе рост, по всей вероятности, будет постепенно замедляться. Прогнозы были сделаны на перспективы до 2030 года. Этот период в значительной степени будет характеризоваться растущей ролью стран, экономики которых в настоящее время находится на переходном этапе.

Нынешние темпы потребления на душу населения в странах центральной и восточной Европы и СНГ ниже, чем темпы потребления в ЕС, прежде всего в секторе бумажной продукции. В прогнозируемый период ожидается значительное повышение темпов роста, подкрепляемое относительно высокими темпами экономического развития. В абсолютном выражении потребление бумаги в странах центральной и восточной Европы увеличится более, чем в три раза, а страны СНГ, по прогнозам, увеличат потребление бумаги почти в пять раз по сравнению с нынешними темпами. В экономике стран центральной и восточной Европы и СНГ доля лесных продуктов, и в особенности пиломатериалов, как ожидалось, будет постоянно расти.

Вместе с тем этот эконометрический анализ исходит из целого ряда предпосылок, предполагающих, в частности, что конкурентоспособность лесных продуктов будет оставаться неизменной. Продукты леса и их различные виды применения в условиях растущей конкуренции подвергаются внешнему давлению со стороны других материалов; конкуренция имеет место и внутри сектора. Для того чтобы лесные продукты могли сохранить свою конкурентоспособность, необходимо постоянно улучшать их качество и разрабатывать новые виды изделий. Для стандартной продукции критически важное значение имеет ценовая конкуренция. Кроме того, предпочтения потребителей не должны наносить ущерб масштабам использования лесных продуктов. Не должно быть также места для политики дискриминации в отношении лесной продукции, поскольку она может затормозить темпы роста. Все это зависит от способности отрасли пропагандировать лесную продукцию в качестве основы возобновляемых источников материалов и убеждать правительства в том, что древесина является наиболее благоприятным для окружающей среды сырьевой продуктом. Помимо главного сценария развития в документе представлены два альтернативных плана развития экономической и политической среды на основе анализа, проведенного ЕЭК ООН /ФАО вместе с их возможными последствиями для лесного сектора.

Ключевые слова: спрос, предложение, торговля, экономическое прогнозирование, эконометрический анализ, лесная промышленность, анализ сценарнов.
INTRODUCTION

There are several factors, which make the decision making in the forest sector subject to a substantial amount of uncertainty. Forestry is not isolated from its environment, and many factors in the political and economic conditions shape the sector but are largely beyond its control. However, understanding of the linkages to the operating environment is essential if the external impacts to the sector and the consequences of own decisions are to be anticipated. International trade in forest products is increasing, companies are global and different regions in the world are growing at different phase, thus introducing a substantial international dimension to the industry, which, however, relies significantly also on natural resource and regional and local structures. The long planning horizon in the forest sector sets some challenges as well.

This paper presents the summary results and conclusions from a study conducted for the European Forest Sector Outlook Studies (EFSOS). The purpose of the study was to provide projections for forest products demand, supply and trade. The essential elements for this study are econometric analysis on structural and causal relationships in the economy from the point of view of forest industry (Baudin and Kangas 2003), long-term forecasts for economic growth (Forecasts of the…2002) and policy scenario analysis (Peck et al. 2002). For the full report on projections, see Kangas and Baudin (2003).

SCENARIOS FOR DEVELOPMENT IN ECONOMIC AND POLICY ENVIRONMENT

Baseline scenario

In the baseline scenario, it is expected that no change in economic and political framework will change the operating environment of the forest sector. It means that we expect the functional relationships between economic growth, consumption, production and trade of forest products remain stable. There will be no major changes in consumer perceptions and behaviour and no major technological development will undermine or improve the competitiveness of forest products or replace them in their final uses. The real prices and costs of forest products will remain constant.

For the scenario analysis, two different alternatives for policy and economic framework were created in the secretariat based on a study on the major impacts on the European forest sector (Peck et al 2002). They are presented in the following two chapters accompanied with reasoning of their impacts on GDP growth and prices of forest products.

Scenario I: Increasing conservation, environmental regulation and public awareness

There have been and there are currently several ongoing international processes aiming at improving the quality of the environment. However, an accelerated implementation of stricter environmental standards and national and internationally legally binding regulatory framework, supported by increasing environmental awareness through campaigns and
communication to the public, would have a profound impact on the society and environment.

No matter how important sustainable use and equal intertemporal allocation of natural resources are in sustaining long run growth, environmental conservation is usually regarded as associated with economic growth rates lower than in other circumstances, using conventional GDP measures, which, as is well known, have limited coverage of externalities, notably with regard to natural resource “capital”. Increasing nature conservation decreases the resources available for production purposes and thus decreases at least possibilities for short term profits. Further, conservation makes the resource scarcer for the production sector and may increase extraction costs and the market price of the resource.

Changing management regimes of resource under utilisation would probably have little impact on economic growth but increasing raw material and final product prices can be expected. One measure to promote environmental, social and economic quality of forest management is certification, which would, taken the overall increase in environmental awareness, increase demand for forest products as environmentally friendly goods, and make consumers willing to pay more for certified forest industry products.

Increasing importance of non-market benefits and non-consumptive uses of forests also call for changes in land use and management practises. State owned nature reserves, as well as private managed forests in countries with the policy of open access, provide the basis for non-market benefits and non-wood uses of forests. However, additional measures would be needed to meet the increasing demand. This could be facilitated by providing private owners with economic incentives to produce opportunities for increasing recreational use for the public. This would decrease the roundwood supply and tend to increase prices.

One crucial element of environmentally friendly policy framework is the energy sector. It is plausible to expect that this would mean tax policy aiming at better competitiveness of renewable energy at the expense of fossil fuels and nuclear energy. The high emission taxes placed on the use of polluting energy sources will increase production costs of the industry, increase products prices and the consequence would be slowing down economic growth rates in the medium and even long-term. Tightening waste management and emission standards will have a similar impact. However, a switch to renewable energy sources will decrease the costs of emission control to some extent. An additional increase in forest product prices is likely to occur along with increasing competition on wood raw material when wood energy becomes a more attractive alternative.

**Scenario II: European integration and market liberalisation**

In general, European integration and market liberalization are expected to give stimulus to the economy in terms of increased standard of living. This is considered to be a consequence of increased international competition and specialization. Also, real prices are expected to decline slightly in all regions of Europe under these circumstances. The globalisation in
itself and the market framework in CITs are expected to push GDP growth rates upwards in all regions of Europe; the EU/EFTA, CEEC and CIS. Obviously, the enlargement of the EU has the largest potential for positive income effects in those countries, which are candidates for the enlargement, while the impact on CIS is expected to be neutral. For the countries inside EU and EFTA a positive effect of enlargement on the economy can be expected due to international specialisation and competition.

Innovations are expected to be favourable for EU/EFTA countries, where R&D is comparatively high. In an integrated situation innovations may be rapidly transferred to countries with the most favourable investment situation. There is a risk that the different levels of environmental restrictions among countries may create a situation where countries with less ambitious objectives on the environmental conditions may attract foreign investments.

It is expected that increasing innovation activities and the new market concept in CITs will result in lower real prices for all regions, while in the existing EU/EFTA countries lower forest product prices would be the consequence of increased globalisation. Simultaneously, prices in CEEC and CIS may increase due to favourable supply conditions due to increased international competition and specialisation. These factors are most important for the price formation of forest products. Less important are factors such as certification, which may give higher prices in all regions and EU enlargement that may give higher prices in EU/EFTA and CEEC, while the effect in CIS would be neutral. In summary, real forest product prices are expected to decline in EU/EFTA and CEEC, while in CIS they may remain stable or even increase slightly.

**MODEL SPECIFICATION**

**The multiple-equation approach**

Two different modelling approaches are applied according to the market characteristics of the country in question. Fully specified demand, supply and trade models are estimated for the countries, which account for most of the consumption and production in Europe (Group I). One of the major advantages of this approach is that it allows us to examine substitutions. The most obvious type of substitution takes place between alternative sources of supply on the demand side, and between directing the production to alternative markets on the supply side. In this framework consumption is considered to be determined by a demand shifter and by domestic market prices as well as import prices. Supply is determined by a supply shifter and by domestic market prices as well as export prices. For solid wood products the chosen demand shifter is the end-use index, while the demand shifter for paper products is GDP.
That is,

\[
\text{DEMAND} = fn(P_d, P_m, X); \quad \text{and} \quad (1)
\]
\[
\text{SUPPLY} = fn(P_d, P_x, Z), \quad (2)
\]

where \(P_d\) is the price of domestically produced goods, \(P_m\) is the import price, \(P_x\) is the export price, \(X\) is a vector of additional factors that determine demand (demand shifters), and \(Z\) is the factor of additional factors that determine supply (supply shifters).

Equations (1) and (2) can be further expanded to reflect the components of consumption and production. The following set of equations is defined:

\[
Q^D = f(P_d, P_m, D^D); \quad (3)
\]
\[
Q^M = f(P_d, P_m, D^M); \quad (4)
\]
\[
Q^S = f(P_d, P_x, S^D); \quad \text{and} \quad (5)
\]
\[
Q^X = f(P_d, P_x, S^X), \quad (6)
\]

where \(Q^D\) is demand for domestically-produced goods, \(Q^M\) is import demand, \(Q^S\) is supply to domestic markets (\(Q^S = Q^D\)), \(Q^X\) is supply to export markets, \(P_d\) is the price in domestic markets, \(P_m\) is import price, \(P_x\) is export price, \(D^D\) are demand shifters for the domestic market, \(D^M\) are demand shifters for import demand, \(S^D\) are supply shifters for the domestic market, and \(S^X\) are supply shifters for the export market.

**Time series cross-sectional approach**

The model of demand for forest products is generally formulated by Houthakker (1965) and has been widely used to estimate demand elasticities for commodities. Total (apparent) consumption is explained using price and GDP. For each of the eight product groups, the relationship modelled is:

\[
Q^T = fn(P_m, GDP, Q^{T-1}) \quad (7)
\]

where \(Q^T\) is apparent consumption, \(P_m\) is real import price (unit value), GDP is gross domestic product, and \(Q^{T-1}\) is consumption in the previous period. The estimation procedure follows a time series cross-section (TSXS) approach. The methodology is given in Buongiorno (1977, 1978) and Baudin and Lundberg (1987).

**SUMMARY OF THE RESULTS**

The scenario analysis clearly demonstrated that the forest industry sector is sensitive to changes in the policy and economic framework. Different economic growth rates, development paths, as well as policies affecting land use, cost structure and prices lead to distinct outcomes in terms of market size, trade balance and share of different products and regions of total production (Table 1). The econometric analysis indicated that both
production and consumption are sensitive to both changes in overall economic activity and prices of final products and raw materials. There are also significant differences between products, countries and regions in their responses to changes in prices and economic activity. That is why different assumptions will change consumption and production of some products more than those of the others. Also certain countries and regions will gain market share while others will lose. It is obvious, that the major changes are coming from CEEC and most notably from CIS, but the analysis revealed more factors, which need attention in decision taking in the sector.

Conservation scenario, which meant slower economic growth than in baseline, and price and cost increase for all regions and products, would lead to a rather steady development of shares of different regions of production. CIS would be gaining more share, but not to the extent as in baseline and integration scenarios. In terms of share of production, conservation scenario is most beneficial for EU/EFTA and CIS, largely due to more equal growth between regions. CIS would increase net exports in all products. CEEC would increase net exports, excluding panels. In EU/EFTA, the most significant changes would be in panels and paper and paperboard. In EU/EFTA the growth in consumption of paper and board would be reduced, so that EU/EFTA would remain a significant net exporter, since production is not as reactive on changes in prices and economic activity as consumption. In panels, consumption is significantly affected by price increases, and EU/EFTA would become a net exporter, and the region as a whole would significantly increase net exports in panels.

In the scenario, where expanding integration and globalisation, rapid real convergence in the east and strong growth in Western Europe form a favourable symbiosis, there would be a significant increase in the size of the total market. Beyond this largely predicted finding is a more interesting outcome. This refers to a significantly increasing share of CIS on production and the altered trade balance, which leaves EU/EFTA as net importer by the end of the projection period in all categories of forest products. Theoretically CIS production would meet the excess demand in the rest of Europe and a significant quantity of sawnwood could be still left over for exports to Asia, where trade deficit is increasing.

In EU/EFTA, consumption is growing in all scenarios more slowly than the economy as a whole with one exception: in the integration scenario the price decrease has a strong boost on paper consumption and GDP growth rate is exceeded. A similar kind of phenomenon can be noticed in CEEC. In CIS, the growth both in panel and paper consumption is stronger than the economic growth, on average terms over the projection period. This is however, mostly due to rapid growth over the first decade.

The analysis indicated that some products are more vulnerable to changes in prices and economic activity than others. In EU/EFTA, price increase in conservation scenario weakened relatively hard the demand for panels compared to sawnwood and paper. This finding emphasises the importance of cost control if panels are to maintain their competitiveness in relation to sometimes rather aggressive substitutes in construction
industry. The same is true for paper industry, since consumption is more sensitive to changes than production. In the conditions of modest economic growth and increasing prices, European producers should find markets outside the region for the excess supply, while during period of rapid economic growth and decreasing prices, domestic production can hardly meet the increasing demand.

An interesting finding concerning all the scenarios is that the higher the growth, the more EU/EFTA will lose market share. This is largely driven by the high speed of real convergence in the transitional countries, but that is not the only factor. Consumption in EU/EFTA is more reactive to higher growth and decreasing prices than production, and would make EU/EFTA more dependent on imports. As investments will provide higher marginal return for capital in the east and production costs would be lower anyhow, a growing domestic market accompanied with increasing prices would provide additional incentives for capital inflow. However, the integration scenario would require an accelerated economic growth throughout the region, which calls for a high number of growth promoting factors being present at the same time.

Table 1. Key figures from baseline (base), conservation (I) and integration (II) scenarios. scenario1

<table>
<thead>
<tr>
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<th>EU/EFTA</th>
<th>CEEC</th>
<th>CIS</th>
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<tbody>
<tr>
<td></td>
<td>Base</td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>GDP growth, %/a</td>
<td>2.2</td>
<td>1.7</td>
<td>2.6</td>
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<td></td>
<td></td>
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<tr>
<td>Consumption growth, %/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawnwood</td>
<td>0.8</td>
<td>0.4</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>4.4</td>
<td>2.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Panels</td>
<td>1.6</td>
<td>0.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Paper and board</td>
<td>2.1</td>
<td>1.4</td>
<td>2.8</td>
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<tr>
<td>Production growth, %/a</td>
<td></td>
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<tr>
<td>Sawnwood</td>
<td>0.9</td>
<td>0.5</td>
<td>1.3</td>
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<td>4.5</td>
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<tr>
<td>Panels</td>
<td>1.8</td>
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<tr>
<td>Paper and board</td>
<td>1.8</td>
<td>1.2</td>
<td>2.4</td>
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<tr>
<td>Share of total production, % in 2030</td>
<td></td>
<td></td>
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<tr>
<td>Sawnwood</td>
<td>45.0</td>
<td>54.1</td>
<td>44.9</td>
</tr>
<tr>
<td>Panels</td>
<td>63.8</td>
<td>69.0</td>
<td>60.1</td>
</tr>
<tr>
<td>Paper and board</td>
<td>77.8</td>
<td>83.6</td>
<td>73.9</td>
</tr>
<tr>
<td>Net trade, unit million in 2030</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

1 EU/EFTA countries refer to 15 European Union member countries and Iceland, Norway and Switzerland; CEEC refers to Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, The FYR of Macedonia, and Yugoslavia; CIS refers to Belarus, republic of Moldovca, Russia, and Ukraine
CONCLUSIONS

The economic analysis conducted here contained several built-in assumptions, which needs to be met if the growth in consumption and production in Europe is to be realised. Forest products are faced by competition in all their uses. Over the years, there has been product development. Existing products have been improved to better respond to needs of the markets. New products have been developed. Product development should continue so that growing economy would consume more forest products.

The growth rates of different products reflect the growth rates of the end-use sectors, which are generally growing slower than the economy as a whole. In order to reach the same growth rates with end-use sectors, forest products should maintain their competitiveness. The analysis indicated the vulnerability of forest products to price changes and thus emphasises the importance of cost control in production. Sawnwood and panels, seemingly more panels, are subject to competition from substitutes in construction industry. Forest products are competing with each other as well in many of their uses. Cost efficiency but also product development and innovative new uses of wood will be important means in competition with materials like steel, concrete and plastic.

The position of paper as the fastest growing category of forest products is often seen as being at risk due to a continuous fear of replacement by electronic solution in information sector. Replacement has not taken place and development of office technology has been more or less mutually beneficial for the producers of printing and writing paper. However, there are some indications of structural changes in the markets, the most well-known being the decline of newsprint consumption in United States since 1987 (Hetemäki and Obersteiner 2001). In any case, information sector is becoming more and more important for the paper industry, since for example consumption of household paper is not likely to increase radically due to stagnating and even decreasing population.

In general, it is hard to foresee policy, which would disfavour forest products. However, the success of forest products is conditional to consumer perceptions and the ability of the sector to promote forest products in terms of basis in renewable material. As recyclable, forest products should benefit from increasing environmental awareness if the attitudes are strong enough to have an impact on consumer behaviour. More stringent environmental standards and waste management policies should favour forest products and increase their competitiveness.

Competition will increase and the highly developed countries will lose market share due to high production costs and lower marginal returns to capital compared to lower income countries. From the point of view of forest industry in the EU, there will be increasing competition also in the domestic markets. Especially this is the case with relatively lower value added standard products, where critical factor in competition is the production cost, which would call for strategies like product differentiation and specialisation. Quality can be
used in competition but its importance is likely to decrease over the years when production technologies approach each others in all countries.

In all the scenarios demand for forest products is increasing and it implicitly requires more raw material. The analysis of the impact of different scenarios on the use of forest resources was outside the scope of this paper and will be discussed elsewhere. However, it is too important a question to be overlooked in the discussion. There are two main elements concerning the roundwood availability for growing industry. First, is possible to provide the increasing amount of roundwood on a sustainable basis? Second, is it possible in economic terms? The behaviour of forest owners in Europe was not analysed in this study and the impact of price changes on their willingness to sell remains open for speculation. In general, there is still limited information on the factors affecting the behaviour of forest owners as well as roundwood trade flows. However, there is some evidence that forest owners are sensitive to price levels in their selling behaviour (e.g. Loikkanen et al. 1986, Brännlund 1988, see Solber and Moiseyev 1997 for an overview). The reactions of forest owners are important especially in the integration scenario, where a significant increase in the total size of the market is accompanied by a decrease in roundwood prices.

Furthermore, in conservation scenario an increasing environmental awareness was assumed. It was also expected, that non-market benefits and non-wood uses of forests would gain more importance. If forest owners value increasingly forest uses other than wood production and if they are even offered economic incentives to provide basis for non-wood uses for the great public, what kind of impact it would have on roundwood supply? However, there should be alternative strategies to secure the roundwood flow to the industry even in the case when roundwood supply is restricted or reduced. This would mainly concern producers in the EU, taken the developing domestic industries especially in Russia, but Central and Eastern European countries as well, which will increase competition on roundwood and most likely decrease the possibilities to rely on increasing roundwood imports from the east.

However, the increasing demand for forest products cannot be straightforwardly translated into increasing roundwood removals and consumption of virgin fibres. Recycling of paper is far from theoretical physical maximum in many countries. The use of processing residues is likely to increase as well, along with increasing competition on raw material, importance of cost control and development of vertically integrated production units. Technological development will also change the input/output ratios.

In this study, alternative land uses like conservation, agriculture, and energy production, were analysed in terms of price changes, but they affect the physical availability of land for roundwood production. Those factors may have profound impact on roundwood availability and cause significant relocations of removals.

Changes in the economic and political environment affect forest sector on various ways. However, as concluding remark the feedback and importance of forest sector to the economic and social development should be mentioned. Significant changes in the forest
sector will affect the economy as well, taken, for example, the importance of forestry in rural development, in shaping the income distribution and in generation of export earnings. It can be seen from the strategies of some central and eastern European countries, that forestry is gaining more importance in new, comparative advantage driven strategies in countries with economies in transition. There the sector will not be only affected by economic restructuring, but will promote economic growth as well. Forest sector shall carefully follow the needs of the society but also the preconditions of the sector are likely to be recognised in policy making in European level.

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Wood supply for the growing European pulp and paper industry

Paper by Mr Bernard de Galembert, Forest Director, Confederation of European Paper Industries (CEPI), Brussels

ABSTRACT

Today’s situation regarding forests and wood in Europe is such that thanks to sustainable forest management, and to sustainable wood usage practices, the net annual forest increment (793 million m³ over bark) is much higher than the annual felling rate (418 million m³ over bark). In fact, over the past 10 years the forests on the European continent, including the European part of Russia, have constantly increased, now covering 329 million of hectares. These figures show that there is enough wood available in European sustainable-managed forests and the resource is even increasing.

However, due to government policies, landowners’ attitudes, technical and economical accessibility, environmental considerations and market conditions, the mobilisation of wood is now limited and therefore these should be taking into consideration. It is important that the wood-based industries have access to this economic wood supply in a sustainable manner.

Even though consumption forecasts for paper and board are steadily growing at an average rate of 2% per year, even with improved technology, a higher recycling rate and more efficiency, the need for wood will also increase. When looking at the three developments (increased use of biomass for energy production, enhanced carbon sequestration via forest management measures, closer to nature forest management) which could threaten its mobility, the industry could face a lack of wood as raw material in the years to come because it cannot be supplied efficiently. For all those reasons, CEPI has made a study, based on the runs of the EFISCEN model, aiming at assessing the future availability of roundwood in the coming decades. This study indicates that the expected shortfall in Europe would be 50 million m³/year by 2020, 80 million m³/year by 2030 and 194 million m³/year by 2060. It shows also that wood imported from Russia would not have a significant impact in reducing the shortfall in the near decades.

Bearing these figures in mind, the industry is developing a strategic vision in order to safeguard the wood availability in terms of quantity, quality and cost while further improving the industry’s sustainability credentials. The industry and its partners needs to become more cluster-minded. All members of the cluster need to improve logistics and logging practices, share experiences and knowledge, further improve the recycling rate, harvest more residues in an environmentally sustainable way, and invest more in R&D. But other stakeholders - decision-makers, Environmental NGOs - need to contribute as well, thereby taking up the message from Johannesburg.

Key words: wood availability, renewable energy, climate change, close to nature forest management, shortfall, wood mobilisation, partnerships
Les volumes de bois disponibles à l’avenir pour les industries du bois européennes

Document préparé par Bernard de Galembert,
Directeur des Forêts, Confédération des industries papetières européennes (CIPE)

RÉSUMÉ

La situation forestière en Europe est aujourd’hui telle que grâce à des pratiques raisonnées en termes de gestion des forêts et d’utilisation du bois, l’accroissement forestier annuel net (793 millions de m³ sur écorce) dépasse largement le taux d’abattage annuel (418 millions de m³ sur écorce). En fait, au cours des 10 dernières années, les forêts du continent européen, partie européenne de la Russie comprise, ont augmenté de 9 millions d’hectares, et couvrent maintenant 1 milliard 39 millions d’hectares – soit 27 % des terres forestières mondiales. Ces chiffres montrent que le bois est disponible en quantités suffisantes dans les forêts européennes exploitées selon les critères d’une gestion durable, et que les ressources sont même en augmentation.

Cependant, sous l’effet conjugué des politiques des pouvoirs publics, de l’attitude des propriétaires fonciers, de l’accessibilité, sur le plan tant technique qu’économique, de considérations environnementales et de conditions du marché, les volumes de bois disponibles sont actuellement limités et tous ces facteurs doivent être pris en considération. Il est important que les industries du bois aient accès à cette offre de bois économique, de façon durable.

D’après les prévisions, la consommation de papiers et cartons devrait croître de façon soutenue, à un rythme moyen de 2 % par an, et même avec l’amélioration des techniques, le développement du recyclage et l’augmentation de l’efficacité, les besoins de bois iront aussi en augmentant. Si l’on considère les trois évolutions (recours accru à la biomasse pour la production d’énergie, augmentation du piégeage du carbone grâce aux mesures d’aménagement des forêts et évolution vers un aménagement forestier plus respectueux de la nature) qui pourraient en menacer la mobilité, l’industrie risque dans les années à venir d’avoir à faire face à une pénurie de matière première bois, faute d’un approvisionnement efficace. Pour toutes ces raisons, la CIPE a réalisé une étude, d’après les calculs obtenus avec le modèle EFISCEN, pour évaluer les volumes de bois ronds qui devraient être disponibles dans les décennies à venir. D’après cette étude, le déficit attendu en Europe serait de 50 millions de m³ par an d’ici à 2020, de 80 millions de m³ par an d’ici à 2030 et de 193 millions de m³ par an en 2060. Il ressort également de l’étude que le bois importé de Russie ne contribuerait pas de façon significative à réduire le déficit dans les décennies à venir.

Compte tenu de ce qui précède, l’industrie forestière s’attache à trouver des stratégies permettant de sauvegarder la disponibilité de bois en termes de quantité, de qualité et de coût, tout en améliorant encore la durabilité de l’exploitation. Les entreprises du secteur et leurs partenaires doivent faire preuve de moins d’individualisme. Tous les maillons de la chaîne doivent améliorer leur logistique et leurs pratiques d’exploitation forestière, mettre leurs expériences et leurs connaissances en commun, améliorer encore le taux de recyclage, récupérer une plus grande partie des déchets de façon écologique, et investir davantage en recherche et développement. Mais les autres parties prenantes – décisionnaires, organisations non gouvernementales de défense de l’environnement – doivent apporter leur contribution également, et ainsi traduire en actions concrètes le message délivré à Johannesburg.

Mots clés: volumes de bois disponibles, énergies renouvelables, changement climatique, aménagement forestier proche de la nature, pénurie, mobilisation des ressources forestières, partenariats.
Перспективы использования древесины в деревообрабатывающих отраслях промышленности стран Европы

Документ, подготовлен директором Управления лесных хозяйств Конфедерации европейских целлюлозно-бумажных предприятий (СЕРІ) г-ном Бернардом де Галембером

Резюме
Положение лесного хозяйства и производства древесины в Европе в настоящее время таково, что благодаря устойчивому управлению лесами и применению устойчивой практики использования древесины чистый годовой прирост лесов (793 млн. м³ поверх коры) значительно превышает ежегодный коэффициент вырубки (418 млн. м³ поверх коры). Фактически за последние 10 лет площадь лесов на Европейском континенте, включая европейскую часть России, увеличилась на 9 млн. га и сейчас составляет 1 039 млн. га, что соответствует 27% лесных массивов мира. Эти цифры свидетельствуют о том, что леса в Европе и их ресурсы, находящиеся под устойчивым управлением, дают достаточно древесины, объемы которой постоянно возрастают.
Вместе с тем в результате политики правительства, позиций, занимаемых землевладельцами, повышения технической и экономической доступности древесины, а также с учетом экологических аспектов и условий рынка мобилизация древесины в настоящее время носит ограниченный характер, что также должно приниматься во внимание. Важно, чтобы деревообрабатывающие предприятия имели устойчивый доступ к экономически выгодным поставкам древесины.
Хотя прогнозы потребления бумаги и картона указывают на неуклонный рост - в среднем по 2% в год - даже с использованием современной технологии и при обеспечении высоких объемов рециклизации и внедрении более эффективных методов производства, потребности в древесине будут также возрастать. Учитывая три главных фактора (увеличение использования биомассы для производства энергии, повышение уровня секвестрации углерода путем принятия мер по управлению лесами и внедрение методов управления лесами с учетом природных характеристик, которые могут замедлить мобильность отрасли), предприятия в предстоящие годы могут столкнуться с проблемой нехватки древесины как сырьевого материала, поскольку они не смогут эффективным образом ее поставлять. По всем этим причинам Конференция провела исследование с использованием модели ЭФИСКЕН, цель которого - оценить возможные объемы поставок круглого леса в ближайшие десятилетия. Результаты исследования показали, что прогнозируемая нехватка круглого леса в Европе может составить 50 млн. м³ в год к 2020 году, 80 млн. м³ в год к 2030 году и 193 млн. м³ в год к 2060 году. Данные исследования также свидетельствуют, что древесина, импортируемая из России, не окажет сколько-нибудь значительного воздействия на сокращение дефицита древесины в предстоящие десятилетия.
На основе этих цифр отрасль сейчас занимается разработкой стратегического плана, предусматривающего сохранение уровня предложения древесины с точки зрения количества, качества и издережек при одновременном улучшении показателей отрасли в отношении устойчивости. Отрасль и ее партнеры нуждаются в наличии более корпоративных подходов. Все участвующие в реализации таких комплексных подходов должны быть уверены в своей логистической практике и практику заготовки леса, более активно обмениваться опытом и знаниями, продолжать улучшать показатели рециклизации, сокращать потери в ходе лесозаготовительных работ, используя экологически устойчивые методы, и инвестировать больше средств исследования и разработки. Одновременно другие заинтересованные участники процесса - лица, ответственные за принятие решений, НПО, занимающиеся вопросами охраны природы, - должны внести свой вклад, следуя призывам, прозвучавшим в Йоханнесбурге.
INTRODUCTION

Along with the increasing awareness of the public about overall sustainability, many developments have emerged in different policy fields, the majority of them being driven by environmental concerns. For many years now, the European Pulp and Paper Industry has been supportive of and has taken action towards more sustainability. New steps in that direction that encompass a balanced approach would be much welcomed and even encouraged by the industry.

Ideally, the European Pulp and Paper Industry sees the Sustainability Architecture like a solid building supported by three equally robust pillars.

By neglecting one or other of those pillars the overall equilibrium would suffer and the building might collapse.

Keeping in mind the need for a balanced approach that guarantees the future competitiveness of the industry, while reducing its ecological footprint, CEPI started to explore the issue of wood consumption and availability in European forest-based industries by launching its own survey 3 years ago. Today, the results of this survey show that the European forest-based industries are confident on their own future: investments have been made and the capacity is expected to increase by some 10% for the pulp and paper industry, by some 13% for the panels industry and by nearly 15% for energy plants within the 5 coming years. This represents an additional need for 30 million m³ of wood in the coming 5 years. One reason for this growing capacity is the expected increase of the consumption of paper and board and other wood-based products, mainly due to opportunities offered by the accession of Central and Eastern European Countries to the EU, global population growth and paper contribution to human welfare.

This perspective is highly dependent on a supply of wood that meets the industry’s requirements in terms of quality, volume and costs. In that respect, the survey also showed that the supply of wood was not developing at the same rate as the consumption of paper and board and wood-based products. The development of these two trends (increasing consumption and non-correlated wood supply) gave strong indications that there would be a gap between wood supply and demand. This means that the build-up capacities could not be fully used in the future, even if one takes into account the change in the mix of raw materials between virgin, recycled fibre and non-fibrous material.

Summing up the conclusions of CEPI’s survey, it appeared that wood availability would be crucial for the future sustainability and prosperity of our industry in Europe. Therefore a study, looking into resource availability, was launched by CEPI’s Forest Committee as a
proactive initiative to get a first scientifically based insight, being aware that any modelling exercise would open the door to further debate.

**MODELLING STUDY**

Based on 36 countries of the European continent, including the European part of Russia, this new study looks into the impact of some specific policy developments on wood supply in the coming decades.

From the existing policy developments that have an impact on forest management and wood supply, three emerged as potentially threatening: nature-oriented management, renewable energy and climate change. They are further detailed later in this paper.

**FOREST RESOURCE IN EUROPE**

The forest cluster in Europe includes forest owners (more than 9 million private forest owners), woodworking industries (sawmills and panel industries), pulp, paper & board manufacturing industries, paper & board converting industries, printing industries and furniture industries, with an annual turnover of 400 billion EUR. Altogether it directly employs 3.5 million people. The forest cluster is vital to the rural economy all over Europe, as well as to some key urban regions, sustaining welfare and livelihood.

Together, the pulp and paper and downstream sectors contribute by 116 billion Euro, which is more than 9%, to the total added value created by the European manufacturing sector. In some countries, this contribution even amounts to some 25%.

To safeguard the socio-economic contribution of this cluster, a sustainable wood supply is a prerequisite.

Forests on the European continent, including the European part of Russia, increased between 1990 and 2000 and now cover some 329 million of hectares. 55% of it is coniferous, 30% deciduous and 15% mixed stands. Today only about 30% of European forests (incl. Russia) are managed for wood production.

According to conservative inventories’ data, the annual fellings (418 million m³ over bark) represent almost 50% of the net annual increment, 793 million m³ over bark) in Europe. That means that each second the forest biomass increases by 25 m³, of which 12 are not used but increase the growing stock. This is the result of sustainable forest management, as well as sustainable wood utilisation practices.

This fantastic natural process of fibre production shows that there is enough wood in Europe and that this resource is increasing.

It is nevertheless obvious that this theoretical quantity of available wood cannot be assembled in its entirety: government policies, landowners’ attitudes, technical and economical accessibility, environmental considerations, and market conditions have to be considered.
BUT HOW TO MOBILISE ENOUGH RAW MATERIAL FOR THE PULP AND PAPER INDUSTRY?

WORKING ASSUMPTIONS

As well as society in general, the diverse types of forest owners have diverse expectations from their forests, ranging from professional management to recreation and conservation. These different behaviours have to be taken into account when assessing the feasible mobilisation potential.

According to different market analyses, paper and board consumption is forecast to grow on an average rate of 2% per year over the coming decades. From one study to another, the expected increase in consumption of wood products ranges from 11% to 18% between 2000 and 2020. Even with improved technology, higher recycling rates and better efficiency, the need for wood will continue to increase.

IMPACTING EUROPEAN POLICY DEVELOPMENTS

Let’s come back now to the 3 developments that were identified as having a significant impact on future wood availability: nature oriented forest management and climate change policies might lead to decreasing harvesting, while renewable energy policies will create a competitive use of wood.

“Closer to nature” forest management aims at enhancing nature conservation values in the forest and differs from traditional economic optimisation in sustainable forest management because it is directed less towards wood production. This can have various forms: switching to deciduous rather than coniferous, increasing rotation length, moving from even-aged to uneven-aged forests (continuous cover), favouring natural regeneration, etc. up to creating more strictly protected forests.

The other policy that leads to increasing the growing stock is the climate change one. Now that Russia has announced its intention to ratify the Kyoto Protocol, this will enter into force soon. For the European Union and other European countries, the reduction effort probably won’t be met by only reducing emissions, but also by using the carbon sequestration potential of forests. The Protocol provides for the recognition of forest “sinks” in the first commitment period, but could even consider further roles for forest in the future. In reality, forest management measures to enhance carbon sequestration in the trees would have a similar effect to nature-oriented forest management. Increasing the rotation length, going to selection forestry and uneven-aged forests, etc. are measures that are explored today by the decision-makers to enhance carbon sequestration by trees. Using inadequate subsidies or incentives to encourage this function of forests would dissuade forest owners from harvesting wood.

A competitive use of wood results from the increasingly ambitious policies in the field of energy. Today, estimating the use of wood for energy is very uncertain because of the decentralised nature of wood energy use, and because of auto-consumption without being obliged to keep records. Only few countries have statistics. What is even more difficult, is to
assess the quantity of wood used for energy that comes from productive exploitable forests. The European Union as well as European countries are setting more and more targets for the use of renewable energy sources to produce heat, electricity and power. Many sources are cited – water, wind, sun – but probably the most accessible one is biomass, and in particular woody biomass. We are already confronted with this development. The European pulp and paper industry strongly supports an ambitious but fair engagement in the promotion of renewable energy and is already one major producer and user of renewable energy (17% of the total RES production in the European Union and 28% of the total European biomass based energy production). In the context of uncertainty about demand and supply of fuelwood, any excessive support or incentive mechanism facilitating the use of wood for energy would divert a big proportion of it from its raw material function.

**MODEL RESULTS: A FUTURE WOOD SHORTFALL?**

When putting figures in front of these three developments, the run of the model confirmed the industry’s first impression. The European wood-based industries could face a lack of wood as raw material in the coming decades. This is not because there is not enough wood, but because this wood could probably not be efficiently mobilised for the wood-based industries.

The potential shortfall in Europe, without considering Russia, is estimated to be 50 million m$^3$/year in 2020 and 80 million m$^3$/year in 2030. This is confirmed by other studies. In 2060, ceteris paribus, the shortfall could be 194 million m$^3$/year.

Apart from this result an extra amount of some 80 millions m$^3$/year has been estimated to be needed to meet EU commitments in the field of renewable energy sources by 2030.

A realistic contribution of wood coming from Russia would have a rather limited influence in reducing the shortfall. It is more probable that capacity relocation and increasing investments will take place in Russia.

As shown at the beginning of this article, there are large quantities of wood available in the European forests without wiping out sustainable forest management. As stated in the 5th European Timber Trend Study, “there is no doubt that Europe’s present wood supply is well below its physical potential”. This study also estimates the maximum biological potential removals at about 780 million m$^3$ in 2020, which is close to the current net annual increment.

**FUTURE PARTNERSHIPS**

It is therefore up to the pulp and paper industry, forest owners, decision-makers and environmental organisations to act together to prevent this shortfall from happening. By doing this, one could achieve a “win-win” situation for all stakeholders.

Keeping these figures in mind, the European wood-based industry needs a strategic vision. “Rather than waiting for the potential shortfall to become a reality, we have to start now to safeguard the availability of wood, in terms of quantity, quality and costs”, whilst further
improving the industry’s sustainability credentials. The responsibility of the industry to fulfil this objective is to raise awareness and to involve all the stakeholders and have them sharing the same vision. The World Summit for Sustainable Development in Johannesburg acknowledged the role of partnerships with the economic sector. This is also valid for the forest-based industry.

Using more wood in a sustainable manner, because it is a renewable, climate friendly and carbon neutral raw material is probably the best argument for making it more easily available for the market. Keeping in mind the value chain of wood-based products and their capacity to store carbon all along their life-cycle is equally important.

The industry itself has some tools in its hands. First of all, it has to be more “cluster” minded: the forest-owners, the intermediaries have to be treated as partners. More concretely, logistics and logging practices can be improved. Knowledge and experience are assets that the industry can share. More residues for renewable energy can be harvested in a way, which is compatible with environmental sustainability. With the help of used paper collectors, the recycling rate - which is already very high today - can further be improved. Technology used is constantly more efficient. Hence, investing in research and development can make it even better.

Wood suppliers, the forest owners, can be more deeply involved in the “cluster” approach. The wood-based industry, their clients, could offer them to share views and be interested in adding value to their products. By doing this they would be further integrated in the economic circuits. Why not give them support to create co-operatives that could act as a preponderant supplier on the wood market? Why not conclude longer-termed supply contracts? They are part of a chain, which should not be broken. They should be confident about their major role and this role should be enhanced.

To the policy-makers, this very simple but strong message should be addressed: “Our industry needs a sustainably managed and sustainably used resource: wood. By using wood, we help you and society to fulfil your commitments. Here also, we are partners. Wood is climate-friendly, not only because it can sequester carbon, but also because forests are managed and because it is a substitute for other less sustainable materials. Using wood is Kyoto compatible. Wood products are biomass. But, don’t burn wood before it has completed its life and carbon cycle. When a wood-based product can no longer be recycled, time has come to use it as a renewable source of energy.”

With respect to environmental organisations, they should remember the outcome of the Johannesburg Summit: partnerships will contribute to enhancing the overall sustainability. Wood-based industries have similar interests in sustainable management and use of natural resources in a cycle approach. Management is not contradictory with nature and environmental sustainability. Wood is a fantastically eco-friendly raw material. Let’s promote its sustainable use together.
**FUTURE ACTION**

Very concretely, CEPI committed to join forces with the wood-working industries to write a unified Code of Practice for assessing the wood flow into the industrial process, the so-called Chain of Custody. Whilst being the initiator of the project, the industry is opening the door to cooperation and consultation with interested parties. This Code of Practice for a single approach of the Chain of Custody could serve as a contribution to a future Code of Practice for an economically, socially and environmentally sustainable mobilisation of wood. This would promote the best available practices and tools to secure the availability of wood whilst considering in a balanced way the environmental amenities, the climate change commitments and the demands from society.

**CONCLUSION**

The Forestry and Forest-based industries should be seen as a cluster, not only from outside, but also by insiders.

If the viability of the pulp and paper industry decreases, the entire cluster will suffer.

Once again, when the three pillars of the sustainability building are equally solid, the benefits are equally shared among the society, the environment and the economy.

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Impacts of the EU energy policy on the woodworking industries -
The sound use of wood from an industries perspective

Paper by Mr. Chris Van Riet, Environmental Adviser,
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ABSTRACT

The study “EU Energy Policy Impact on the Forest-Based Industries” carried out by consultants reporting to a joint DG Enterprise/Industry (CEPI/CEI-Bois) Steering Committee revealed that the measures set out in the 1997 White Paper on renewable energy, if implemented, would have a significant impact on the timber and wood residues market. The EU objective is to double the current contribution of renewables to gross energy production to a level of 12% by the year 2010. Biomass including wood, used for energy generation is targeted to triple its contribution.

Although the White Paper did not specify exact quantities for the increased use of wood for energy, its likely contribution has been calculated for various energy consumption scenarios as an extra 27Mtoe, which would imply an extra demand for wood to the tune of 163 million m³. This would come either directly as fuel wood, used for domestic heating, or indirectly as industrially used wood residues, which would otherwise be available for the manufacturing of wood-based products. Meanwhile, national and regional authorities transformed the White Paper policy into legislative and subsidy regulations, encouraging mainly the intensified use of wood as a fuel. Actual price evolutions of raw materials for the woodworking industries fully confirm the results of the 2000 Impact Study and competitiveness of the industry is jeopardised.

This illustrates how a regulatory text legitimately intending to mitigate greenhouse gas emissions and promoting the production and use of renewable energy sources is likely to have an adverse impact on the sustainable use of natural resources, in particular woody biomass, by:

- leading to a potential shortage of wood raw material for the wood-based industries, whose environmental credentials have been improving since decades;
- leading to the likely use of other materials and products which are
  - not renewable;
  - sometimes recyclable and
  - always less energy-efficient
  so, in general, less eco-efficient as compared to wood and wood-based products;
- leading to an increased pressure on the forest resource, thereby further endangering notably the biological diversity.

The Woodworking Industries insist on avoiding that wood, suitable for the production of wood-based products, would be used directly for energy generation. Firstly, the energy markets should be governed by free market principles, which is actually not the case. Furthermore, from a material efficiency point of view, the carbon cycle and wood value chain should be respected, so that wooden products over their lifetime are functionally cascading from a primary product, preferentially re-used, perhaps recycled and eventually used as a source of energy. This would largely help maximising the carbon retention
efficiency of wood and wood-based products and optimally support climate change mitigation.

Keywords: (EU) energy policy, renewable energy sources (RES), wood value chain, wood-products as carbon sink, wood availability for woodworking industries.

**RÉSUMÉ**

L’étude relative à l’incidence de la politique énergétique de l’Union européenne sur les industries forestières effectuée par des consultants pour un comité directeur mixte DG Enterprise/secteur industrie (CIPE/CEI-Bois) révèle que l’application des mesures énoncées dans le Livre blanc de 1997 sur les sources d’énergie renouvelables aurait une incidence considérable sur le marché du bois et des déchets de bois. L’objectif visé est de doubler la part actuelle des énergies renouvelables dans la production d’énergie brute pour la porter à 12 % d’ici à 2010. La contribution de la biomasse, dont le bois, à la production d’énergie devrait quant à elle tripler.

Le Livre blanc ne donne pas de chiffres exacts concernant l’augmentation des quantités de bois combustible, mais des évaluations ont été faites d’après les combinaisons actuelles d’énergie et l’estimation est de 27 millions de tonnes d’équivalent-pétrole, ce qui reviendrait à une augmentation de la demande de bois de 163 millions de mètres cubes. Les volumes supplémentaires seraient constitués soit par du bois combustible, à usage essentiellement domestique, soit par des déchets industriels de bois qui, s’ils n’avaient pas été ainsi utilisés, auraient servi à la fabrication de produits dérivés.

On voit donc comment un texte réglementaire visant à promouvoir la production et l’utilisation d’énergie renouvelable peut avoir une incidence sur d’autres ressources naturelles, en particulier la biomasse d’origine forestière. Les conséquences possibles sont les suivantes:

- Éventuelle pénurie de bois pour les industries forestières qui depuis plusieurs décennies font des progrès en termes de respect de l’environnement;
- Utilisation probable de produits de substitution risquant de ne pas être aussi renouvelables ou recyclables que le bois et de présenter une moins grande écoefficacité;
- Intensification de l’exploitation des ressources forestières, très lourde de conséquences pour la diversité biologique déjà menacée.

En outre, il faut éviter d’utiliser directement comme source d’énergie le bois, qui peut servir à la fabrication d’autres produits. Le marché de l’énergie devrait obéir aux lois du marché. Du point de vue du rendement des matériaux, le cycle du carbone et le cycle de développement devraient être respectés dans leur intégralité et l’exploitation doit être telle que les produits du bois, pendant leur durée de vie, passent à d’autres catégories de biens, en étant tour à tour réutilisés et recyclés pour être utilisés comme source d’énergie à la toute fin du cycle. La capacité du bois en général à absorber le carbone s’en trouverait améliorée.

**Mots clés:** sources d’énergie renouvelables, disponibilités de bois et industries de travail du bois.
Воздействие политики ЕС в области энергетики на европейские деревообрабатывающие отрасли промышленности

Документ, подготовленный заместителем генерального секретаря Европейской конференции деревообрабатывающих отраслей промышленности (CEI-Bois)

РЕЗЮМЕ

Исследование "Воздействие политики ЕС в области энергетики на деревообрабатывающие отрасли промышленности", проведенное консультантами для совместного руководящего комитета ГД предприятия/отрасли промышленности (CEPI/CEI-Bois), показывает, что меры, изложенные в Белой книге 1997 года, о возобновляемых источниках энергии, в случае их претворения в жизнь окажут значительное воздействие на рынки лесных продуктов и продуктов из отходов древесины.

Основная задача в настоящий момент состоит в том, чтобы к 2010 году удвоить нынешнюю долю возобновляемых источников энергии в общем объеме производства энергии, доведя ее до 12%. Одновременно предполагается утроить долю биомассы, включая древесину при производстве энергии.

Хотя в Белой книге конкретно не указываются точные объемы древесного топлива, его возможная доля в будущем, рассчитанная на основании нынешнего энергобаланса, увеличится на 27 млн. т нефтяного эквивалента, что может означать повышение спроса на древесину в размере 163 млн. кубометров. Это произойдет в результате либо непосредственного использования древесного топлива, в основном для внутреннего потребления, либо косвенного использования промышленных отходов древесины, которые в противном случае могли бы использоваться для производства изделий из древесины.

В документе описываются, каким образом нормативные предписания, стимулирующие производство и использование возобновляемых источников энергии, могут оказать воздействие на другие природные ресурсы, и в частности на древесную биомассу, что может привести к:

- созданию потенциального дефицита древесины для ее использования в отраслях лесной промышленности, которые в последнее десятилетие значительно улучшили свои экологические показатели;
- возможному использованию продуктов-заменителей, которые могут и не быть такими же возобновляемыми, рециркулируемыми и экзоэффективными, как древесина;
- увеличению давления на лесные ресурсы, создавая, таким образом, новые угрозы в первую очередь для биологического разнообразия.

Более того, представляется необходимым всячески избегать того, чтобы древесина, которая идет на производство продуктов из дерева, напрямую использовалась для производства энергии. Энергетический рынок как таковой должен руководствоваться принципами свободного рынка. С точки зрения материальной эффективности необходимо строго соблюдать и полностью использовать весь углеродный и жизненный цикл, с тем чтобы продукты из древесины на протяжении всего их жизненного цикла могли преобразовываться в другие категории продуктов путем соответствующих мер по вторичному использованию, переработке и даже в конечном итоге производству энергии. Это также поможет в максимально возможной степени повысить эффективность связывания углерода лесами.

Ключевые слова: возобновляемые источники энергии, наличие древесины, деревообрабатывающие отрасли промышленности.
INTRODUCTION

The European (EU15) woodworking industry (WWI) stands for well over 42,000 companies, two million employees and an annual turnover of 165 billion EUR. Sustainable availability of wood is crucial for the sector.

The need for an enhanced use of renewable energy sources (RES) as a significant means of meeting the Kyoto targets on the reduction of greenhouse gas emissions, is fully acknowledged and supported by the WWIs and has historically yet led to a substantial increase in the use of biomass in the sector. So, for instance, about 65% of process energy needed for drying and heating in saw-mills and wood-based panel plants is generated by wood-residues, unsuitable for the manufacturing of products. CEI-Bois wishes to stress that the WWIs are and have been for many years contributing to a sustainable use of energy and natural resources by:

- Important energy savings: modern heating and CHP (combined heat and power generation) installations generate the major part of the energy required for our industrial processes from woody biomass unsuitable for recycling;
- Active involvement in sustainable forest management: the European forests are expanding [1];
- Continuously improving recycling rates of wood and wood products through considerable investments in modern technologies.

All these efforts represent a vital contribution to the mitigation of climate change.

ENERGY POLICY IMPACT STUDY 2000

In 2000 a study “EU Energy Policy Impact on the Forest-Based Industries” was carried out by consultants reporting to a joint DG Enterprise/Industry (CEPI/CEI-Bois) Steering Committee [1]. This study revealed that the measures set out in the 1997 White Paper on renewable energy, if implemented, would have a significant impact on the timber and wood residues market. The target set by the White Paper is to double the current contribution of renewables to gross energy production to a level of 12% by the year 2010. Biomass, mainly wood, used for energy generation is targeted to triple its contribution.

Market inter-action between the traditional Forest-Based Industries and the renewable energy industry has been simulated until 2010 based on four scenarios: “Business-as-Usual”, “White Paper”, “Foresters” and “Minimum Pain”.

The “Business as Usual” scenario was a benchmark scenario against which all alternatives were compared. The “White Paper” scenario is based on the EU White Paper policy’s strategy and action plan aiming at doubling the share of renewable sources for energy which calls for an additional demand of 163 million m³ of wood, or 27 Mtoe, on top of the “Business as Usual” scenario. A “Foresters” scenario was introduced as the next logical step after the “White Paper” scenario demand shift. With higher prices, new volumes of
wood, even new types of raw material (e.g. green chips from forest residues), were envisaged to enter the market place. A “Minimum Pain” scenario was elaborated as a third and final alternative to the “Business as Usual” scenario. On top of the forest residues of the “Foresters” scenario, industrial residues and post-consumer wood residues were considered to be recovered, as part of the future wood supply. The impacts on the Forest-Based Industries differ according to the assumptions used in these scenarios as depicted in Figure 1.

The calculation results fortunately also showed how improving the supply of wood from different sources could reduce the negative impact on the Forest-Based Industries. The EU’s dependency on forest resources from outside Europe is though estimated to rise sharply. Even in the situation where all the available resources were to be used in an efficient way, the European Forest-Based Industries will still severely suffer. Volumes of raw materials available for the production of sawn wood, wood-based panels and pulp and paper were namely estimated to decrease with up to 17%, 9%, 28% and 12% respectively.

The effect of the White Paper policy was also predicted to have a significant influence on price levels. In the EU, round wood prices were calculated to increase in an order of magnitude ranging from 75% in the worst case to 18-26% in the “Minimum Pain” scenario (see Figure 2). Prices forest of products in general would also increase. Under the most favourable conditions sawn wood, wood-based panels and pulp prices would rise with 11%, 5% and 13% above the “Business as Usual” price levels respectively.

It is not surprising that the study concludes with:

The industry “will hardly, if not at all” be able to absorb the shift which will be induced by the White Paper “without detrimental effects on their competition for wood and hence their overall competitiveness”, and: “A reduced target for wood “could be compensated by increased targets for other bio fuels, whose production would even have beneficial effects on agriculture”.

So, the major problem for the Forest-Based Industries on a long-term basis will be the availability of wood at a competitive price level.

OBSERVED IMPACT ON THE WOODWORKING INDUSTRIES BY THE END OF 2002

The Impact Study clearly demonstrates how a regulatory text legitimately intending to mitigate greenhouse gas emissions and promoting the production and use of renewable energy sources is likely to have an adverse impact on the sustainable use of natural resources, in particular woody biomass, by:

- leading to a potential shortage of wood raw material for the wood-based industries, whose environmental credentials have been improving since decades;
- leading to the likely use of other materials and products which are
Strategies for the sound use of wood, March 2003, Romania

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- not renewable;
- sometimes recyclable and
- always less energy-efficient

so which are, in general, less eco-efficient as compared to wood and wood-based products;

- leading to an increased pressure on the forest resource, thereby further endangering notably the biological diversity.

Directive 2001/77/EC, on the promotion of electricity produced from RES, was the first initiative to execute the 1997 White Paper on Renewable Energy. Many European countries thereupon choose for the easiest way of implementing this Directive: burn more wood and stimulate this evolution by subsidising green energy. Some actual and simple facts illustrate the already visible consequences of the increased use of woody biomass for the generation of electricity [3]:

- In the first semester of 2002, prices of sawdust and wood chips imported from Austria into Italy, for the production of wood-based panels, increased with an amount of 15 to up to 50% as compared to 2001;
- Prices of coniferous logs increased with 23% with a tendency to grow towards 35%;
- Woodworking plants in Italy and France declared to have lost raw material suppliers to electricity producers.
- In Denmark a particleboard plant had to close the doors, because of loss of competitiveness, following tremendous raw material price raises;
- In Austria, a country rich in wood resources, certain biomass fractions such as bark and saw-dust are hard to buy on the open market due to the increased demand. Prices also went up significantly;
- An increasing amount of more noble wood fractions (forest thinnings, wood chips = raw material for particle board and MDF-panels) are burnt, because subsidies (e.g. feed-in tariffs) allow the energy sector to pay more for this raw material.

**SUSTAINABLE MANAGEMENT OF RESOURCES & RESPECT FOR THE CARBON CYCLE**

Contrary to the management and use of non-renewable resources, Sustainable Forest Management has proven not to be detrimental to the increase of the European forest resource [1,4]. Moreover, both because of the substitution effect (replacing amongst others non-renewable materials that are requesting a lot more energy for manufacturing) and the life-cycle approach (respecting the carbon cycle), using wood extracted from the forest for manufacturing products contributes to sustainable development.
However, at present the value chain of the wood resource is not respected, since material that is suitable for the production of wood-based products, is being used directly for energy generation. This is especially the case because the energy market is not governed by free market principles, for the moment. Furthermore, from a material efficiency point of view, the carbon cycle and wood life and value chain should be respected, so that wooden products over their lifetime are functionally cascading from a primary product, preferentially re-used, perhaps recycled and eventually used as a source of energy (Figure 3). This would largely help maximising the carbon retention efficiency of wood and wood-based products and optimally support climate change mitigation.

The WWIs nevertheless see means of improving the situation. The efficiency of harvesting can be promoted by more intensified usage of wood residues, currently left behind in the forests and generating CO2 and CH4 during their subsequent decomposition. Techniques for growing forests might be further improved to increase the yield per hectare of forest and to enhance the quality of harvested wood towards final applications in paper, timber or wood-based products. Within the EU(15-25) agricultural land is recurrently becoming available for alternative functions. Additional forestation could be a valuable solution to give this land a new environmentally friendly destination.

Recycling and reuse of wood and wood-based products deserve further attention. The forest-based industries will continue to improve the quality of their processes in order to further reduce the use of primary raw materials, per unit end product. On the other hand government policies for biomass energy need to be revised or counterbalanced with additional supplies of wood, as mentioned above.

As an example we can cite a recently published study on the evolution of biomass power stations, based on the combustion of recycled wood in Germany [5]. If all investments planned are also realised as announced, Germany will soon be confronted with scarcity of recycled wood for energy purposes and the power stations will have to turn towards other wood sources. The study collected data for 60 wood power stations from which already 9 are in operation, while the others are in different phases of realisation. It estimates the available amount of recycled wood in Germany at 3.5 Million Tonnes. This number takes into account the 700,000 Tonnes already used for combustion, as well as exported wood. Plants under construction or in a permitted stage will consume about 2.5 Million Tonnes, whereas planned power stations would consume another 2 Million Tonnes of recycled wood. This means that a huge deficiency of 1 Million Tonnes, representing 1/6 of the actual annual consumption need of the German wood-based panels industry, will be created when all plans are completed. The study concludes that this will lead to a battle on the market of recycled wood, which causes already today prices to rise drastically, with each announcement of a new power plant. This in turn will cause uncertainty for investors, who will be urged to secure their energy resource feed on the market of other wood-based products.
Finally, sustainability contains also socio-economic aspects. During the last Forest-Based Industries Forum some relevant numbers were published on these items. Even without taking into account the energy content of wood-based materials at the end of their lifecycle, the added value of carpentry products was calculated to be 1044 EUR/tonne dry wood, as compared to 118 EUR/tonne for fuel use. Moreover, carpentry generates 54 manhours/tonne of dry wood, whereas energy use generates only 2 manhours/tonne. These numbers illustrate how valuable the sound use of wood-based materials can be, largely outweighing futile burning.

CONCLUSIONS AND RECOMMENDATIONS

The European WWI recommends sincere and visionary thinking about the chosen long-term strategies for sustainable use of forest resources, at a (enlarged) European level with a realistic consideration of all three pillars of sustainable development: environment, economy and social benefits, treated in an equal way.

From a sustainability point of view, the European Woodworking Industry will continue to promote the enhanced use of wood products, to increase recycling of used wood and wood-based materials and to incessantly improve processes extending the life of these products. The final decision for sustainable use of resources and products though is in the hands of the consumer. Once a concluding European strategy for the sustainable use of resources, based on sound equilibrating of all arguments, has been defined it is recommended to disseminate this view strongly and on a wide basis towards the national governments, to industry, to traders and distributors and to the general public. All stakeholders involved should be convinced of sound sustainability practices and consequently apply them.

CEI-Bois though insists on ensuring the continuous availability of wood raw materials on a sustainable basis, the safeguarding of the competitiveness of Europe’s woodworking sector and resulting job safekeeping.

Therefore:

- Avoid massive burning of wood for purely energetic reasons;
- Respect the value chain of wood and wood-based products, as these have been proven to be long-lasting pools of carbon (sinks), hence substantially contributing to climate change mitigation…and isn’t that what it’s all about?
- Do not “subsidise away” wood as a raw material for durable applications by favouring the firing of trees, unless locally socio-economic and environmental considerations necessitate other solutions;
- Recognise the superior eco-efficiency of wood-based products and their supreme properties in recycling with minimal energy use, as compared to other materials;
Focus future EU and member states research policies on efficient recovery of forest residues and development of biomass sources specifically grown for energy generation;

Reconsider and adapt the “163 million m³ fuelwood-for-energy” target to a realistic volume:

ONLY BURN WOOD AFTER IT HAS BEEN FULLY AND SOUNDLY USED

REFERENCES


Figure 1: Wood availability in 2010, following various scenarios

![Wood availability graph]

Figure 2: RES – Impact on wood prices

<table>
<thead>
<tr>
<th>% Price changes 1996-2010 in real terms</th>
<th>Low wood supply (inelastic)</th>
<th>High wood supply (elastic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply/scenario</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business as usual</td>
<td>+ 18%</td>
<td>0%</td>
</tr>
<tr>
<td>White Paper</td>
<td>+ 75%</td>
<td>+ 39%</td>
</tr>
<tr>
<td>= Additional 163 Mio m³ for energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foresters</td>
<td>+ 49%</td>
<td>+ 29%</td>
</tr>
<tr>
<td>= Higher price, new raw material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Pain</td>
<td>+ 26%</td>
<td>+ 18%</td>
</tr>
<tr>
<td>= More industrial and post-consumer residues</td>
<td></td>
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</tbody>
</table>
Figure 3: The wood-based products closed carbon cycle
SESSION II: HOW TO STIMULATE SOUND USE OF WOOD?
TOPIC 2.1: STRATEGIES AND POLICY INSTRUMENTS
Wood promotion in Germany – a joint initiative of forestry and the wood based industry since 1990

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ABSTRACT

The German Timber Sales Promotion Fund Act came into force on 20 December 1990. The Timber Sales Promotion Fund, established on the basis of this regulation, meets the statutory task of centrally marketing the sale and use of wood products originating from German forest enterprises and the wood processing industry (such as sawmills, veneer plants and plywood factories), whilst taking into consideration international trade rules. For the purposes of the Fund, about € 11 million are made available annually that are levied as charges on the enterprises mentioned above (8 per mill of saw log sales).

With this approach, policies at both national and European level have recognised the need for implementing a central marketing tool for the forest and timber sector in order to efficiently support

- a better understanding of multifunctional sustainable forest management (SFM) and
- the sound use of wood as one of the most important renewable raw materials with outstanding ecological benefits.

The mobilisation of existing reserves of raw materials in forests is also a major aim.

An initial image campaign for SFM and wood products (launched in 1994), followed up by a marketing offensive “Pro active timber” in 2001, constitute important elements of the public relations and advertising campaigns for the Fund.

Apart from these principal measures, specific market and marketing investigations, expert advice for timber construction or product research projects number among the major activities of the Fund. The focus is currently on measures designed to stabilize the market position of timber as a structural and basic material and to expand this position in the long run.

The successful development of this special wood promotion instrument may become an increasingly decisive element in convincing consumers of the manifold advantages of SFM and wood as an ecologically-friendly natural product. It may also become more important to pool existing potentials in small and medium-sized forest and timber enterprises to boost their competitive strength vis-à-vis products made of non-renewable materials.

Key words: wood promotion, Timber Sales Promotion Fund, marketing instruments, competition between wood and non-renewable raw materials
Promotion du bois en Allemagne – une initiative conjointe du secteur forestier et de l'industrie de transformation du bois menée depuis 1990

Document établi par Johann Georg Dengg,
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RÉSUMÉ

La loi allemande portant création du Fonds de promotion de la vente de bois est entrée en vigueur le 20 décembre 1990. La constitution de ce Fonds vise à permettre de centraliser la commercialisation et l’utilisation de produits du bois provenant d’entreprises forestières allemandes et de l’industrie allemande de transformation du bois (scieries, usines de placage et usines de contreplaqué par exemple), compte dûment tenu également des règles commerciales internationales. Environ 11 millions d’euros sont prélevés annuellement auprès de ces entreprises sous forme de taxes (8 ‰ du produit des ventes de grumes de sciage) pour alimenter le Fonds.

Ainsi les politiques, tant au niveau national qu’au niveau européen reflètent la reconnaissance de la nécessité de mettre en place un outil central de commercialisation pour les secteurs de la foresterie et du bois, afin de promouvoir efficacement:

- Une meilleure compréhension des moyens d’assurer une gestion durable de la forêt, préservant la pluralité de ses fonctions;
- Une utilisation rationnelle du bois, la plus importante des matières premières renouvelables, présentant des avantages remarquables sur le plan écologique.

La mobilisation des réserves existantes de matière première en forêt est également un objectif majeur.


De plus, des études de marché et des études marketing spécifiques ont été réalisées, des services de conseils d’expert pour la construction en bois ou pour des projets de recherche sur les produits comptent parmi les autres grandes activités financées grâce au Fonds. Actuellement l’accent est mis sur les mesures visant à stabiliser la position du bois sur le marché en tant que matériau de construction et de matière première et d’améliorer cette position sur le long terme.

Le succès de cet instrument spécial de promotion du bois pourrait contribuer de façon de plus en plus décisive à convaincre les consommateurs des avantages multiples de la gestion durable des forêts et de ce produit naturel et écologique qu’est le bois. Il pourrait par ailleurs être appelé à jouer un rôle plus important pour ce qui est de mettre en commun les potentiels existants dans les petites et moyennes entreprises de foresterie et de transformation du bois, afin d’accroître la compétitivité de ces dernières face aux produits à base de matériaux non renouvelables.

Mots clefs: promotion du bois, Fonds de promotion de la vente de bois, instruments de marketing, concurrence entre bois et matières premières non renouvelables.
Пропаганда использования древесины в Германии - совместная инициатива предприятий лесного хозяйства и деревообрабатывающей промышленности, осуществляемая с 1990 года

Документ, подготовленный заместителем начальника секции "Рынки лесоматериалов, стимулирование сбыта, использование древесины" федерального министерства по вопросам защиты потребителей, продовольствия и сельского хозяйства Германии г-ном Йоханном Геором Дентом

Резюме

20 декабря 1990 года вступил в силу немецкий закон о стимулировании сбыта лесоматериалов. Созданный на основе этого правового положения Фонд стимулирования сбыта лесоматериалов ставит перед собой задачу обеспечить централизованный сбыт и использование продуктов из древесины, поступающих с деревообрабатывающих предприятий Германии (таких, как лесопильные заводы и фабрики по производству шпона и фанеры), с учетом действующих правил международной торговли. На нужды Фонда выделяются примерно 11 млн. евро в год, которые поступают из налога, взимаемого с упомянутых выше предприятий (8% с продаж пиломатериалов фабрики). В политике как на национальном, так и на европейском уровнях с учетом этого подхода признается необходимость использования центрального инструмента маркетинга для лесного сектора и сектора лесоматериалов в целях:

• обеспечения лучшего понимания многофункционального характера устойчивого лесопользования и
• рационального использования древесины в качестве наиболее важного возобновляемого сырьевого материала, обладающего великолепными свойствами в плане сохранения окружающей среды.

Другой важной задачей является мобилизация имеющихся резервов сырьевых материалов. Первоначальная пропагандистская кампания содействия устойчивому лесопользованию и применению продуктов из древесины (начатая в 1994 году) и последующая в 2001 году широкая кампания по маркетингу "За активное использование лесоматериалов" стали важной частью работы Фонда с общественностью и легли в основу его рекламных мероприятий.

Помимо этих основных направлений деятельности по изучению рынка и маркетингу, Фонд также занимается оказанием профессиональной помощи в вопросах разведения лесов и осуществлении исследовательских проектов в областях выпускаемой продукции. Основное внимание в настоящее время уделяется мерам, направленным на стабилизацию рыночных позиций лесоматериалов как в строительстве, так и в других областях и в конечном итоге на расширение этих позиций.

Успешная разработка специального инструмента стимулирования использования древесины может сыграть важную роль в усилиях, направленных на то, чтобы доказать потребителям многочисленные преимущества устойчивого лесопользования и применения древесины в качестве экологически благоприятного естественного продукта. Может также оказаться весьма полезным укрепление потенциала малых и средних лесозаготовительных предприятий и предприятий по переработке древесины в целях повышения их конкурентоспособности по отношению к продуктам, производимым из невозобновляемых материалов.

Ключевые слова: стимулирование использования древесины, Фонд стимулирования сбыта лесоматериалов, инструменты маркетинга, конкуренция между древесиной и невозобновляемыми сырьевыми материалами.
INTRODUCTION

As an industrialised nation with high resource consumption and as one of wealthiest countries of this world, Germany bears a particular responsibility for managing its natural resources in a sustainable and socially compatible way.

On the one hand, forests form large-scale, coherent and close-to-nature ecosystems. Especially in areas that are hardly covered with forests they serve as refuges for many species whose non-forest habitats are more or less impaired. On the other hand, it is vital for maintaining the stability, productivity and functional diversity of forests to ensure the economic viability of forest enterprises.

Picture 1: Close-to-nature forests in Germany

Against this background, the German Timber Sales Promotion Fund should not only be regarded as an effective marketing tool for increased wood demand, but also as a bridging instrument to close the information gap existing in the general public about the entire wood-chain, taking into account ecological, economic and social requirements.

FRAMEWORK CONDITIONS FOR THE SALE OF WOOD

What motivated policy-makers in a market-based economy to support the joint initiative of the forestry sector by drafting the German Timber Sales Promotion Fund Act of 1990? Some aspects are mentioned below, underlining the motivation to meet the challenges associated with preserving finite resources, combating climate change and promoting renewable raw materials.
• Unfavourable structures and increasing influence of global competition

Almost half of Germany’s forests is privately-owned, one third is owned by the state and one fifth is owned by municipalities. Many of the 1.3 million private owners own less than 50 hectares of forest area (most of them even under 1 hectare). So forest management is hampered to some extent by unfavourable ownership patterns, small sizes of forests and fragmentation of forest enterprises.

The some 60,000 enterprises of the wood-processing industry, paper industry and timber trade employ around 700,000 people. The larger ones focus on individual and capital-intensive fields. In spite of the progressing structural changes and a tendency towards larger business units, the wood-based industry as well as the timber trade in Germany are still marked by a comparatively low degree of concentration. So the average forest owners or sawmillers are not in a position to finance promotional campaigns on their own.

In addition, the whole forestry sector is under economic pressure. With production periods of up to several hundred years, this sector has, compared to other industries, only limited possibilities of gearing qualities and quantities precisely to the requirements of an increasingly global market. At the same time, the largely liberalised timber market has no regulatory or compensatory mechanisms comparable to those in the agricultural sector.

Therefore, market fluctuations and disturbances always have a direct impact on timber prices and thus also directly on the income of forest enterprises. The given conditions of production make it also more difficult to take cost-cutting measures. This means e.g. limited mechanisation options compared to industrial operations, a large number of different work places, a large area per worker, very diverse working conditions (terrain, climate, structure of stands) and seasonal fluctuations of work volume.

Despite considerable annual fluctuations, nominal proceeds from wood sales have remained virtually constant, on an average, over the past decades. However, expenditure has risen continuously, particularly because of higher labour costs. This resulted in a sustained drop in net returns and partly even caused deficits.

So a main problem arising from wood promotion is fund raising in an industry characterised by highly fragmented structures. But growing requirements related to close-to-nature forestry and increasingly tough market conditions underline the need for action to improve this situation.

• Making better use of environmental effects of forests and wood products

The use and application of wood products offer a number of ecological benefits which are of considerable importance in view of resource policy and climate change. If forests are managed in a sustainable way, wood is an extremely favourable raw material. Its utilisation does not lead to a depletion of resources. Besides, compared with many other materials, it is extremely versatile due to the diversity of wood species and assortments.
Wood can serve as an example for the implementation of a nearly closed product-cycle, starting with sunlight as the main production factor of trees and ending with a back-to-nature process of wood fibers or comparably small amounts of ash volumes after energy generation (e.g. recovered wood or wood products at the end of their life-cycle). The whole cycle includes low energy requirements for manufacture and low pollution effects compared to materials originating from fossil or mined resources.

The threat to the global climate posed by the anthropogenic greenhouse effect is a central issue of national and international environmental policies. The main cause is the rising concentration of carbon dioxide in the atmosphere ensuing especially from the combustion of fossil energy sources and the large-scale destruction of forests worldwide. Countermeasures, such as the intensified use of renewable resources, must therefore tackle these causes.

In spite of their environmental benefits, wood products and bioenergies have been threatened for decades with being replaced by competing raw materials, such as concrete, steel, brick, plastics or oil. In this context it is striking that quite unlike the debate on the certification of wood products, there has evidently been no need to date for wood competitors to certify their products in a similar way!

A pro-active strategy to enlighten the general public about the manifold advantages of sustainable forest management and wood as a natural raw material is necessary to influence the competitive climate in favour of wood products.

- **Bridging the information gap in sustainable forest management and wood utilisation**

Furthermore, some people seem to reject forestry in general, making no difference between sustainable forest management and forest destruction taking place in some regions of the world. Although wood as a natural raw material is widely accepted, they believe that forest management measures automatically mean jeopardising the rules of sustainability and that there are not enough raw materials in our forests for increased removals. What are the facts?

- Forests as one of the most important natural resources are habitats of high ecological, social and economic significance. They combine ecological functions with recreational and protective effects in the densely populated cultural landscape of Germany. To maintain the manifold functions of forests in the long run, Germany’s forest management has been based on the principle of sustainability for centuries, continuously working towards sustainable management of all forest functions in an increasingly ecosystem-oriented approach.
Over 90% of the income earned by forest enterprises is based on the sale of roundwood. So the key market product of forestry is still wood, which also chiefly serves to finance the recreational and protective functions of forests. Therefore, the sound and rational use of wood as a natural resource is as much a matter of concern to society as the conservation and healthy development of the forests.

In real terms there are far less fellings than regrowth in Germany. Forests cover about one third of the national territory. Despite conversions for construction and settlement, for example, the forest area has been expanding since 1960 by around 500,000 ha to 10.7 million ha today. With an average of 270 m³/ha (solid cubic metres), Germany even occupies a leading place in Europe with respect to its growing stock.

Whereas current annual fellings in Germany account for only 3.7 m³/ha, the potential and sustainably usable roundwood availability is 5.7 m³/ha. Therefore, only about 70% of the felling potential has been exhausted. Especially in smaller private and municipal forests, a considerable stock and increment potential is still unused.

Facts like these are important to be efficiently prepared for informing the general public, decision-makers and potential investors as a basic requirement for enlarging the wood market share at the expense of competing materials.

**THE GERMAN TIMBER SALES PROMOTION FUND**

A central instrument to improve understanding of these connections and to promote the sound use of wood is the Timber Sales Promotion Fund, established on the basis of the Timber Sales Promotion Fund Act. This regulation came into force on 20 December 1990 and meets the statutory task of centrally marketing the sale and use of wood products originating from German forest enterprises and the wood-processing industry (such as sawmills, veneer plants and plywood factories), whilst taking into consideration international trade rules.

The Fund aims at

- maintaining and developing wood markets with modern methods and means,
- promoting the utilisation of forest products by increasing public awareness and
- positioning of wood as an environmentally-friendly and competitive renewable raw material.

With this approach, policies at both national and European levels have recognised the need for implementing a central marketing tool for the forestry and timber sectors in order to efficiently support

- a better understanding of multifunctional sustainable forest management,
- the sound use of wood as one of the most important renewable raw materials and energy sources with outstanding ecological benefits and also
the mobilisation of steadily growing reserves of raw material in our forests.

For the purposes of the Fund, about € 11 million are made available annually that are levied as charges on forest enterprises and the wood processing industry, such as sawmills, veneer plants and plywood factories (8 per mill of sawlog sales). The charges are collected centrally by the Federal Office for Agriculture and Food², an institution under public law.

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² Contact: [http://www.ble.de](http://www.ble.de)
These activities are primarily designed to maintain existing business relations, establish new links and to form a successful marketing mix.

- **Market surveys for improved sales promotion**

  The Fund’s work is accompanied by some evaluation work to see the response of foresters, wood workers and customers to major market developments as well as weak points in marketing activities to take appropriate action. Market surveys and polls yield important information on trends associated with wood as a raw material for housing construction and other purposes (e.g. "do-it-yourself", furniture, bioenergy). They provide an important basis for constant promotion work and for the development of innovative new timber products. On the basis of the results the Fund supports local and regional activities in Germany and abroad.

- **Specialist advice**

  In order to increase the use of timber in the construction sector, basic information is published regularly and sent to decision-makers throughout the country. Interested parties can obtain further information and advice from experienced architects and engineers, located in each of the 16 Federal States. Both the general public and the opinion leaders as well as journalists, architects, engineers or prospective builders are addressed in this context.

- **Research and development**

  The Fund also promotes research and development in order to support the predominantly small and medium-sized enterprises making up the forestry and wood processing sector. The results are published for commerce and industry to open new market opportunities. Important subjects are e.g. life-cycle-analyses, housing construction, low-energy solutions for wooden houses, timber quality, standardisation rules or energy generation.

- **Public relations, media and advertising**

  An initial image campaign for sustainable forest management and wood products (launched in 1994), followed up by a marketing offensive "Pro-active timber" in 2001, constitute important basic elements of the general public relations work and advertising campaigns for the Fund.

  Presenting timber as the most important renewable raw material is the main objective of the advertising and public relations work at regional and local levels. The focus is currently on measures designed to stabilise the market position of timber as a structural and basic material and to expand this position in the long run.

  Advertising efforts focus on specific campaigns on television and radio as well as in the print media. The internet has also brought many new and at the same time cheap
opportunities for information transfer. The Fund also offers an overall information website to draw the attention of potential and ecologically-aware timber users to this raw material.

- **Trade fairs and exhibitions**

Regional events, exhibitions and trade fairs are used by the Fund to inform the public about the German system of sustainable forest management as well as about timber as a suitable raw material for housing construction and other purposes (e.g. the well-known wooden roof construction at the EXPO 2000 area in Hanover). A current example is the realisation of special campaigns at the International Garden Show in Rostock (April - October 2003). In addition, the Fund supplies exhibition systems and campaign materials in support of numerous local events organised by the forest and wood-processing industry.

![wooden roof construction in Hannover (exhibition site)](image)

**Picture 3: wooden roof construction in Hannover (exhibition site)**

**DEVELOPMENTS AND OUTLOOK**

In the following, some results are presented focusing on one of the most important fields of action - the building sector. This sector includes, in its broadest sense, all conceivable wood products inside and outside a house (including for example flooring, furniture, garden equipment or fences). As in the past this sector will continue to exert a great influence on timber sales. About 2/3 of annual forest cuts are estimated to go towards this economic sector in the form of sawnwood, boards or constructional elements.

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3 Contact: [http://www.infoholz.de](http://www.infoholz.de)

4 Contact: [http://www.iga2003.de](http://www.iga2003.de)
Looking back

In contrast to the building industry as a whole, prefabricated building construction (dominated by timber) was able to achieve better results over a period of time. German associations and marketing experts speak about a "sector-specific boom" for timber construction. During the past decade (1991 – 2000), overall timber-frame housing construction increased substantially in Germany (artisanal and industrial manufacturing). In this period, the number of annually completed timber houses rose from 8,000 up to 35,000 dwelling units. This development resulted in expanding the market share of timber houses from 7% to about 15%.

On the one hand, this is attributed chiefly to the fact that the timber industry had backed the supply of energy-efficient houses at a very early stage. In this area, wood is able to exploit its excellent properties in terms of heat protection.

On the other hand, inquiries made by the Fund (e.g. Survey on image profile "wood" 1999; Investment decisions in private house-building 2002) point to a large potential in favour of wooden houses. About 40% of customers can imagine to live in timber houses! However, another result of some polls shows that many of them had changed their minds during the project phase in favour of competing materials.

So it is clear that in spite of some hopeful results yielded by the surveys, there remains a lot of challenging work for marketing and promotion.
• Looking ahead

The activities of the Fund are also of vital interest to the forestry sector, taking into account that estimates about future developments in Germany’s building sector based on demographic scenarios indicate a significant downturn in customer demand (beginning in 2010)! Reasons are, amongst others, the decline in the population as well as increasing numbers of singles' households. The consequences are quite clear. Market volumes in the building sector will increasingly tend downwards resulting in increasingly tough competition and substitution effects.

Picture 5: Demographic development in Germany (dark line) and expected consequences in demand (red line: new dwellings; green line: modernisation) Heinze Consulting

There is another scenario that fosters intensified wood promotion in Germany. The annual total consumption of wood and wood products currently amounts to about 1.2 m³ per capita (all product categories together!). In some regions of the world the respective volume is twice as high. Because of the steadily growing wood potentials in our forests there is enough scope for further action of the Fund. The aim is to pave the way for a renaissance of wood in the 21st century.

Against this background the Fund will concentrate future action especially on

• securing a high standard of production quality in timber construction (including voluntary internal/external supervision of the enterprises) and setting up "quality pools",

• considering the growing importance of modernisation and renovation for wood consumption (at the moment both sectors make up about 52% of the overall annual construction volume!),

...
• accelerating the development of innovative construction techniques, e.g. in view of low-energy timber frame construction or prefabricated houses (also including strategies in raw material combination),

• strengthening promotional and marketing activities, taking consumer requirements into account (e.g. improving customer attendance from project launch until moving into the new house).

Future strategies of the Fund also deal with international cooperation. First steps are to develop a "European Wood Magazine" and to intensify environmental communication with partners in several European countries. The so-called “SWOT-Study” (Strengths-Weaknesses-Opportunities-Threats) on competitiveness of the forest-based and related industries of the European Commission points to the fact that there is a strong need for wood marketing and promotional action like this. The following extract of findings offers possible links to this item:

| Strengths:                                      | Sustainable and expanding raw material base |
|                                               | High quality products and services          |
|                                               | Strong environmental performance            |
| Weaknesses:                                    | High input cost factors                     |
|                                               | Lack of forest/wood cultural consciousness  |
|                                               | Fragmented structure of forest sector       |
|                                               | Lack of end user market orientation         |
| Opportunities:                                 | Development of Trans-European-Networks      |
|                                               | Expand use of wood                          |
|                                               | Promote wood as a life-style product        |
|                                               | Research and development and know-how advancement |
| Threats:                                      | Global competition                          |

**CONCLUSION**

- Without the German Timber Sales Promotion Fund there would be no joint wood marketing in Germany.

- The Fund will become an increasingly decisive instrument in convincing consumers of the manifold benefits of sustainably managed forests and wood as an outstanding renewable source for products and energy.

- In future it will become more and more important to pool existing potentials in marketing and wood promotion across national borders to boost competitive strength vis-à-vis products made of non-renewable materials.
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Governments’ role in wood promotion

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ABSTRACT

Given the situation, that wood is produced and processed under market economy conditions, there are limitations but at the same time a number of good reasons and innumerable ways for governments to promote the use of wood. Approaches and measures have to be designed according to specific country situations, there is no universal solution. Based on experiences made in Austria, a country with high forest cover and an export oriented forest industry, general considerations are made and practical examples are given concerning government activities to stimulate and promote the sound use of wood.

An appropriate legal, institutional and financial framework is a precondition to be created and improved over time through governments. This framework forms the basis for sustainable forest management, and therewith for raw material supply from a renewable resource in a long term run. It constitutes the basis for wood oriented research, education, training and innovation. It includes legislation, taxation, subsidising, industrial and rural development, and public procurement policies in a way that fosters consumption and eliminates discrimination of wood compared to other materials. An important role play overall sustainable development strategies, as well as forest related international agreements and processes, guiding policies towards the integration of environmental concerns in all areas of policy and economy. They should fully recognise the value of renewable resources and therewith help to translate the environmental advantages of wood production and consumption into market competitiveness.

Key words: market economy, sustainable development, forest policy, forest economics, wood production, wood promotion, sustainable forest management
Le rôle des pouvoirs publics dans la promotion du bois

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RÉSUMÉ

Dans les économies de marché, la production de biens, leur distribution et leurs prix sont essentiellement déterminés par les mécanismes du marché, c’est-à-dire l’interaction de facteurs tels que le libre accès aux marchés, la planification décentralisée, la propriété privée et la concurrence. Le rôle des pouvoirs publics consiste uniquement à corriger les conséquences sociales fâcheuses, comme l’émergence de monopoles ou de trop grandes disparités de revenus. Les interventions des pouvoirs publics doivent respecter les règles du marché et concernent généralement des domaines où les initiatives privées s’avèrent insuffisantes, comme les politiques structurelles et l’éducation. Les modalités et le degrée d’intervention et d’investissement des pouvoirs publics sur le marché sont dans une très grande mesure le fruit de choix politiques et varient considérablement en fonction des pays et des différentes régions du monde.

Le fait que le bois soit produit et transformé dans des conditions d’économie de marché implique certes des limites mais offre également de multiples possibilités en matière d’initiatives publiques pour la promotion de l’utilisation rationnelle du bois. Les stratégies et les mesures doivent être arrêtées en fonction de la situation propre à chaque pays; il n’existe pas de solution universelle. Les expériences menées à bien en Autriche, pays doté de ressources forestières abondantes et dont l’industrie forestière est axée sur l’exportation, fournissent des axes de réflexion et des exemples d’initiatives publiques destinées à favoriser et à promouvoir l’utilisation rationnelle du bois.

Il est impératif qu’un cadre juridique, institutionnel et financier approprié soit mis en place et amélioré avec les années par les pouvoirs publics. C’est la pierre angulaire de la gestion durable des forêts et de l’approvisionnement sur le long terme de matières premières à partir de ressources renouvelables. Ce cadre sert de base à la recherche, à l’enseignement, à la formation et à l’innovation dans le domaine du bois. Il recouvre la législation, la fiscalité, le subventionnement, le développement industriel et rural et les politiques d’achats publics, et vise à stimuler la consommation tout en faisant disparaître la discrimination dont souffre le bois par rapport à d’autres matériaux. Les stratégies globales de développement durable jouent un rôle important dans la mesure où elles contribuent à faire que les mesures prises dans tous les domaines de la politique et de l’économie intègrent des considérations relatives à l’environnement. Ces stratégies devraient pleinement reconnaître la valeur des ressources renouvelables et permettent que les avantages offerts par la production et la consommation de bois du point de vue écologique se traduisent par un gain de compétitivité sur le marché.

Mots clefs: économie de marché, développement durable, politique forestière, économie forestière, production de bois, gestion durable des forêts
Роль/обязанности правительств в области пропаганды использования древесины

Доклад, подготовленный директором департамента лесного хозяйства федерального министерства сельского хозяйства, лесного хозяйства, окружающей среды и водных ресурсов Австрии г-ном Ингвалдом Гшвандтлем

**РЕЗЮМЕ**

В странах с рыночной экономикой производство и распределение товаров, равно как и ценообразование на них в основном определяются рыночными механизмами, которые представляют собой взаимодействие таких факторов, как свободный доступ на рынок, децентрализованное планирование, частная собственность и конкуренция. Роль правительств ограничивается действиями, предназначенными предотвратить социально нежелаемые последствия, такие, как образование монополий или формирование перекосов в доходах различных групп населения. Вмешательство правительства должно основываться на принципе соответствия рынку и, как правило, охватывать те области, которые недостаточно учитывались в частных инициативах, например структурная политика или область образования. Каким образом и в какой степени государства вмешиваются в работу рынка и содействуют ему – это вопрос, который имеет сугубо политический характер и который в зависимости от той или иной страны или той или иной части света обретает различный смысл.

Учитывая тот факт, что древесина производится и обрабатывается в условиях рыночной экономики, деятельность правительств по пропаганде использования древесины имеет свои пределы, но в то же самое время открывает неограниченные возможности. Соответствующие подходы и меры должны разрабатываться с учетом ситуации, сложившейся в стране; здесь не может быть универсальных решений. Исходя из опыта Австрии – страны, обладающей значительным лесным покровом и лесной промышленностью, ориентированной на экспорт, – в документе описывается ряд общих соображений и приводятся практические примеры, касающиеся мер правительства по стимулированию и пропаганде рационального использования древесины.

Создание соответствующей правовой, институциональной и финансовой структуры является той мерой, которую должны осуществлять и постоянно совершенствовать правительства. Эта структура формирует основу рационального лесопользования и в конечном итоге становится источником поставок сырья из возобновляемого источника. Исходя из этой структуры проводятся исследования в области применения древесины, организуются обучение и образование и внедряются новшества. Она охватывает законодательство, налогообложение, субсидирование, развитие промышленных и сельских районов, а также политику в области государственных закупок. Её цель – стимулировать потребление и устранять дискриминацию в отношении древесины, возникающую в связи с поступлением на рынок других материалов. Важную роль здесь играют всесторонние стратегии устойчивого развития, нацеливающие политику на экологизацию политической и экономической деятельности. Правительства должны полностью признать значение возобновляемых ресурсов и содействовать тому, чтобы экологические преимущества производства и потребления древесины сделали ее конкурентоспособной на рынках сбыта.

**Ключевые слова:** рыночная экономика, устойчивое развитие, политика в области лесоводства, экономика лесного хозяйства, производство древесины, устойчивое лесоводство.
INTRODUCTION

For considerations regarding the use of wood three areas are of general concern: natural resource management, industrial production and market interactions. Each area provides for a high degree of complexity and all three are interconnected. To look for effective strategies for the sound use of wood is therefore a challenging task. Actors and addressees to be involved are a wide range of groups and individuals including also governmental institutions. This paper is an attempt to analyse the role, governments should or may play within wood promotion strategies. The conclusions are drawn mainly from experiences made in Austria, a country with high forest cover and an export oriented forest industry.

WHY SHOULD A GOVERNMENT PROMOTE WOOD?

In Meyer’s Lexicon\textsuperscript{1} policy is defined as a process in which society takes decisions among alternatives under limitations of resources in order to secure its long term duration. Taking this as an orientation for government actions, there are a number of good reasons for governments interventions to promote the sound use of wood.

Wood is renewable. There is no easier solution for overcoming resource constraints than managing a renewable one sustainably. There is also no better basis for a long term resource supply management. Wood has an unbeatable competitive advantage. This is true for both, wood as a material and a wood as source for energy.

Wood grows in forests. Forests are subject to all kinds of environmental, social and economic demands and concerns. This is not to be seen as a limitation but as an asset. A well managed approach to balance environmental, social and economic aspects of forests in a long term run is widely understood as sustainable forest management. The sound use of wood is therefore a crucial element of sustainable development\textsuperscript{2}, contributing to the economy, the environment and social welfare at the same time.

The use of wood provides for jobs and income, in particular in rural areas, where jobs in many cases are rare. Wood is a material with unique qualities and a variety of opportunities to process and use it. Forests and wood are an important factor for businesses and policies towards development of rural areas\textsuperscript{10}.

Wood stores carbon. The long term use of wood, for instance in constructions, and sustainable management of forests are factors for sequestration and storage of carbon and can therewith contribute to mitigating climate change.

So why is wood under question and promotion needed?

A main reason is, that there are other highly competitive materials, such as steel, aluminium, plastic, concrete, oil and others. They all have their advantages, and their lobbies.\textsuperscript{3}
Governments are challenged to develop the economy, to protect the environment and to provide fair market conditions. Consequently it would be a logical government priority to encourage the most efficient utilisation of available resources, in particular renewable ones, taking fully into account their environmental advantages.

**WHAT CAN A GOVERNMENT DO TO PROMOTE WOOD?**

In market economies the production of goods, their distribution and prizes are primarily determined by market mechanisms, which is the interaction of factors like free market access, decentralised planning, private property and competition. The role of governments is limited to actions, correcting socially or environmentally undesired results. Government interventions have to follow the principle of market conformity, which means particularly to be in line with the competition regulations of WTO (World Trade Organisation) and the European Union, and usually cover areas, which could not be sufficiently performed by private initiatives. In which ways and to what extent states intervene and invest in the market place is a question of highest political nature and differs greatly from country to country and in different parts of the world.

Given the situation, that wood is produced and processed under market economy conditions, there are limitations but at the same time innumerable possibilities for government activities to promote the use of wood.

In general, governments could concentrate on legislation, research, education and training, institutional capacities, sustainable and industrial development strategies, natural resource management policies, to single out only a few areas.

In detail, the priorities, approaches and measures chosen have to be designed according to specific country situations, there is no universal solution.

Based on experiences made in Austria, a country with high forest cover and an export oriented forest industry, general considerations are made and practical examples are given concerning government activities to stimulate and promote the sound use of wood.

**FORESTS AND WOOD IN AUSTRIA**

**A brief characteristic of the sector**

Austria is a small country in the centre of Europe with a total area of 8,4 million hectares, a population of around 8 million, an abundant forest resource, a geographic location on the cross-roads between north an south, east and west, and stabile political and economical conditions. These factors have favoured the development of a wood based industries of global status.

Forests cover 3,9 Million hectares or 47% of the total land area and play important roles for the economy, the environment and the society. Austrian production forests are characterised by a comparatively high productivity (of 8,7 cubic meters increment per
hectare and year) and well developed management practices. According to the Austrian Forest Inventory the growing stock is around 2 billion cubic meters, the total increment amounts to 27 million cubic meters a year, the annual removals are only about 19 million cubic meters. There is an obvious potential to utilise significantly more wood from Austrian forests on a sound sustainability bases.4)

Specific challenges for forest management and forest policy are caused by the terrain and the ownership structure. Two third of the country are mountainous, therewith difficult for silviculture, harvesting and transport. 80 % of the forest land is privately owned, about half of it by small lot owners, the average size of a forest holding is around 15 hectares.

The Austrian wood industries is a wide ranging economic sector, comprising saw milling, furniture, construction elements, wood based panels and ski5). The production of the Austrian wood industries amounted 2001 to 5,4 billion Euro, which means an increase of 34% compared to 1996. The wood industries have about 1800 enterprises (1490 saw mills), most of them of medium size structure and almost entirely privately owned.

The Austrian wood industries is a highly export oriented sector. The export rate amounts more than 50%. In 2001 the total export volume was 3,76 billion Euro, the traditional trade surplus was a total amount of 1,24 billion Euro. With 68% the European Union is the most important market.

Paper and pulp produce with 30 enterprises an annual turnover of around 3,6 billion Euro and contribute another 1,8 billion Euro to the trade surplus.6)

For more than 290.000 people, forests and the related industries provide jobs or a significant share of their incomes.

Research and education

Research, education and training are the basis for technological development, innovation and human resource development required for future oriented, competitive utilisation of wood. The institutions in place in Austria are co-financed by public and private funds, complemented by commissioned projects. They have undergone several changes in thematic orientation and structure over time in order to adjust to changing needs.

Wood research Austria (Holzforschung Austria)5)

This Institute, located in Vienna and working closely with the wood industries association, is carrying out research projects, tests and experiments, represents the sector in national and international standards committees, and provides information and know-how transfer.

A special research focus is ‘Wood Construction’, 15 projects are addressing questions in this area.

In 2001 a ‘Centre of Competency in Wood Technology’ has been launched with an investment of 2,91 million Euro for seven research projects to be carried out in four years.
‘HolzCert Austria’, established in 2001, is specialised in chain of custody certification, has certified some 50 enterprises according to PEFC standards (Pan European Forest Certification) and works towards establishing certification according to Japanese standards (JAS) and for construction elements.

Wood Technikum Kuchl (Holztechnikum Kuchl)\(^5\)

Kuchl near Salzburg is a centre for wood related education. It has been the ‘Specialised School for Saw Millers’ for many years. A couple of years ago a step by step extension to a ‘Technical High School’ has been launched offering education branches in ‘Wood Technology’, ‘Wood Design and Product Management’ and ‘Wood Construction’. Federal and provincial government are engaged in financing the necessary new buildings and modernising the training workshops.

Universities

The ‘University of Agricultural Sciences in Vienna (Universität für Bodenkultur Wien)’ has an ‘Institute for Wood Technology’ and offers a branch of study in wood management. The ‘Faculties for Structural Engineering’ of the ‘Technical Universities of Vienna and Graz (Technische Universität Wien, Technische Universität Graz)’ run special programmes on wood construction.

**Representation, lobbying and communication**

For the competitiveness of big business sectors like forestry and the wood industries it is not enough to focus on production and marketing alone. They also need to engage actively in policy development and implementation through a structured approach to lobbying and representation in order to fight effectively for their legitimate interests.

They also need to take concerted efforts to communicate strategically with relevant consumer groups and the general public in order to improve the image of and build confidence in the sector and its products.

Governments can play an important role by establishing or encouraging the establishment of appropriate institutions and mechanisms. In Austria two forms of institutions for representing interests are in place: legally established chambers, with obligatory membership, and privately organised voluntary associations. Both groups work both complementary and in various co-operations and are instrumental for representation, lobbying and communication. Financial support to these institutions through government funds is minor and focusses primarily on know how transfer activities.

**Representations of interest in forestry**

The ‘Provincial Chambers of Agriculture (Landes-Landwirtschaftskammern)’ are the legal representation of interest in forestry, while the ‘Federal Association of Agricultural and Forestry Enterprises (Hauptverband der Land- und Forstwirtschaftsbetriebe Österreichs)’,
the ‘Farm Foresters Associations (Waldbauernverbände)’ and the ‘Austrian Forest Association (Österreichischer Forstverein)’ are private ones.

Representations of interest in wood based industries

The ‘Austrian Federal Economic Chamber (Bundeswirtschaftskammer)’ as a legal representation of interest covers all major industry sectors with special branches, including the ‘Austrian Wood Industries Association (Fachverband der Holzindustrie’. Pulp and paper industries are covered by a private association, the ‘Association of Austrian Paper Industries (Austropapier – Vereinigung der österreichischen Papierindustrie)’.

Co-operations of forestry and wood based industries

‘proHolz Austria’ is a co-operation between the ‘Austrian Wood Industries Association’ and the ‘Standing Committee of the Presidents of the Austrian Chambers of Agriculture (Präsidienkonferenz der Landwirtschaftskammern Österreichs)’. It is a professional marketing and communications organisation for wood, running campaigns regarding information, public relations and advertising within the sector and for a wider public, nationally and internationally. After the successful image campaign ‘Proud of Wood’ (Stolz auf Holz), run since the early nineties with a focus on the aspect of renewability, the new campaign ‘Wood is brilliant’ has been launched in 2002 focusing on material qualities. ‘Promolegno’ is a campaign targeting the Italian market. Some efforts are also taken to address the Japanese and the Chinese market.

The ‘Co-operation Agreement Forest-Boards- Paper (Kooperationsabkommen Forst-Platte-Papier, FPP)’ has been formed by the ‘Standing Committee of the Presidents of the Austrian Chambers of Agriculture (Präsidienkonferenz der Landwirtschaftskammern Österreichs)’, the ‘Chip- and Fibreboard branch of the Wood Industries Association (Fachverband der Holzindustrie für die Span- und Faserplattenwerke)’ and the ‘Association of Austrian Paper Industries (Austropapier – Vereinigung der österreichischen Papierindustrie)’ already 30 years ago. It acts as platform between these partners for developing common approaches for the efficient use of forests and market continuity. Since 1990 there is also a focus on public relations concerning sustainable forest management and sound use of wood from forest thinnings.

Business co-operatives and networks

At the time there are four ‘Wood Clusters’ established, the ‘Holzcluster Salzburg’, the ‘Holzcluster Steiermark’, the ‘Holzcluster Niederösterreich’ and the ‘Holzcluster Oberösterreich’. They are regional co-operatives among small and medium size enterprises aiming to increase collectively their competitiveness through optimising their flexibility and creativity, creating synergies, and sharing know how, information and resources. For the establishment of wood clusters and similar co-operation projects, some provincial governments have set up specific subsidies.
Legislation and standardisation

Legal regulations on very different subjects can have direct or indirect influence on the use of wood. It is therefore useful to carefully analyse them and to correct distortions. Building and fire prevention regulations might be more restrictive for wood than for other materials. This was the case in Austria till the early nineties and took some years to successively harmonise and adapt the provincial regulations based on new scientific results regarding the burning performance of wood\(^\text{17}\).

Waste management regulations could cause difficulties for wood residues and ashes. Water protection regulations could require costly investments for wood processing enterprises. Transport regulations in different countries could cause different costs for transport. For wood as product on global markets, conformity with international standards is extremely important. All these issues are of constant concern to forest and wood related policies.

Sustainable Forest Management

Sustainable Forest Management in Austria is based on a well established legal, institutional and financial framework, which is adapted to the changing conditions of our globalising world continuously.

The ‘Resolution H 1’ of the ‘2\textsuperscript{nd} Ministerial Conference on the Protection of Forests in Europe, Helsinki 1993\(^\text{8}\), defines sustainable forest management as ‘stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems’. Austria is signatory to this resolution and has integrated this definition into the ‘Austrian Forest Law in June 2002’\(^\text{9}\).

A forest management as a long term attempt to balance economic interests, environmental concerns and social demands, lays the fundament for a wide acceptance of management activities in forests, which is necessary to allow a long term raw material supply. National Forest Programmes as outlined in the ‘Vienna Resolution 1’\(^\text{19}\) of the ‘4\textsuperscript{th} Ministerial Conference on the Protection of Forests in Europe’, are an effective instrument to strengthen forest policy through cross-sectoral approaches and participatory processes.

Rural Development

Austria implements a National Rural Development Programme based on the EU regulation (EC) 1257/1999\(^\text{10}\) which provides around 18 million Euro a year for measures regarding forestry. A special emphasis is given to measures encouraging forest owners to better utilise the periodic increment of Austrian forests and to offer more domestic wood to the markets. This concerns particularly the construction of forest access roads in difficult
mountainous terrain, the establishment of forest owners co-operatives and networks to overcome the disadvantages of small scale ownership structures, as well as innovations and improvements regarding the chain of production.

Political agreements and strategies

Political agreements and strategies with relevance to forests and wood are given on both, national and international levels. Their development and their implementation give governments and other actors opportunities to address the issue of wood promotion.

The Austrian Strategy for Sustainable Development

The Austrian Strategy for Sustainable Development, adopted by the federal government in April 2002, was prepared by a working group of representatives of ministries, provinces, municipalities, the social partners, interest groups and NGO platforms, accompanied and moderated by a professional team. It sets points for a long term oriented policy of sustainability, containing a catalogue of key objectives, targets and instruments for implementation. It is understood as self-obligation for the government, but also appeals to the private sector and the civil society.

The strategy calls for innovation and creativity among other areas explicitly for ‘...promoting the use of renewable raw materials and sources of energy more strongly...’. It also suggests a gradual reform of the tax system, including ‘...the establishment of competitive benefits for renewable sources of energy by grading the taxes on sources of energy in accordance with the degree of environmental pollution...’. Putting this ambitious plans into practice will still require time and efforts, however it is worthwhile as this would definitely promote the use of wood.

According EU targets, EU member countries plan to increase the share of renewable energy from 6% to 12% till 2010. In Austria renewable energy has been a success story since 20 years. Since than 40.200 heating systems based on wood chips and wood pellets, producing a total of 3090 megawatt energy, have been established, the upward trend is continuing. Electricity from biomass is a further focus for future work with an enormous potential.

The current ‘Work Programme of the Federal Government of Austria from March 2003’ corresponds with the sustainable development strategy by setting clear targets for increasing the use of biomass for energy up to 75% till 2010 and an ecologically oriented tax reform.

At international levels

The ‘Ministerial Conference on the Protection of Forests in Europe’ is in general supportive to the further development of sustainable forest management on a Pan European scale and therewith indirectly supportive to the use of wood. A number of commitments taken in these conference address specifically the promotion of wood as an
environmentally sound material, in particular the Resolution L1\textsuperscript{13). At the 4\textsuperscript{th} Conference, in April 2003 in Vienna, the Ministers responsible for forests in 43 European countries are expected to sign a resolution concerning the economic viability of sustainable forest management, an issue of highest importance for securing long term supply with wood from European forests.

The agreements in the context of the United Nations Forum on Forests\textsuperscript{14) and the Convention on Biological Diversity\textsuperscript{15) have a clear relevance to sustainable management and sustainable use of forest resources. A special case is the Framework Convention on Climate Change\textsuperscript{16) with its Kyoto Protocolle and the Marakesh Accord, which include forest cover and afforestations into climate protection measures. The future influence on global wood markets caused by its implementation is not predictable.

CONCLUSION

There are number of good economical and environmental reasons for government engagement in wood promotion activities. There is no universal concept to being offered for successful government activities towards promoting the use of wood; objectives, priorities, approaches and measures should be designed according to the specific country conditions.

As a general guidance the following consideration might to be useful: An appropriate legal, institutional and financial framework is a precondition for a sound development of the economy, the environment and society. Governments play a central role in creating this framework, adjusting it to political priorities, for instance towards the promotion of wood, and in improving it over time. This framework has to form the basis for sustainable forest management, and therewith for raw material supply from a renewable resource in a long term run. It constitutes the basis for wood oriented research, education, training and innovation. It includes legislation, taxation, subsidising, industrial and rural development, and public procurement policies in a way that fosters consumption and eliminates discrimination of wood compared to other materials.

An important role play overall sustainable development strategies, guiding policies towards the integration of environmental concerns in all areas of policy and economy. They should fully recognise the value of renewable resources and therewith help to translate the environmental advantages of wood production and consumption into market competitiveness. International agreements and processes could support national efforts by providing references and guidance for policy development and implementation on national and sub-national level.

All governmental interventions regarding the promotion of wood need to be in line with competition regulations. Direct investments of public money into the forest and wood sector need a clear focus in order to achieve any effect, taking into account that the turn over the sector reaches within a couple of days meets easily what a government could
spend in a year. However, public spending is needed to strengthen weak elements in the production chain from the forest to the market and to create synergies by encouraging private-private and public-private partnerships.

Wood promotion is not done by isolated actions. To be effective it requires a comprehensive strategic approach with a long term orientation.

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Policy for wood consumption in Romania

Paper by Ms. Constanta Istratescu, Scientific Research Secretary, and Mr. Dan Dumitru Copacean, Marketing Department, National Institute of Wood, Romania

ABSTRACT

Throughout 1990 the raw material needs of the Romanian wood sector exceeded the available wood volume. In short, production capacities were too high. At the same time the production was intended mainly for export while imports were kept at minimum for the majority of products.

At the beginning of the transition period, removals fell, because of new forest management limits and changes in structure and legislation, arising from the transition to the market oriented economy. This caused a severe fall in production of all wood products. Privatisation, which is practically complete now, has been reflected in a new configuration of the Romanian wood industry. There are now more than 8000 small and medium size companies as well as some large companies set up by foreign investors. The latter have had a significant impact on the development and production of new value-added products in Romania.

Another important impact on the Romanian policy in the field of wood was due to the alignment to the European legislation – Directive 68/89 EEC, Directive 94/62 EEC, and Directive 88/378 EEC – and also by the adoption and harmonization of more than 87 % European standards regarding wood and wood products.

After hesitating at the beginning of the transition period, activities aiming at opening and improving the Romanian wood market resulted in complete liberalization of wood and wood products trade from 1 January 1998. At the end of 2002 there was a positive balance in the wood trade. 45 % of wood products exports are of secondary processed products. Furniture, the traditional product demanded by the markets, exceeded the level of production and export recorded in 1989. At the same time there has also been a significant increase of imports, representing for furniture 30 % of internal consumption. There are still differences between companies and sectors in the level of modernization, implementation of quality control systems, and management.

Professional associations play a major role in development of market economy. The strategy of medium term development (2010) issued by the Romanian Government takes into consideration trends in domestic and foreign markets with special emphasis on the suitable steps to support investment in the field with perspective of diversification and improvement of demandable products.

Key words: wood consumption, wood production, restructuring, privatisation, wood policy.
Politique en matière de consommation du bois en Roumanie

Document établi par Mme Constanta Istratescu, Secrétaire à la recherche scientifique, et M. Dan Dumitru Copacean, Département de la commercialisation, Institut national du bois, Roumanie

RÉSUMÉ

Tout au long des années 90, en Roumanie, les besoins en matières premières du secteur du bois ont été supérieurs aux volumes disponibles. En bref, les capacités de production étaient trop importantes. Parallèlement, la production visait principalement l’exportation tandis que les importations étaient maintenues à un niveau minimal pour la plupart des produits.

Au début de la période de transition, le volume de bois enlevé a chuté, en raison de la fixation de nouvelles limites dans le cadre de la gestion des forêts et de l’évolution des structures et de la législation, qui tiennent à la transition vers l’économie de marché. Par conséquent, la production de tous les produits du bois a brutalement baissé. La privatisation, qui est pratiquement terminée à l’heure actuelle, a entraîné une reconfiguration de l’industrie roumaine du bois. Il y a maintenant plus de 8 000 petites et moyennes entreprises ainsi que quelques grandes sociétés créées par des investisseurs étrangers. Ces dernières ont une incidence importante sur le développement et la production de nouveaux produits à valeur ajoutée en Roumanie.

La politique roumaine en matière de bois a aussi été fortement marquée par l’alignement sur la législation européenne (directives de la Communauté européenne 68/89, 94/62 et 88/378) et par l’adoption de plus de 87 % des normes européennes concernant le bois et les produits du bois et l’harmonisation par rapport à ces normes.

Après une certaine hésitation au début de la période de transition, les activités destinées à ouvrir et à améliorer le marché roumain du bois ont conduit à une libéralisation complète du commerce du bois et des produits du bois à compter du 1er janvier 1998. À la fin de 2002, le solde de la balance du commerce du bois était excédentaire. Quarante-cinq pour cent des exportations de produits du bois concernent des produits de transformation secondaire. Pour le mobilier, le produit traditionnellement demandé par les marchés, la production et l’exportation ont dépassé les niveaux enregistrés en 1989. En même temps, on a enregistré une augmentation sensible des importations, qui représentent pour le mobilier 30 % de la consommation interne. Il y a encore des différences entre les entreprises et entre les secteurs en ce qui concerne le degré de modernisation, l’application des systèmes de contrôle de la qualité et la gestion.

Les associations professionnelles jouent un rôle essentiel dans le développement de l’économie de marché. La stratégie de développement à moyen terme (2010) élaborée par le Gouvernement roumain tient compte de l’évolution des marchés intérieurs et étrangers et met particulièrement l’accent sur les mesures à prendre pour soutenir les investissements dans ce domaine en vue de la diversification et de l’amélioration des produits commercialisés.

Mots clefs: consommation de bois, production de bois, restructuration, privatisation, politique en matière de bois.
Политика в области потребления древесины в Румынии

Документ, подготовленный научным секретарем департамента маркетинга Национального института древесины Румынии г-жой Константой Истратеску и г-ном Даном Думитру Копачаном

РЕЗЮМЕ

На протяжении всех 90-х годов потребности в сырьевых материалах в румынском секторе древесины значительно превышали имеющиеся объемы древесины. Иначе говоря, производственные мощности были слишком маленькими. В то же самое время производство предназначалось в основном для экспорта, а импорт был сокращен до минимума для большинства продуктов.

В начале переходного периода были отменены все ограничения в связи с введением новых правил управления лесами и изменениями в структуре и законодательстве, что привело к значительному росту производства древесины. Приватизация, которая в настоящий момент почти полностью завершена, нашла свое отражение в новой конфигурации румынской промышленности по производству древесины. В настоящее время существуют более 8 000 малых и средних предприятий, а также ряд крупных компаний, созданных иностранными инвесторами. Именно они оказали значительное воздействие на ход разработки и производства новых продуктов с добавочной стоимостью в Румынии.

На румынскую политику в области использования древесины оказало также весьма важное воздействие приведение законодательства страны в соответствие с европейским законодательством - директива 68/89 ЭЭК, директива 94/62 ЭЭК и директива 88/378 ЭЭК, равно как и принятие более 87 европейских стандартов, касающихся древесины и изделий из древесины, и согласование с ними местной продукции.

После ряда колебаний, свойственных начальному этапу переходного периода, начала набирать силу деятельность, направленная на открытие и улучшение рынков древесины в Румынии, что в свою очередь привело начиная с 1 января 1998 года к полной либерализации торговли древесиной и изделиями из древесины. В конце 2002 года в торговле древесиной установился позитивный баланс. 45% экспорта изделий из древесины составляют продукты вторичной переработки. Производство мебели - традиционного продукта, пользующегося особым спросом на рынках, - превысило уровень производства и объем экспорта, зарегистрированные в 1989 году. Одновременно существенно увеличился импорт, который составляет для мебели 30% внутреннего потребления. Вместе с тем до сих пор не исчезли различия между компаниями и секторами по уровням модернизации, внедрения систем контроля за качеством и управления.

Профессиональные ассоциации играют важную роль в процессах развития рыночной экономики. Стратегия среднесрочного развития (2010 год), утвержденная правительством Румынии, принимает во внимание тенденции на внутреннем и иностранных рынках и особо подчеркивает те необходимые меры, которые следует принять в поддержку инвестиций в области дальнейшей диверсификации и улучшения качества изделий, пользующихся особым спросом.

Ключевые слова: потребление древесины, производство древесины, реструктуризация, приватизация и политика в области использования древесины.
INTRODUCTION

When adopting the market oriented economy principles, respectively in 1990, the Romanian wood industry, state property as a whole, was characterized by just a few number of large companies, some of them having the entire manufacturing profile of this sector. Worse, the production capacities were considered for the yearly cut of 18-20 million m³/year much above the real available quantities of the growing stock at that time.

Under these circumstances, the wood industry which depends on existing renewable wood material logged over considering the conditions requested for sustainable forest management was forced to answer the following challenges:

- lessening of raw material sources;
- changes on domestic and foreign markets which called for the increased wood product competitively;
- restructuring of state companies in view of privatization.

Without ascendancy over the specific market mechanisms, the basic element in the production structure and development being only the demand factor in the period after 1990 there has been set up the legal framework which by a system of organizations and also by a proper legal activity, contributed not only to letter utilization of wood starting from harvesting and ending with the processing in finished products but also to education of consumers for increasing their acquaintance with sound wood utilization.

1. INSTITUTIONAL FRAMEWORK

In Romania, the forestry sector and wood industry are separated.

Beginning in 2001, the Ministry of Agriculture, Food and Forests as specialty organization in the central public administration, elaborates the policies in the field of national forests irrespective of their ownership. They directly control forest management.

The legal framework for forest preservation and sustainable management is provided by the Forest Bill (Law 26/1996). The section 6 – Wood Removal – specifies:

- the harvesting of wood products is in compliance with the provisions of forestry management and with the instructions concerning the terms, methods and ages, logging and handling of wood materials, issued by the central authority responsible for the forestry;
- when harvesting the wood material, the forest districts, economic agents and legal persons are bound to use methods for harvesting – skidding of wood properly selected to avoid soil degradation, damaging of seedlings and of trees.
We consider that above provisions are essential in the term of spreading of grousing stock between various owners, some of them being not familiar with new concepts of sustainable management and sound wood utilization.

During this period there have been supported those companies specialized in wood harvesting which owing to the available equipment and staff can comply with the requests of forestry management providing also proper utilization of wood resources (Decision of Government No. 695 / 1998 approving the wood selling by the National Forest Administration to the economic agents).

On the same principles operates also the recent regulation – Law 654 / December 2002 – approving the conclusion by the National Forest Administration of long term contracts (for a quantity up to 20 % of maximum wood volume for industry) with economic agents working in the field of wood, processing. The contracts are concluded with the economic agents assigned by public auction for 20,000 m³ standing trees / year / economic agent and for a period of minimum 3 years and maximum 10 years. It is envisaged that taking into account above condition the following can be avoided: degradation of raw material changing the destination.

The Ministry of Industry and Resources is the body responsible for the implementation of Government policy in the field of industrial production and goods. The wood industry is as present under the coordination of State Secretary for Industrial Development and of General Direction for Consumer Goods which by proper industrial strategy and policies are in charge with the regional development, economic and industrial cooperation, searching of foreign investors, integration into EU and harmonization of legislation, accreditiation of quality infrastructure and access of products on international markets.

The structural and economic transformations taking place in Romania and the strong request for speeding up the restructuring and privatization process together with the development of small and medium size enterprises SME’s, have determined the setting up at the beginning of January 2001 of the Ministry for SME’s Development and Cooperation. The newly established State Agency for Privatization and Capital Investment (former FPS) plays an active role in the privatization of state companies. The social and economic development programme is under the control of Ministry of Projections and Development which is responsible for the activity of National Institute for Statistics and Economic Surveys, and the activities for the integration of Romania within the European structures are under the co-ordination of the Ministry for European Integration.

The activity of central public administration bodies is derived at present from the Government Program for medium term (2001-2004) and for long term (2001-2010). The policy in the field of sound wood utilization in Romania find full support in a series of laws and regulations of which:

- Law 133 / 1999 concerning the stimulation of private entrepreneurs in the setting up and development of small and medium size companies (SME’s);
Law 96 / 2000 concerning the organization and operation of Export-Import Bank of Romania – EXIMBANK SA and the specific instruments for supporting the foreign trade;

Decision of Romanian Government No. 1570 / 2002 concerning the approval of mechanism for affording the financial support from the Budget by the Program for increasement of industrial products competitively (A program under the administration of Ministry of Resources and Industry);

The emergency ordinance No. 120 / 2002 concerning the approval of support system and export promotion with financing from the Budget;

The Decision of Romanian Government 1493 / 2002 concerning the exempt and temporary reduction of custom duties from import for some goods – the wood sector taking advantages from reduction for: sawn timber, veneer, plywood of tropical wood species.

The last regulations place a special stress on the increment of product quality. The state support is found in same extents for: implementation and certification of quality systems and environmental management; accreditation of testing laboratories and equipment; registering and protection foreign market of Romanian industrial designs and models; carrying out of market surveys and product studies; participation at international fairs and shows; general advertising activities for products / product groups on target markets.

In order to spread out of mechanisms for granting the financial support it has been set up a commission in the Ministry of Industry and Resources which includes also the representatives of the employers and of professional associations.

It is worth mentioning to remember here the professional association which, by their united membership policies can strengthen the wood harvesting and processing industry: Romanian Furniture Manufacturers Association- APMR, Association of Romanian Foresters-ASFOR, Romanian Panels Manufacturers Association- APSLR, Patronizing Organization for Pulp and Paper Industry-ROMPAP.

It is highly appreciated the role of these Association in the improvement of regulations in the field in the stimulation of domestic and foreign trade development, by organising exhibitions, fairy and symposiums, supporting the access to information concerning modern products and technologies as well as promotion of business relationships with domestic and foreign companies.

2. THE WOOD PRODUCTION AND CONSUMPTION

2.1. The structure of wood trading companies

The large existing companies at the beginning of 1990 underwent structural changes. These have been split to facilitate their control and to be more attractive for privatisation.
Several SMEs have been set up with private capital mainly for the production of sawn timber, building materials, furniture and, in the last period, the production of paper and. As a result, the configuration of this sector is completely different from 1990.

From a total of 8634 companies existing at the end of 2002 it prevails these small and very small companies amounting 6774 (see table 1).

**Table 1 Structure of companies in the wood sector, 1990-2002 (Number of companies)**

<table>
<thead>
<tr>
<th>Branch</th>
<th>1990</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
<td>5235</td>
</tr>
<tr>
<td><strong>Larg e</strong></td>
<td>7</td>
<td>65</td>
</tr>
<tr>
<td><strong>medium</strong></td>
<td>5235</td>
<td>245</td>
</tr>
<tr>
<td><strong>small</strong></td>
<td>5235</td>
<td>4925</td>
</tr>
<tr>
<td><strong>2. Furniture and other finished wood products</strong></td>
<td>11</td>
<td>2965</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11</td>
<td>2965</td>
</tr>
<tr>
<td><strong>Larg e</strong></td>
<td>11</td>
<td>180</td>
</tr>
<tr>
<td><strong>medium</strong></td>
<td>2965</td>
<td>1225</td>
</tr>
<tr>
<td><strong>small</strong></td>
<td>2965</td>
<td>1560</td>
</tr>
<tr>
<td><strong>3. Pulp and paper</strong></td>
<td>23</td>
<td>434</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24</td>
<td>8634</td>
</tr>
<tr>
<td><strong>Larg e</strong></td>
<td>24</td>
<td>271</td>
</tr>
<tr>
<td><strong>medium</strong></td>
<td>8634</td>
<td>1589</td>
</tr>
<tr>
<td><strong>small</strong></td>
<td>8634</td>
<td>6774</td>
</tr>
</tbody>
</table>

Sources: Ministry of Industry and Resources, 2002

In case of a large member of such companies, the inadequate equipment does not provide for a proper manufacturing process. The products are accomplished with high raw material consumption and low efficiency. It is the situation of same companies working in harvesting, production of sawn timber and joinery components.

There have been sustained concerns in the technological development for the implementation of new capacities. The investments achieved during 1990-2002 totalled 1526 million USD of which 920 million foreign capital.

There have been started or in progress of starting during 2003-2004 large production capacities by foreign companies:

- a sawmill of 80,000 m³/year – the investment by Holzindustrie Schweighofer – with start up in 2004;
- a fibreboard (MDF) plant of 285,000 m³/year started in 2000, a particleboard plant of 240,000 m³/year and melamine laminated board plant of 5 million m²/year started in 2001 by the investment of the Group FRATI – Italy at the Company MDF Sebeş – FRATI;
- a plywood plant of 12,000 m³/year started in 2001, veneer plant of 12,000 m³/year with starting in 2003 by the investment of the German Company Bloemberger Holzindustrie, at SC CILDRO Drobeta Turnu Severin;
- a packaging paper plant of 150,000 metric tons / year started in 2000 by the investment of the Group Rosman-France at SC AMBRO Suceava;
- Tissue paper plant from deinking waste paper – capacity of 30,000 metric tons/ year with starting in 2003, by the investment of the company Perrini at CONCEH Călăraşi;
Newsprint plant from deinking waste paper, 40,000 metric tons/year, with starting in 2003 at LETEA Bacău.

It is also to be mentioned the investment effort mainly for equipment, information technologies of the manufacturing processes in the existing furniture and paper plants, implementation of new plants for solid wood furniture, parquet floorings, prefab houses at the state of the art.

In the support of modernisation of wood industry there have been sped out some projects with the financing by international programs:

- The project ROM/000/001 – financed by SWISS Government and PNUD Program “Strengthening Romania’s Export Capacities” for furniture factories;
- The program ECOLINKS financed by USAID for 4 pulp and paper plants in live with the reduction of pollutants.

2.2. Wood consumption policy

The changes in the volume of removals and in the wood products markets, the liberalization of price of wood by the regulation of public auctions and negotiations and, last but not least privatization of companies are the major factors which can be found in the production level of the main products. After the first transition stage (1990-1994) when production fell throughout the wood industry, production of most wood products improved to meet new market demand (table 2).

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Sawnwood</td>
<td>2,853</td>
<td>1,727</td>
<td>3,396</td>
<td>3,059</td>
<td>3,150</td>
<td>+ 10,4</td>
</tr>
<tr>
<td>Particleboard</td>
<td>581</td>
<td>240</td>
<td>133</td>
<td>134</td>
<td>270</td>
<td>-53,5</td>
</tr>
<tr>
<td>Fibreboard</td>
<td>184</td>
<td>102</td>
<td>82</td>
<td>206</td>
<td>290</td>
<td>+ 57,6</td>
</tr>
<tr>
<td>Plywood</td>
<td>123</td>
<td>97</td>
<td>72</td>
<td>79</td>
<td>80</td>
<td>- 35,0</td>
</tr>
<tr>
<td>Pulp</td>
<td>667</td>
<td>221</td>
<td>293</td>
<td>268</td>
<td>270</td>
<td>- 59,5</td>
</tr>
<tr>
<td>Paper</td>
<td>547</td>
<td>288</td>
<td>340</td>
<td>395</td>
<td>400</td>
<td>- 26,9</td>
</tr>
<tr>
<td>Furniture</td>
<td>456</td>
<td>450</td>
<td>608</td>
<td>700</td>
<td>770</td>
<td>+ 68,9</td>
</tr>
</tbody>
</table>

Sources: Romanian Statistical Yearbook 2001
Statistical bulletins ½

x) Provision data

The first sector emerging from the crisis by re-orientation of capacities depending on the new markets and by a sustained effort of modernizing is the furniture sector which, beginning with 1994 knew a constant development exceeding from 1998 the production recorded in 1990.

At the level of the year 2002 it has been registered an outrun of 68,9% compared with the reference year. In 2002 the furniture production represented 39% from the entire wood
industry and 45% from export. A favourable situation is created for the sawnwood industry by liberalisation of exports. Under the conditions of wood removals reduction the production exceeding in 2002 by 10.4% the volume recorded in 1990.

The product quality, the outdated technologies did not allow the coming out from the crisis of all wood industry- particle board, veneer sheets, plywood- of which results are well below the production achieved in the reference year. Nevertheless it is observed the recurrence of fibreboard production as a result of the investments. MDF is a significant example with production growth beginning with 2001 and the export of 83% from the production envisaged. Also, for plywood and particle board, the investments in progress of achievement will allow for increases of physical production in the same time with the diversification of assortments (graph 1).

**Graph 2 - Wood-based panels production in Romania 1990-2002 (1000m³)**

The pulp and paper production, without major changes in the capacity, knew in 2002 an increase of value, about 9%, by changed the assortments as a result of modernization. The growth resulted from the doubling of technical paper production, compared with 2001,and increase by 33.5% of duplex- triplex packaging materials, while the newsprint paper production decreased by 33%. The changes in the production of various wood products determined also, the change of the whole structure of this sector. (table 3)

**Table 3 - Changes in wood industry structure in Romania, 1989-2002**

<table>
<thead>
<tr>
<th></th>
<th>1989 %</th>
<th>2000 %</th>
<th>2002 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood working industry</td>
<td>46</td>
<td>54</td>
<td>49</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wood-based panels</td>
<td>26</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Pulp and paper industry</td>
<td>28</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Furniture industry</td>
<td>26</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>Total forest products industry</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Sources: Ministry of Industry and Resources, 2002
The Romanian wood industry has had an evolution influenced mainly by foreign market demand. The trade liberalization allowed also the increase of impact for various products with value added which come in the completion of short assortments. For example, 30% of domestic furniture consumption is from import and paper and paper board sector is further dependent on imports besides, per total, the wood sector balance is in excess.

The production modernization and diversification policy with a special stress on the achievement of value added products has changed beginning with 2002, the option of sawnwood companies. It is requested by domestic market for the increased production of furniture, solid wood panels, building components. (graph 2)

2.3. Wood for energy

The sound wood consumption means also the finding out of methods for reduction of useless waste. In this context it can be stated two of the projects concerning wood waste utilization as raw material for energy production:

- "Wood waste utilization for district heating"-project PHARE RO-9504-01004-L001, a solution implemented in Campeni town with a population of 10000 inhabitants.

- Project CEE-NNE 5/1999-00048 IMPROVE RES-“Improving the acceptability of RES in Romanian wood industry for energy production through an appropriate management”- by which it have been established solutions for using as fuel in the thermal power station belonging to enterprises about 950,000 tons of wood residues in 2000 and 1340,000 tons in 2010 (32% of the fuel demand).
3. PATTERNS OF DECISIONAL ANALYSIS IN THE MARKETING MANAGEMENT:

The external environment analysis of the economic agent in the wood industry is based on the following aspects: definition and determination of wood products market, psychological behaviour of final users and / or brokers (procurements, frequency, fidelity etc.) competition between producers (manifested form, value, hierarchy) extent in which the macroeconomic policy and legislation have influence on the activity of company.

The importance of psychology in the marketing management typical for the wood industry is given by the mentality of managers and consumers which are not even in a full agreement and generates the conflict of interests.

The nowadays client is looking more for meeting his requirements while the managers do not come with him, these preferring the tactics “to wait” (as before 1989) by the principle that “is more important to produce”. In the last years it can be seen that private firms became flexible in relation with the clients starting with the financial reasons and ending with the convex services.

In the present stage it is necessary to place a special stress on the human interrelation and next to affairs itself, this situation being due to uncertainty, permissive legislation systems and specially on the laws concerning the trading agreements which can be interpretative and detrimental to the producers.

The figure 1 shows a synthesis of the external environment.

It results that policies of the economic agent can be directed to: resource market of user (consumer), competition, distribution channel and legislation in force.

The economic policy choices of the wood sector will be based on the forest management principles with main emphasis on: encouraging the highly turning to account of wood and respectively the transition and also the development of new markets, products, development of communication and coordination, life cycle analysis, promotion a new image of wood product to the consumer, use of forest marketing techniques, creation and education of consumer.

A special stress is laid up on the forming up of non-antagonistic relation between forestry and wood logging taking into consideration the economic factors and environment protection for the development of modern management.

For the above considerations the company National Institute of Wood proposed a new method for determination value added extent starting from the client (see fig.2). The main elements are traditionally Pv (analyzing the contradiction between the rough conversion and high process) and the new ones: Vs, Ec, Vpi.

It is also traditional for costs Fc but laying stress on Ct, Ce, Mc.
The consumer oriented policy shall be more striking on Vpi, (value of product image) to be obtained mainly by promotion to the varied fairs. Certainly, the most important is BIFE-TIMB organized by ROMEXPO – Bucharest, every year in September. The international and national character is given by the number of participating countries.

Some significant years have been selected to show the growth of participation underlining also the different quality, which places it near the similar external events. Whether at the first edition in 1991 there were in total 4 countries with 92 exhibitors of which 80 Romanians and 12 foreigners, in 2002 to the XI edition enjoins the participation of 17 countries with 437 exhibitors of which 301 Romanians and 136 foreigners. The number of visitors was more than 35,000 and the exposition area was 30,000 m².

This edition of BIFE-TIMB (having all the furniture, indoor decorations, wood products, hardware and assembling elements, accessories, machine-tools and equipment for wood removals and processing), strengthened its position among the important specialized fairs from Europe, as agreed by the General Council of UEA in the last conference. The professional Associations have organized, with the Governmental support, the participation at international fairs from Paris, Köln, Hanover, Milan, Brussels, Moscow, a good occasion to present the Romanian offer, but also for knowing to the Romanian producers, the trends on the foreign markets.

The quality of wood products shows the extent in which it complies with client needs observing also the limits requested by general interests concerning the socio-economic efficiency and environment protection. The product quality warrants its value which can be increased by the concept of integrating functions, the most important being the marketing which provides a delivery to the customers a new product with the higher value to the competitors.

It results that background element for the consumption policy promoted by the economic agent is the distribution channel. The best model recommended by National Institute of Wood is shown in the fig.3

The managerial decision at micro and macroeconomic level is emphasized by the first example through the turnover. This will derive from the relation of wood products, rough converted, and the high processed products generating the added value. The answer is given by psycho-sociologic analysis of the consumer and by the feed-back resulted from this and which stands for the mopping of preferences which in turn is actualized by: sinectics, dialogue, complex team.

From this it is derived the decision for market development – the segment with particularities of exclusivity type, and so on.

It is worth mentioning that from this example (the fig. 3 can generate tenth of variants) it can be solved legal aspects of cooperation/claim, producer/distributor.
Fig. 1 External factors analyse of economic agent in the wood industry

Distribution control

External environment of economic agent in the wood industry

Source market profile

Alternative sources
Difference of price
Replacing products
Supply security
Delivery terms

User market profile

Different growth rates
Structural changes
Potential markets
New markets or segments

Competition profile

Number of competitors
Competitor’s position
Competitors’ power
Potential competitors
Policies and distribution methods
Client service
Offers

Distribution channel profile

International distribution
Alternative channels
Structural limits
Different costs within the channel (by computing items)

Governmental regulation

Concerning the products
Concerning the transport
Concerning the storage
Concerning the packaging

Fig. 2 Method for determination of added value extent supplied to the client by the producer of wood product

Wood product value \( (P_v) \)

Value of services offered by the firm \( (V_s) \)

Employees competency \( (E_c) \)

Value of product image \( (V_{pi}) \)

Financial cost of wood product \( (F_c) \)

Cost of lost time for product purchasing \( (C_{lt}) \)

Cost of energy lost by client \( (C_e) \)

Moral cost from the client point of view \( (M_c) \)

Total value at the client offered by the firm \( (T_v) \)

\[ T_v = P_v + V_s + E_c + V_{pi} \]

Total cost at the client \( (T_c) \)

\[ T_c = F_c + C_{lt} + C_e + M_c \]

Value offered to the client by the firm \( (V_o) \)

\[ V_o = T_v - T_c \]
CONCLUSIONS:

This paper is aimed at the pinpointing of the concerns for the placing of wood consumption on the first rank. It can be concluded that after socio-economic and legislative changes a proper feeling for the concept of sound wood consumption begins to take place as mirrored by the changes in the structure of the industry.

The economic agents have invested mainly in the technologies to ensure the production of value added products and the state administration bodies are willing to support many initiatives.

Same data concerning the production, consumption and wood trade have not been rendered minutely. It is considered that complete information in this respect can be found in the Wood Bulletin ECE / TIM / BULL 54/3 section 3 “Romanian Wood Products Market” and also in other issues of the Wood Committee and in the Romanian statistics (quoted in the paper).
Project “Capacity Building to Improve Trade Finance and Investment Prospects for the Russian Timber Sector"

Paper by Mr. Mr. Hans Jansen, UNECE Trade Development and Timber Division

INTRODUCTION.

The UNECE Trade Development and Timber Division is currently implementing the project “Capacity Building to Improve Trade Finance and Investment Prospects for the Russian Timber Sector”. The project aims at strengthening the trade performance of the Russian forest sector by contributing specific trade facilitation expertise from the division.

The focus of the project is on:
- Sustainable development;
- Direct cooperation at the enterprise level
- Regional cooperation at the level of the North-Western regions of the Russian Federation;
- Trade, timber and environment issues;
- Cross-sectoral work.

The project activity “Improved Trade Logistics for the Sustainable Use of Biomass” in particular is a good example of the practical results that have been achieved.

The project was initiated at the request of the Russian Federation.

The project partners are from the public and private sectors, in the Russian Federation and in Europe. They include a wide range of private enterprises, local and regional governments, and major forest sector institutions.

2. MAIN ACTIVITIES OF THE PROJECT.

The project aims at improving the trade performance of the Russian timber sector through the following activities:
- Sustainable management and certification at the enterprise level
- Improved trade procedures in the timber industry
- Timber port logistics
- Capacity building for improved foreign investment
- Sustainable use of biomass
These activities are based on the core competencies of the Trade Development and Timber Division and the priority needs of the Russian forest sector.

Experts from the Timber Branch, the Policy and Governmental Cooperation Branch, and the Global Trade Solutions Branch work closely together in the project for the benefit of the Russian timber enterprises.

Our main concern is to promote best practice in the sustainable management of the forests of the Russian Federation.

3. GEOGRAPHICAL IMPLEMENTATION

The project is implemented in two regions (“oblasts” in Russian) of the northwestern part of the Russian Federation: the Leningrad oblast and Arkhangelsk oblast. These regions were chosen because of the importance of the forest industries in the regional economy. The results of the project are shared with other regions in the Russian Federation, but it is thought to be more efficient to limit the actual project activities to a well-defined geographical area.

Our partners in the Leningrad oblast are the Government of the Leningrad oblast, the Committee of the Forest Industry Complex, the Saint Petersburg branch of the Russian Union of Timber Exporters and Manufacturers, the Northwestern Customs Administration, timber port terminals and a large number of timber enterprises.

We also work very closely with the forest research institutions of the region and with relevant non-governmental environmental organizations.

In the Arkhangelsk oblast we work in close cooperation with the Arkhangelsk Region Administration, the Forestry Complex Administration, timber port terminals and timber enterprises.

4. ACTIVITIES AND ACHIEVEMENTS.

The main working method of the project is through workshops. Many are held in the Russian Federation, but on average once a year a Forum is organised at the United Nations Office in Geneva or elsewhere in Europe. The workshops bring together the private sector, financial institutions, regional and federal government institutions that support the timber industry.

The implementation of the workshops is done in cooperation with local project counterparts, who bring in local expertise and who are responsible for the organization of the workshops tailored to the local needs. This ensures that the workshops are directly relevant at the enterprise level.
Some of the most recent project activities have focused on:

- Sustainable development and forest certification
  The objective is to assist timber enterprises in the Arkhangelsk and Leningrad regions to incorporate principles of sustainable management in their business strategy. The emphasis is on direct exchange of information at the management level between Russian enterprises and their foreign counterparts.

- Sustainable development of biomass
  Biomass is, largely defined, organic matter available on a renewable basis, including forest residues, wood and wood waste.
  Under the Kyoto Protocol (1997) to the United Nations Framework Convention on Climate Change (UNFCCC) greenhouse gas emissions (in particular CO2) have to be drastically reduced over the next decade. One way to reduce CO2 emissions is by substituting biomass for fossil fuel. The project examines the sustainable use of biomass fuel, both at local energy plants and as a new export product.

- Improved timber port logistics
  Careful consideration is given to all aspects of improved trade logistics, using the extensive experience of the Trade Division in this field. The focus of this activity is on the timber ports of the Arkhangelsk and Leningrad regions. Close cooperation between timber enterprises and shipping companies has resulted in, for example, the upgrading of riverport terminals, and the adaptation of a timber port for handling containerised paperloads. A customs training program on risk analysis is also being implemented as a result of the logistics workshops of the project.
  The project invites government institutions and private sector enterprises that want to share their expertise with the Russian timber sector, to participate in the working groups.

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**TOPIC 2.2: WOOD PROMOTION CAMPAIGNS, COMMUNICATION AND EDUCATION**
Promoting wood construction in the EU

Paper by Ms. Aila Janatuinen,
Department Manager, Finnish Forest Industries Federation, Finland

ABSTRACT
The presentation stresses the importance of a common vision for the European woodworking industries as well as lists the players and their roles in achieving the objectives. It also discusses the possibilities for establishing a European building system as well as launching European wide programmes for increasing the use of wood in construction.

Key words: wood construction, building systems, vision

INTRODUCTION
The European woodworking industries have a common vision: Wood-based products are by year 2010 the leading solution in structural building systems and as well as in interior system products. This challenging vision covers two main end-use areas: wood products in structural uses ("building with wood") and in interiors ("living with wood"). Establishing wood-based systems is the only way for making the use of wood in construction more efficient and competitive.

The industry itself has the main responsibility for realisation of the vision. As competition between different building materials is getting tougher, the industry needs – in order to survive - to make sure that it has a healthy structure. The wood industry should also realise the strengths gained from cooperation. And it needs to be ready to sufficiently invest in research and development and especially be ready to develop their products further in order to better meet the needs of the users. The future wood products will be part of product families and systems, where service will be an integral part of the product.

The industry organisations have a role in organising and managing the cooperation processes. They need to have a clearly stated action plan that supports the reaching of the vision.

We should take care that the national as well as EU authorities contribute to realising the vision too. It is in their power to make sure that wooden products have a level playing field with other building materials. They are able to expose and eliminate the barriers for use of
wood. Typical for the woodworking industries is the multitude of small and medium-sized enterprises and their viability is a key to the success of the whole industry.

**CURRENT ACTIVITIES ON EUROPEAN LEVEL FOR SUPPORTING THE USE OF WOOD CONSTRUCTION**

The Confederation of European Woodworking Industries (CEI-Bois) is the voice of the European woodworking industries. It has four main activity areas: lobbying, R&D, promotion and competence. CEI-Bois is active in cooperating with the European Commission in the so called "Enhanced use of wood" working group. As a result of the work four key areas have been identified where measures should be taken on EU-level.

*Legislation and standards* are the areas where barriers for use of wood should be exposed and eliminated. The European and national building regulations should support the cost-efficient and competitive use of wood compared to other building materials. European standards should be performance-based and promote the use of wood-based products in an efficient way.

*Competence and education* is one of the first areas where measures should be taken. If architects and designers don't know how to design wooden structures, they won't use wood! In many countries one can become an architect with knowing only very little about wood-based products. The aim is that wood-based materials should be in a same position in their education as any other building material.

*R & D* is an area where the industry has been very active during the last year. In connection with the preparation of the 6th framework programme for research, the industry has collected a large number of research proposals coming directly from the needs of the companies.

*Information and tools* relate to the overall image of wood. In the Nordic countries wood is well known as a construction material, but in many other countries there is a lack of knowledge. The public at large should know what kind of modern wood-based products are available and should have a positive perception of them.

*Tools* should be created to make the using of wood-based products easy. The industry e.g. should be able to distribute (preferably free of charge) CAD-programmes that facilitate the design of timber structures. There is also an aspiration to unify the building systems in different European countries in order to establish one harmonised pan-European building system and establish a large homogenous market for wood products.

The European timber councils have also joined their forces in the field of promotion. They are aiming at creating a European wood magazine and are discussing how to formulate and utilise wood's good environmental performance in communication.
CONCLUSION

Wood is the only sustainable building material and its increased use can be linked to many of the current European policies: promoting sustainable development, combating climate change, increasing and improving the quality of life, creating jobs especially in rural areas, supporting small and medium-sized enterprises etc.

Maybe we should stop talking about "wood construction". We could talk about sustainability, energy-efficiency, carbon stocks, healthy living environments etc. Whatever the problem is, wood gives a solution. The only way of increasing the use of wood is to make it an attractive option for builders and house buyers: more quality with less cost.

The European wood industries should join their forces in order to jointly create a favourable environment for use of wood. The industry should create a programme and action plan how to reach the vision on the European level. It should start by commitment to common aims and actively working for them. Achieving a will and determination is the first step and goes even before identification of barriers and their removal. The wood industry has a good environmental message and we shouldn't be afraid of using it.

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Promotion of wood and forest products in New Zealand

Paper by Mr. Shaun Killerby, Market Analyst, Strategic Market Intelligence Group, Forest Research, New Zealand

ABSTRACT
Over the past century, New Zealanders have successfully established a national plantation forest estate, primarily comprised of fast-growing Pinus radiata. Initially designed to complement the indigenous forest harvest, commercial logging from indigenous forests has now almost entirely ceased. The plantation estate consequently promotes the conservation of native forest, meets a large proportion of the domestic market for forest products (estimated at NZ$2 billion including imports), and also generates over NZ$3.5 billion of export revenue.

New Zealand exporters tend to promote their wood and forest products as renewable and environmentally friendly. These themes are particularly strong in the Asia-Pacific region, where New Zealand pine products are promoted as substitutes for tropical timbers obtained from non-sustainable sources. Due to international market requirements, many New Zealand producers have sought certification of their forests.

Given the nature of the domestic plantation resource and its role in conservation, there is presently no significant demand within New Zealand for certified wood and forest products. There is some concern, however, about the environmental and social integrity of the sources of the tropical hardwoods imported. With indigenous hardwoods increasingly unavailable for harvest, imports of tropical woods are set to increase, fuelling calls for certification.

Promotion of wood has not been a major issue within New Zealand except within the building industry, where wood is gradually being substituted with steel, masonry and composite products. The New Zealand timber industry has responded with User Guides and Design Manuals aimed at helping designers and builders specify and use wood. Additionally, the industry is starting to work together to address wood quality concerns.

One underlying concern about the promotion of wood and forest products in New Zealand, however, is that the industry has tended to focus on timber growth and supply rather than wood fibre consumption and demand. A variety of initiatives are now underway to shift industry focus to higher value, differentiated products and services. This strategy requires market intelligence, matching the domestic plantation forest resource to both current and impending market requirements. The emphasis in this strategy is not on educating the public about wood, but rather educating industry about the changing social, economic and environmental considerations and requirements of the public.

Key words: wood production, forest products, sustainability, marketing, and market intelligence.
Promotion du bois et des produits forestiers en Nouvelle-Zélande

Document établi par M. Shaun Killerby
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RéSUMÉ

Au cours du siècle dernier, la Nouvelle-Zélande a créé avec succès un domaine national de plantations forestières, principalement composé de *Pinus radiata*, à croissance rapide. Ces plantations visaient à l’origine à compléter les récoltes de bois indigène, mais aujourd’hui, l’exploitation commerciale des forêts indigènes a presque entièrement cessé. Les plantations favorisent par conséquent la conservation des forêts indigènes, alimentent une grande partie du marché intérieur de produits forestiers (estimé à 2 milliards de dollars néo-zélandais, importations comprises) et génèrent également plus de 3,5 milliards de dollars néo-zélandais de recettes d’exportation.

Les exportateurs néo-zélandais vantent le caractère renouvelable et écologique de leur bois et de leurs produits forestiers. Ces arguments trouvent un écho particulièrement fort dans la région de l’Asie et du Pacifique, où l’utilisation du bois de pin néo-zélandais est encouragée pour remplacer les bois tropicaux provenant de forêts exploitées dans des conditions compromettant leur durabilité. Pour satisfaire aux conditions exigées sur le marché international, de nombreux producteurs néo-zélandais ont demandé la certification de leurs forêts.

Étant donné la nature des plantations nationales et leur rôle dans la conservation, la demande de bois et de produits forestiers certifiés en Nouvelle-Zélande n’est pas très importante actuellement. Mais l’intégrité, sur le plan environnemental et social, des sources de bois feuillus tropicaux importés suscite quelques préoccupations. Les forêts indigènes de feuillus étant de moins en moins exploitées, les importations de bois tropicaux devraient normalement augmenter, et entraîner des demandes de certification.

La question de la promotion du bois n’a pas réellement fait l’objet d’un débat en Nouvelle-Zélande sauf dans l’industrie du bâtiment, où le bois est remplacé peu à peu par l’acier, les maçonneries et les matériaux composites. L’industrie néo-zélandaise du bois a réagi en publiant des guides de l’utilisateur et des manuels destinés à aider les concepteurs et les constructeurs à prescrire le bois dans les spécifications et à utiliser ce matériau. De plus, les différents secteurs industriels commencent à se préoccuper conjointement des questions relatives à la qualité du bois.

En matière de promotion du bois et des produits forestiers en Nouvelle-Zélande, le problème est que l’industrie a eu tendance à se concentrer sur la production et l’offre de bois plutôt que sur la consommation et la demande de fibres de bois. Diverses initiatives ont été lancées pour que l’industrie s’oriente davantage vers la production de produits et de services différenciés et de plus grande qualité. Pour cela, il faut avoir la connaissance du marché de façon à adapter les plantations aux conditions actuelles et à venir du marché. Dans le cadre de cette stratégie, l’accent sera mis non pas sur l’éducation de la population concernant le bois, mais sur la sensibilisation du secteur industriel à l’évolution des besoins de la population dans les domaines social, économique et environnemental.

Mots clefs: production de bois, produits forestiers, durabilité, commercialisation et connaissance du marché.
Стимулирование использования древесины и лесных товаров в Новой Зеландии

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РЕЗЮМЕ
На протяжении всего предыдущего столетия Новая Зеландия успешно занималась созданием национальных планций лесонасаждений, в основном состоящих из быстрорастущей сосны "Pinus radiata". Плантации задумывались как дополнительный источник древесины к лесозаготовкам, производимым на базе естественных лесов. В настоящее время коммерческая рубка в естественных лесах почти полностью прекратилась. Таким образом, можно утверждать, что планции лесонасаждений приводят к сохранению природного леса, в значительной степени удовлетворяют потребности внутреннего рынка в лесных продуктах (объемы которых по расчетам составляют 2 млрд. новозеландских долл., включая импорт), а также являются источником доходов от экспортных поступлений на сумму в более 3,5 млрд. новозеландских долларов.

Новозеландские экспортеры, как правило, пропагандируют изделия из древесины и лесопродукты как возобновляемые и экологические благоприятные материалы. Особенно положительный отклик такой лозунг находит в странах Азии и Тихого океана, где новозеландская продукция из сосны рекламируется в качестве замены продуктов из тропической древесины, получаемых из невозобновляемых источников. В связи с требованиями международного рынка многие новозеландские производители выступают за сертификацию их лесов.

Учитывая характер лесохозяйственных планций и их роль в вопросах сохранения природы, сертификационная древесина и лесопродукты в настоящее время не пользуются в Новой Зеландии особым спросом. Вместе с тем потребители выражают определенную озабоченность по поводу экологической и социальной целостности источников импортируемых товаров из тропической древесины. С учетом неуклонного снижения объемов лиственных пород, поступающих из естественных лесов, которые могли бы использоваться для целей лесозаготовок, неизбежно будет возрастать импорт тропической древесины, в связи с чем все громче будут звучать требования о сертификации.

Пропаганда использования древесины никогда не занимала видное место в общей политике Новой Зеландии, за исключением политики, касающейся строительных отраслей промышленности, где древесина постепенно уступает место стали, бетону и композитным материалам. В области лесоводства Новой Зеландии в настоящее время действуют руководства для потребителей и пособия для проектировщиков, предназначенные оказать помощь проектировщикам и строителям в вопросах выбора и применения древесины. Помимо этого отрасль занимается тем, чтобы комплексно решать проблемы качества древесины.

Одна из главных проблем стимулирования использования древесины и лесных товаров в Новой Зеландии состоит в том, что отрасль имеет тенденцию уделять больше внимания вопросам выращивания леса и лесозаготовкам, чем вопросам потребления древесного волокна и удовлетворения спроса на него. В настоящее время проводится целый ряд инициатив, нацеленных на то, чтобы повысить значение дифференцированных продуктов и услуг. Эта стратегия требует глубоких знаний о механизмах рынка, к тому же работа на внутренних планциях лесонасаждений должна соответствовать нынешним потребностям рынка. Острие стратегии направлено не на то, чтобы распространять среди широкой общественности информацию об использовании древесины, а чтобы знакомить отрасль с изменяющимися социально-экономическими и экологическими условиями и с потребностями населения.

Ключевые слова: производство древесины, лесопродукты, устойчивость, маркетинг и осведомленность о механизмах работы рынка.
INTRODUCTION

New Zealand is fairly unique in having a forestry industry based almost entirely on one species. The country currently has 1.8 million hectares of commercial plantation forest, with 89.4% of this area planted in fast-growing *Pinus radiata* (radiata pine) trees which are generally harvested and replanted 23-33 years from planting. Originally planted to complement the local supply of wood products from the indigenous forest estate, the plantation resource now provides wood-based products for a large proportion of the domestic market and is a major earner of export revenue for New Zealand. This situation has facilitated the reservation of most of New Zealand’s remaining indigenous forests from timber harvesting, and engendered a broad appreciation for the environmental conservation role of the nation’s plantation forests.

In terms of promotion of wood and forest products, New Zealand producers tend to often emphasise the versatile, reliable, renewable and environmentally friendly qualities of the local softwood resource. These themes are particularly strong in the Asia-Pacific market, where New Zealand pine products are promoted as a substitute for tropical timbers obtained from non-sustainable sources. To reinforce these themes within international markets, many New Zealand exporters have sought, or are seeking, environmental certification for their forests.

In recent years, however, the New Zealand forest industry has become increasingly aware of the need to move beyond an emphasis on versatility and environmental management to product use and design. This requires a shift in philosophy from a production-to-product-to-consumer focus to a consumer-to-product-to-production focus. That is, the industry needs to understand current and future requirements by consumers and regulators, provide products that best match expected needs and associated performance parameters using domestic resources, and also assist in demonstrating the sound use of the various products available within the market. Recent experiences in the New Zealand building sector, with regard to weather-tightness problems, highlight the importance of the latter.

A variety of built environment research initiatives are currently underway with the aim of promoting and demonstrating the sound use of wood and forest products in New Zealand. The emphasis in these initiatives is not so much on educating the public about wood, as educating industry about a) the changing social, economic and environmental considerations and requirements in the market and b) incorporation of wood into the built environment in a manner which optimises its performance.
THE DEVELOPMENT OF NEW ZEALAND’S DOMESTIC FOREST MARKET

The past century has witnessed the establishment of a successful national plantation forest estate in New Zealand based on fast-growing softwood species such as radiata pine. This eventuated as a response to the rapid clearance of indigenous forest cover in the latter half of the nineteenth century (Fleet, 1984).

Initially extensively covered in podocarp-hardwood and beech (*Nothofagus*) forest, large tracts of New Zealand were then cleared for pastoral agriculture by European settlers. Over time, concerns began to be raised about the ability of the remaining forest to meet the future timber demands for New Zealand. Indeed, projections in the second decade of the twentieth century indicated that, if contemporary felling rates continued, no indigenous forest would remain by the year 1964. As a consequence of this projected ‘timber famine,’ a New Zealand Forest Service was established in 1919 with a mandate to plant as much as 320,000 hectares of land in forest to meet foreseeable local timber needs. For a number of reasons, including the experience of individual growers over the previous two decades and a simple discounted cash flow analysis, fast-growing exotic species were recommended. After a range of species trials, radiata pine was the main species planted, particularly as it proved to have high survival rates even with inexpert planting and tending (Fleet, 1984; Horgan and Maplesden, 1995).

Restrictions on imports, the imposition of quotas and licences, and research into new uses for the wood were various methods initially used to help promote the use of locally grown pine. Prior to 1940 radiata pine was used solely for local box making and concrete forming. Sold completely ungraded, it was regarded as an inferior species to the high-quality indigenous timbers readily available. From the late 1940s the increasing quantities of timber and other wood products being produced from the newly developed plantations were acquiring a gradually expanding role in house construction and furniture production (Fleet, 1984; Horgan and Maplesden, 1995).

Throughout the next two decades the New Zealand Forest Service focussed on servicing the domestic market, educating users and consumers about the benefits of radiata pine and plantation forestry, and achieving domestic acceptance for graded sawn plantation material. Consequently, by the 1960s plantation grown timber was meeting most of New Zealand’s sawn timber needs, especially for construction. A second phase of mass planting then began as the Government sought to diversify New Zealand’s resource-base for generation of export revenue (Horgan and Maplesden, 1995).

From the mid-1980s the New Zealand economy has been radically restructured, deregulated and privatised. Restructuring within the private sector ended a policy of providing cheap wood for local processing, whereby sawmills were allocated logs at prices well below their export value. Removal of market subsidies and protection consequently resulted in the domestic market becoming more susceptible to international market fluctuations, with log export prices influencing domestic prices. In 1985 the New Zealand Forest Service was also dissolved and the State forests (excluding the land) subsequently
sold to private companies, including many foreign-owned multi-national forestry companies. These various economic reforms have engendered a more commercial attitude within forestry companies, with more emphasis on markets and profitability (Maplesden, 1997).

The area of plantation forest in New Zealand continues to increase. New Zealand has 1.8 million hectares of plantation forests as of March 2002, representing 7% of the total land area of the country. Of this estate, 89.4% of the area is planted in radiata pine. Wood availability is currently 18.5 million m$^3$ per annum, with this set to rapidly rise to over 30 million m$^3$ over the next decade (New Zealand Forest Owners Association, 2002). New Zealand’s radiata pine is generally regarded as a tree with fast growth rates (reaching an average height of 35 metres after 30 years), medium density wood, even texture and average shrinkage for softwoods. It is relatively easy to dry, easy to machine and accepts finishes well. Though not naturally durable, it is very permeable to preservatives. The New Zealand timber industry has capitalised on these features over the past decades, extending the use of radiata pine to exterior uses, moulding and millwork, furniture, joinery, finger-jointed, laminated and kiln dried products and hardened wood. Efforts continue to push this versatility further. The domestic manufacturing and re-manufacturing base remains small however, due to limited domestic economies of scale and little emphasis, until the past decade, on exporting higher value products.

Within the New Zealand market there is a tradition of wooden houses, developed in part to the availability and cost of timber, plus the knowledge that such houses are more resistant to earthquake damage. New Zealand consequently has a relatively high annual per capita consumption of roundwood. With a population of only 4 million and a slow rate of population growth however, local wood consumption remains relatively static at about 6-7 million m$^3$ of wood per annum (including imports); the approximate annual consumption of domestic wood by product type is shown in Table 1. The construction industry is the principle user of solid wood products in New Zealand, servicing about 20,000 new house starts annually.

**Table 1: Domestic Wood Consumption by Product Type** (Forestry Insights, 2001)

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Approximate Annual Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sawn Lumber</td>
<td>2,000,000 m$^3$</td>
</tr>
<tr>
<td>Reconstituted wood panels</td>
<td>340,000 m$^3$</td>
</tr>
<tr>
<td>Plywood</td>
<td>40,000 m$^3$</td>
</tr>
<tr>
<td>Newsprint</td>
<td>110,000 m$^3$</td>
</tr>
<tr>
<td>Paper and Paperboard</td>
<td>600,000 tonnes</td>
</tr>
<tr>
<td>Total domestic consumption</td>
<td>3,100,000 m$^3$</td>
</tr>
</tbody>
</table>
While New Zealand’s plantation forest industry evolved, pressure for the preservation of the nation’s remaining indigenous forest cover also increased. In 1991 an agreement was reached between conservation groups and all major plantation growers and users, entitled the New Zealand Forest Accord. This Accord acknowledged that existing natural forests should be maintained, recognised commercial forests as essential for this, stated that any harvesting from indigenous forests must be on a sustainable basis, and insisted that new plantation forests will not disturb areas of natural forest (New Zealand Forest Owners Association, 2002). The 6.4 million hectares of indigenous forest remaining, representing 24% of New Zealand’s total land area, is now largely reserved, with less than 2% of the national timber harvest being indigenous in origin. New Zealand’s commercial production of forest products is now reliant on privately owned plantation forests and on one species (although radiata pine forms only about 50% of new plantings).

The existence of a fast growing, versatile and reliable softwood resource that met a large proportion of domestic requirements meant that the plantation forest estate, originally intended as a compliment to indigenous timber supply, has provided a viable and acceptable substitute. New Zealanders have consequently acquired a fairly strong understanding of the role and benefits of plantation forests in the national economy and society. The resource is seen as enabling the preservation of the indigenous forest estate, the source of a large proportion of the forest products required by the domestic market (estimated at NZ$2 billion including imports), and the third largest export earner (estimated at over NZ$3.6 billion).

THE DEVELOPMENT OF NEW ZEALAND’S EXPORT MARKETS

New Zealand’s exports of forest products are small in terms of total global output. New Zealand has just 0.05% of the world’s forest resource and supplies only 1.1% of world forest products trade. It supplies 8.8% of Asia-Pacific’s forest products trade, but this market is concerned largely on the supply of low value products. Overall New Zealand’s export product mix remains largely commodity based, with logs, sawn timber and pulp and paper making up 75% of export value (Forestry Insights, 2001; New Zealand Forest Owners Association, 2002).

Until the 1960s exports were only a minor concern to a domestically focussed industry. New Zealand’s wood products exports involved only sawn timber to Australia and logs to Japan, with this simply being viewed as a means of utilising material surplus to domestic requirements. Export marketing and market development were consequently limited and in many cases opportunistic.

From the late 1960s, when the second planting boom began, the emphasis changed. This planting was designed specifically for the establishment of an export oriented industry. There was, however, no detailed strategy in place at the time regarding markets for the trees being grown. Indeed, the question of systematic marketing was not actually addressed until the mid-1980s. Until that time, many people simply assumed that markets would
naturally exist given that the world’s old growth forests would be unable to continue to meet demands for clear and high-grade timber.

Given that New Zealand’s domestic consumption of wood products is small and static, 70% of New Zealand’s annual harvest is now exported. Export market developments therefore now play a major role in corporate strategies. New Zealand’s wood exporters have largely targeted the rapidly growing markets of Asia-Pacific, which is the world’s largest market for softwoods. Yet two-thirds of exports by value continue to go to only three countries: Australia, Japan and the Republic of Korea.

A well-established market for New Zealand’s radiata pine exists in Australia and Japan. Australia is the most important market by value for New Zealand, accounting for almost NZ$1 billion or 27% of New Zealand’s forest products export revenue, though Australia has an expanding domestic plantation resource and a strategy for eventual self-sufficiency. Japan is the second largest market, importing NZ$719 million of wood products in the year ended March 2002, although logs continue to account for a large percentage of the Japanese market. The Japanese market continues to have an historic perception of New Zealand pine as a low value resource (Forestry Insights, 2001; New Zealand Forest Owners Association, 2002). Promotional works do not appear to have substantially changed this perception to date.

New Zealand’s wood products are also being promoted in Korea, Taiwan, China, Thailand, the United States and Europe. The United States is New Zealand’s fourth largest market, importing NZ$501 million of wood products in the year ended March 2002. A relatively new market for the New Zealand forestry industry, it has expanded rapidly in recent years, particularly in higher value products such as furniture and mouldings (Ministry of Agriculture and Forestry, 2002; New Zealand Forest Owners Association, 2002).

Nevertheless, the New Zealand Ministry of Agriculture and Forestry (2002) identifies several issues that need to be addressed by the New Zealand forestry industry. These include: a poor perception of New Zealand pine in some overseas markets; a consequent reliance on commodity products such as logs; a lack of research into higher value-added timber products; a lack of a significant international marketing presence; and a lack of a market-to-product-to-production philosophy.

**INTERNATIONAL PROMOTION OF NEW ZEALAND PINE AS A SUSTAINABLE RESOURCE**

The effects of the economic reforms in New Zealand since the 1980s have been to open the economy to more international competition and engender a more commercial attitude within New Zealand businesses, as well as placing greater reliance on the market to develop strategy. All of the large forest companies, and many small ones, now invest significant effort in marketing, many having permanent representatives based in their major overseas markets (Horgan and Maplesden, 1995).
There are a number of platforms which are key to the promotion of New Zealand’s radiata pine. These include that the wood is versatile and reliable, radiata pine is equivalent to other reknowned softwoods in regard to performance, the plantations help preserve New Zealand’s indigenous forests, the trees are fast growing, the resource is renewable, and there is industry commitment to best practice in environmental management. In 1995 various conservation groups and the major plantation growers and users signing to the Principles for Commercial Plantation Forest Management. This document aims to promote environmental excellence in plantation forest management, with all parties agreeing that management practices must meet or improve on all statutory requirements and accepted best practices (New Zealand Forest Owners Association, 2002). The renewable and environmentally friendly themes are employed strongly in the Asia-Pacific region, where New Zealand pine products are promoted as substitutes for tropical timbers obtained from non-sustainable sources (Griffiths, 2000).

Within a privatised environment, the larger industry members and independent saw-millers and solid wood processors within New Zealand tend to pursue independent market development. Several pan-industry and industry organisations, such as the New Zealand Forest Industries Council, the New Zealand Pine Manufacturers Association and the New Zealand Timber Industry Federation, in addition to the Ministry for Foreign Affairs and Trade, strive to establish co-operative marketing ventures. However, in-market promotional ventures such as Wood New Zealand Limited, which sought to set up trade offices in key new markets, have struggled for industry funding (Ausnewz Intelligence Service, 2000; Ministry of Agriculture and Forestry, 2002).

Given the strong export orientation of the New Zealand forest industry, significant effort is put into promoting trade liberalisation through the World Trade Organisation, the Asia Pacific Economic Co-operation (APEC) regional forum, and also bilateral agreements. There has been a similar push for reductions in non-tariff barriers, such as prescriptive building codes, and for New Zealand involvement in certification developments at an international level, thereby endeavouring to avoid schemes that operate as new barriers to trade. The New Zealand Forest Industries Council has played a major role in such endeavours, with the express aim of opening more markets for New Zealand products (Ausnewz Intelligence Service, 2000).

Forest certification is seen as vital to future market development for New Zealand, demonstrating the environmental responsibility of industry to key markets such as the United States. The New Zealand government maintains an interest in certification but looks to industry to take up the challenge. Industry initiatives to date include the 1991 Forest Accord and the 1995 Principles of Commercial Forest Management in New Zealand, while a Draft National Standard for Sustainable Management of Plantation Forests in New Zealand is currently under development (Ausnewz Intelligence Service, 2000; New Zealand Forest Owners Association; 2002b). By May 2002 42% of New Zealand’s plantation forest estate by area had achieved Forest Stewardship Council certification. This area includes 33% of the nation’s annual harvest capability (New
Zealand Forest Owners Association, 2002a). Certified wood products currently account for only about 0.5% of the international wood market, but it is argued that certification will see sustainability claims increase as an important marketing strategy (Griffiths, 2000; Legros, 2001).

**DOMESTIC PROMOTION OF NEW ZEALAND PINE AS A SUSTAINABLE RESOURCE**

There is presently no significant demand for certified wood and forest products within New Zealand itself, given the role of plantation forests in New Zealand for conservation of indigenous forest, plus the emphasis on replanting and environmental best practice within the national industry. The majority of New Zealanders perceive the plantation forests to be renewable and soundly managed (Kilvert, 1996). There is some concern, however, about the environmental and social integrity of the sources of the tropical hardwoods imported. With indigenous hardwoods increasingly unavailable for harvest, imports of tropical woods are set to increase, and this is fuelling calls for certification (Griffiths, 2000).

Product substitution and promotion of wood have also not been major industry issues to date, partly due to the expanding supply of competitively priced wood available. Historically New Zealanders have a culture of wood use, particularly in relation to house construction. Substitution generally involves one wood-based product with another, and branding and sponsorship are consequently fundamental to marketing in New Zealand. The building industry has experienced some minor substitution in recent decades, however, through steel, masonry and composite products. The New Zealand timber industry has responded with User Guides and Design Manuals aimed at helping designers and builders specify and use wood, such as for new niche markets such as multi-storey timber buildings. Additionally, the industry is starting to work together to address concerns about variable wood quality given the increasing use of performance based building standards instead of prescriptive codes stating which materials are to be used (Griffiths, 2000; Maplesden, 1997).

**NEW PROMOTIONAL INITIATIVES**

There remains, however, a general lack of sophistication regarding understanding and meeting consumer requirements and aspirations. Except for a few excellent examples such as Gib® Living Solutions – which provides recommendations covering design, materials selection and building practices to address lifestyle issues in homes and buildings (Gib, 2003) – emphasis has tended to be on technical promotion and tactical positioning within a largely design-build market. A variety of initiatives are now underway to shift industry focus to higher value, differentiated products and services. One initiative is a new Wood Processing Strategy developed between industry and government. This strategy includes the express aim of promoting integrated research and development to shift industry focus to higher value products, based upon a sound knowledge of market requirements.
realistically matched to the domestic planted forest resource (New Zealand Forest Industries Council, 2002). Such a strategy requires market and consumer intelligence.

New Zealand’s Forest Research has also established Strategic Market Intelligence and Built Environment research programmes in recent years. A major focus of these projects has been the identification of key aspects of market development through scenario visualisation and future insight research, and the subsequent translation of this information into consumer needs and technological solution development using wood-based products and systems. The emphasis of this research is not on educating the public about wood, but rather educating industry about the changing social, economic and environmental considerations and utilisation requirements of the public, stimulating the development of a consumer-to-product-to-production philosophy within the forestry industry. Future insight, or third-generation foresight, research has proven to be an effective technique for achieving this aim, as the process is as important – if not more so – than actual findings. The technique engages a wide range of participants in joint learning, challenges prevailing paradigms, and recognises the results of interaction between various drivers of change (Georghiou, 2001; Bates et al., 2001; Bates and Killerby, 2002; Killerby et al. 2003).

The need to work on promotion of wood has been increased in recent years however, given a developing weather-tightness issue, popularly termed the ‘Leaky Building Crisis.’ This issue has come about due to a series of developments in the 1990s that converged to create damages estimated to date to be in excess of NZ$250 million, this being a prime example of the need to recognise how trends and drivers of change interact.

During the 1990s there were a number of fundamental changes occurring within the New Zealand building industry. First, the apprenticeship scheme for builders was removed, reducing to a degree the transfer of knowledge from older trades-people to new builders. Second, there were a number of new building materials and systems introduced with which builders were not familiar. Third, there was an increase in demand for new styles of housing, particular Mediterranean style houses with monolithic cladding systems and no eaves. Such designs were not particularly suited to New Zealand’s temperate weather conditions, especially where they allowed water into ceiling and wall spaces but did not allow movement of air or drainage (Eddy, 2002; Thorpe, 2002).

Simultaneously, untreated kiln-dried timbers were permitted for house construction, with architects and builders being responsible for the sound placement of these products and regulatory authorities inspecting and approving plans and buildings. Since the late 1930s New Zealand has used preservatives on building timbers due primarily to concerns about potential insect attack. Boron treatment was used to control insects such as borer in timber destined for H1 (low hazard) applications. In the 1990s, however, the forestry industry lobbied for a change to the New Zealand Building Code in order to allow untreated kiln dried timbers to be used in buildings. Such products were perceived as more environmentally friendly, they reduced the production delays and costs associated with wood treatment and subsequent disposal of chemical waste, and they were being used
successfully in Australia; borer was not eating kiln-dried timber (Eddy, 2002). Australia, however, has a much drier climate than New Zealand. In 1996 the New Zealand Building Code was successfully changed, removing the regulatory requirement for all framing timbers to be treated, and it was estimated that untreated kiln dried timber would acquire about 5% of the domestic market. Within a few years, however, untreated kiln dried timber accounted for 45% of framing wood used in new buildings.

The result of the convergence of these various factors has been numerous complaints of leaking walls and ceilings, plus rot and decay of framing and decks in newly built houses. The building industry has taken urgent moves to address all of these problems, but a note of discord has been raised in public perception regarding the trustworthiness of wood and the timber and building industries.

The weather-tightness issue of recent years has highlighted a danger of focussing on forest growth and supply of products. Delivering quality renewable and environmentally friendly products to the market is only one half of the equation. Of equal importance is an integrated, customer-focussed approach to both product design and delivery. This requires understanding consumer requirements (current and emergent), producing the best products to meet these requirements, and ensuring that these products are delivered in systems that optimise their function and performance. Research strategies such as the Forest Research Built Environment programme aim to promote a closer working relationships between forestry and building industry research providers, product manufacturers and designers in order to help achieve this objective.

**CONCLUSION**

Over the past two centuries New Zealanders have successfully established a national plantation forest estate, with the resource generally being perceived by New Zealanders as versatile, renewable and environmentally friendly. Environmental certification is seen as a means of reinforcing these themes within international markets, while strong branding and sponsorship are seen as fundamental domestic markets. Yet market benefits can be jeopardised by a) the delivery of building products and systems that fail to meet consumer and design expectations or b) system design and use that fail to match the performance expectations of the product. A key for the promotion of the sound use of wood as a renewable and environmentally friendly resource is an integrated, customer-focussed approach to both design and delivery. The emphasis in such a strategy is not so much on educating the public about wood, but rather educating industry about the changing social, economic and environmental considerations and requirements of the public and the product, and demonstrating good practice. Recent experience in New Zealand indicates that joint research, particularly using techniques such as foresight studies, can help stimulate progress in this direction. Futures research, in collaboration with industry partners, helps identify key drivers of change and challenges current paradigms, as well as highlighting the need for innovation and leadership to achieve desirable outcomes. Such
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collaboration and leadership is necessary to generate valued products and regain public trust in wood within New Zealand.

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SESSION III: NEW MARKETS AND CONSUMPTION PATTERNS
TOPIC 3.1: BIOENERGY
Bavaria pushes for biomass use

Paper by Reinhold Erlbeck, Ministry of Agriculture and Forestry, Bavaria, Germany

**ABSTRACT**

Renewable forms of energy currently account for approximately 10% of primary energy consumption in the German Land of Bavaria. It is the Land’s goal to increase this proportion to 13% over the long-term. At present, biomass accounts for roughly 3.6% of the primary energy consumed, making it the most important source along with hydropower. Some 2.4% of primary energy consumption in Bavaria comes from solid biomass, principally wood. No other German Land uses as much biomass as Bavaria for power generation.

This biomass replaces roughly 2.1 million tonnes of fuel oil for Bavaria every year. That quantity of fuel oil would provide heating for 2.7 million inhabitants of Bavaria for a year.

**Wood as a source of energy**

Over the medium term we intend to increase the share of biomass to 5%. Roughly one sixth of the biomass used for power generation comes in the form of wood chips. A study by the Forestry Institute (Landesanstalt für Wald und Forstwirtschaft, LWF) shows that we could easily raise the quantity of wood used for power generation to 3.9 million tonnes. At present we use roughly 2.3 million tonnes of absolutely dry wood (wood and scrap) and 12 million m³ of wood production. If we were to use the 18 million m³ of wood that grow every year in Bavaria, 6.9 million tonnes-worth of wood energy could be generated. We could thus supply 4.2% of primary energy, the equivalent of 3 billion litres of fuel oil. With modern technology, therefore, wood is set to enjoy a real comeback as a source of energy. Altogether 270 thermal power stations running on biomass are already in operation in Bavaria.

“Forest heat” has an important part to play in raising the share of renewable energy.

**Subsidies for renewable raw materials**

The Land of Bavaria offers numerous subsidies to encourage the use of renewable raw materials, in particular for heat generation, and has concentrated somewhat on this sector. It has set up a “centre of excellence” for renewable raw materials in Straubing, which deals with the scientific, practical and economic aspects of the use of biomass as an industrial raw material and for heat generation. The aim is, by using biomass, to create new jobs with plenty of prospects, especially in rural areas, to find new markets for the local economy, to benefit the environment and to develop technology that can be passed on to interested countries.
La Bavière force l’usage de biomasse

Document établi par Reinhold Erlbeck,
Ministère de l’Agriculture et de la Forêt de la Bavière, Allemagne

RÉSUMÉ
Dans le « Land » de Bavière la part des formes d’énergie renouvelable dans la consommation d’énergie primaire est actuellement d’environ 10%. L’État s’est fixé le but d’augmenter à long terme cette part vers 13%. La part de la biomasse dans la consommation d’énergie primaire est en ce moment d’environ 3,6%. Avec l’énergie hydraulique la biomasse est donc la source d’énergie la plus importante. 2,4% de la consommation d’énergie primaire provient en Bavière des biomasses dures, essentiellement du bois. Il n’y a pas d’autre « Land » en Allemagne qui emploie pour sa production d’énergie autant de biomasse que la Bavière.

Avec cette biomasse on compense en Bavière chaque année environ 2,1 milliards de tonnes de fuel. Et avec cette quantité de fuel 2,7 millions d’habitants de Bavière pourraient se chauffer pendant une année.

Le Bois comme source d’énergie
A moyen terme nous voulons augmenter la part de biomasse à 5%. Environ 1/6 de la biomasse utilisée pour la production d’énergie sont des copeaux de bois. Une étude de l’Institut de la Forêt (Landesanstalt für Wald und Forstwirtschaft, LWF) montre, que nous pourrions élever facilement la quantité de bois utilisée pour la production d’énergie à un niveau de 3,9 millions de tonnes. Actuellement ce sont environ 2,3 millions de tonnes de bois absolument sec (bois et déchets de bois) et une production de 12 millions m³ de bois. Si nous utilisions les 18 millions m³ de bois qui poussent chaque année en Bavière, il serait possible de produire de 6,9 millions de tonnes de bois d’énergie. Ainsi nous pourrions couvrir 4,2% de l’énergie primaire, l’équivalent trois milliards de litres de fuel. Le bois comme source d’énergie, avec une technologie moderne, va donc connaître une vraie renaissance. Aujourd’hui, 270 centrales thermiques à base de biomasse sont déjà en service en Bavière.

« La chaleur de la forêt » joue un rôle important pour accroître la part d’énergie renouvelable.

Des subventions pour les matières primaires régénérant
Бавария расширяет масштабы использования биомассы

Документ, подготовленный министром сельского хозяйства и лесов Баварии, Германия, г-ном Рейихольдом Эрлбеком

РЕЗЮМЕ

На Земле Бавария доля различных видов возобновляемой энергии в потреблении первичных энергоносителей в настоящее время составляет около 10%. Руководство Землей поставило перед собой цель в перспективе довести эту долю до 13%. Доля биомассы в потреблении первичных энергоносителей на данный момент составляет примерно 3,6%. Вместе с гидроэнергией биомасса, таким образом, является наиболее важным источником получения энергии. 2,4% потребляемых первичных энергоносителей в Баварии приходится на твердую биомассу, в основном древесину. Никакая другая Земля в Германии не использует для производства энергии столько биомассы, сколько это делается в Баварии.

Применение биомассы в Баварии ежегодно заменяет примерно 2,1 млрд. т топлива. Располагая таким количеством топлива, 2,7 млн. жителей Баварии могут отапливать свое жилье в течение одного года.

Древесина как источник энергии

В среднесрочном плане нам хотелось бы увеличить долю биомассы до 5%. Примерно одна шестая часть биомассы, используемой для производства энергии, приходится на древесную щепу. Исследование, проведенное Институтом лесного хозяйства (Landesanstalt für Wald und Forstwirtschaft, LWF), показало, что мы легко можем расширить объемы древесину, используемой для производства энергии, до 3,9 млн. тонн. В настоящее время эта цифра составляет примерно 2,3 млн. т сухой древесины (древесина и древесные отходы), а производство древесины составляет 12 млн. м³. Если бы мы смогли ежегодно задействовать 18 млн. м³ древесины лесов Баварии, то нам удалось бы произвести 6,9 млн. т энергетической древесины. Таким образом, мы смогли бы охватить 4,2% первичных энергоносителей, что составляет 3 млрд. л жидкого топлива. Древесина как источник энергии при применении современных технологий вновь, таким образом, смогла бы вернуться на утраченные ею передовые позиции. В настоящее время в Баварии уже работают 270 ТЭЦ, использующих биомассу.

"Лесное тепло" играет важную роль в деле расширения масштабов использования возобновляемых источников энергии.

Субсидирование возобновляемых первичных энергоисточников

Земля Бавария выделяет большое число субсидий в целях стимулирования использования возобновляемых первичных энергоисточников, в частности для производства тепла. Для этих целей Земля уделяет большое внимание этому сектору. В Штраубинге был создан "Центр компетенции" для изучения возобновляемых первичных энергоисточников. В Центре рассматриваются научные, утилитарные и экономические аспекты использования биомассы в качестве промышленного сырья и для производства тепловой энергии. Задача Центра состоит в том, чтобы в процессах использования биомассы создавать новые рабочие места и открывать новые возможности, в первую очередь в сельских районах, находить новые рынки для сбыта продукции местной экономики, оказывать благотворное воздействие на окружающую среду и разрабатывать технологии, которые затем можно было бы передавать заинтересованным странам.
**Le Bois comme source d’énergie**

A moyen terme nous voulons augmenter la part de biomasse à 5%. Les copeaux de bois représentent environ 1/6ème de la biomasse utilisée pour la production d’énergie. Une étude de l’Institut de la Forêt (Landesanstalt für Wald und Forstwirtschaft, LWF) montre que nous pourrions accroître facilement la quantité de bois utilisée pour la production d’énergie à un niveau de 3,9 millions de tonnes. Actuellement ce sont environ 2,3 millions de tonnes de bois absolument sec (bois et déchets de bois) et une production de 12 millions de mètres cube de bois qui sont ainsi utilisés. Si nous utilisions les 18 millions de mètres cubes de bois qui poussent chaque année en Bavière, il serait possible de produire de 6,9 millions de tonnes de bois d’énergie. Ainsi nous pourrions couvrir 4,2% de l’énergie primaire, l’équivalent de trois milliards de litres de fuel. Le bois comme source d’énergie, avec une technologie moderne, va donc connaître une vraie renaissance. Aujourd’hui 270 centrales thermiques à base de biomasse sont déjà en service en Bavière. « La chaleur de la forêt » joue un rôle important pour accroître la part d’énergie renouvelable.

**Des subventions pour les matières primaires renouvelables**


**L’usage de la biomasse**

La biomasse, c’est de l’énergie solaire fixée en forme chimique. Elle représente donc une énergie emmagasinée et toujours disponible selon le besoin, contrairement aux autres sources renouvelables, comme par exemple le vent ou la photovoltaïque, dont la disponibilité n’est pas calculable.

**L’usage de la biomasse en Allemagne et en Bavière**

**L’usage en Allemagne**

D’après la dernière statistique, 270 PJ parvenant de biomasse sont produits en Allemagne. Cela correspond à environ 1,9% de la consommation d’énergie primaire. Un lotissement en « Länder » est visible dans le diagramme suivant :
**Graphique 1 : Les parts de la biomasse dans la consommation d’énergie primaire**  
(« Länder », sans villes avec le statut de « Land »)

**L’usage en Bavière**

En Bavière la part d’énergie venant de la biomasse dans la consommation d’énergie primaire est actuellement d’après des résultats de 1999 [6] d’environ 3,3%. Avec 5,8% la biomasse et l’énergie hydraulique (calculée avec la méthode de degré d’efficacité) sont les sources d’énergie renouvelable les plus importantes. D’après ces résultats, ont été utilisée en Bavière en 1999 environ 4,1 millions de tonnes de biomasse dur, 81.500 de tonnes de biomasse liquide (huile végétale et bio-diesel) et 198 millions de mètres cubes de gaz d’épuration et de décharge et bio-gaz énergétique.

**Graphique 2 : Parts des sources de biomasse du mélange biomasse**
En 1999, environ 2.027 PJ d’énergie primaire ont été utilisés en Bavière, dont environ 66,6 PJ ou 3,3% provenant de biomasse (voir tableau 1).

La partie dominante pour l’utilisation des sources de bioénergie sont des biomasses durs, comme le montre le tableau 1.

<table>
<thead>
<tr>
<th>Biomasses durs :</th>
<th>env. 93%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomasses liquides :</td>
<td>env. 2%</td>
</tr>
<tr>
<td>Biogaz :</td>
<td>env. 5%</td>
</tr>
</tbody>
</table>

**Tableau 1: L’utilisation des biomasses après leurs état d’agrégat**

Fin 2001, il y avait en Bavière l’infrastructure suivante pour l’utilisation énergétique des sources de biomasse dures :

Environ 265 centrales thermiques pour des zones industrielles et pour l’alimentation des zones d’habitations et de zones industrielles, dont 110 centrales thermiques subventionnées 1,76 millions de chauffages au bois et de cheminées, dont environ 400.000 chauffages pour le bois en bûches et copeaux comme chauffage centrale et chaufferies collectives.

**Demande actuelle en Bavière pour le bois énergie**

La consommation actuelle de bois énergie est environ de 2,3 millions de tonnes absolument sec (1999). 2% de la consommation d’énergie primaire en Bavière sont ainsi couverts. Vue sur tout les « Länder » ce chiffre n’est que de 1%.

Les utilisateurs les plus importants sont les chauffages des ménages privés, suivis des menuiseries avec les centrales industrielles, qui utilisent leurs déchets de bois. En Bavière, il y a en outre en service 110 centrales thermiques d’une puissance supérieure à 500 kW. Elles ont été réalisées avec l’aide d’un programme de subventions du Ministère de l’agriculture et de la Forêt de la Bavière. La plupart sont des centrales thermiques communales avec des réseaux d’alimentation de chaleur, qui n’utilisent que du bois naturel. Toutes les centrales sont obligées, avec des conditions des subventions, d’utiliser un pourcentage fixé normalement entre 25% et 30% de biomasse provenant directement de la production agricole ou forestière. Ce critère ne peut être suivi qu’avec l’utilisation de copeaux de bois de forêt. En tout, 280.000 tonnes de matière absolument sèche sont déjà brûlées chaque année, dont 105.000 tonnes de copeaux de bois de forêt (2002).
Potentiel de bois énergie

La parts de bois énergie dans la consommation d’énergie primaire pourrait monter en Bavière à moyen terme de 2% à 4%. A long terme, avec une exploitation forestière plus élevée et la culture des espèces poussant vite sur des lieux en friche, la part de 10% pourrait être atteinte. Le potentiel de bois d’énergie se compose des sources suivantes :

Bois énergie de forêt

Pour l’utilisation comme bois d’énergie, il existe principalement deux sortes de matières premières possibles qui sont mis sur le marché habituellement comme « bois industriel » pour l’industrie du papier ou l’industrie des panneaux d’aggloméré et de panneaux fibres. Pour encourager la décision du propriétaire forestier de livrer du bois d’énergie, il est donc essentiel de proposer des montants de garantie comparables ou même plus élevés que pour les livraison de bois industriel. Actuellement, environ 15% de l’exploitation forestière sont utilisés comme bois d’énergie.

La majeur partie est utilisée comme bois de chauffage sous forme de bûches. La technique de livraison avec des machines mobiles, parfois complètement automatique, mais aussi la vente par des marchants de bois de chauffage et des lieux spécialisés dans la vente de biomasse deviennent de plus en plus professionnels.

15% du bois énergie de la forêt est brûlé en Bavière comme copeaux. A côté du nombre croissant de chauffages utilisant des copeaux, ce sont surtout les centrales thermiques subventionnées qui sont responsables de cette augmentation.

« Bois énergie des champs »

est une Option pour l’avenir. En ce moment, il y a assez de sources d’énergie non exploitées ou meilleur marché. Si l’achat du bois énergie dans les environs d’une centrale thermique est assuré avec des contrats à long terme, il est déjà possible aujourd’hui, de planter des espèces poussant très vite sur des champs actuellement en friche. Sur des champs d’expérimentation de la LWF des performances de masse très élevées ont pu être réalisées avec des espèces de peuplier. Comme pour la plantation de colza non alimentaire, les exploitant peuvent recevoir des prix pour cesser la production pour ces champs.

Déchets de bois de l’industrie

provient du travail avec le bois (scierie ou entreprise de placage) ou en travaillant le bois (entreprises de panneau, menuiseries). Ils sont utilisés de plus en plus par l’industrie elle même. Souvent, les séchoirs sont chauffés au bois ; parfois même de électricité ou de la puissance y est produite. Si des centrales thermiques sont chauffées avec des déchets de bois, souvent des marchants de déchets de bois établis s’occupent de la partie logistique. Les déchets de bois sont en plus la matière primaire pour la production de pellets, un produit normé avec beaucoup de potentiel sur le marché.
Bois des jardins et parcs

est souvent disponible comme «bois bon marché » pour abaisser le prix moyen pour les
centrales. Il provient de l’entretien des jardins et des parcs, des haies, des bois jouxtant les
autoroutes, routes nationales ou les voies ferrées. Jusqu’à aujourd’hui, ce matériel devait
être broyé et soufflé dans les alentours ou ramassé et composté, ce qui s’avérait coûteux.
Près des centrales à bois l’utilisation thermique prends de plus en plus d’importance.

Bois vieux

doit être brûlé avec l’utilisation de systèmes de filtration des rejets gazeux, du fait des
travaux subis par ces matériaux. La « Loi d’énergie renouvelable » prévoit entre outre
des subventions en faveur de l’électricité provenant de combustion de bois pour alimenter
le réseau en courant. Cela doit inciter à construire d’autres centrales de co-génération.
Selon toute probabilité le bois vieux - du point de vue écologie raisonnable - va être brûlé
sur place au lieu d’être transporté dans les pays voisins. Une pénurie de la quantité et une
augmentation des prix est déjà visible. Cela va sûrement avoir aussi des effets sur les autres
bois énergie.

Programmes de Subvention pour la biomasse en Bavière

En Bavière l’utilisation de la biomasse est déjà massivement subventionnée depuis les
années 90. C’est surtout la biomasse dure en forme de bois qui est en premier plan. Par des
programmes du ministère de l’agriculture et de la forêt environ 3000 installations
industrielles de petite taille et plus de 100 projets plus importants d’utilisation de biomasse
ont été subventionnés. Depuis 1992, C.A.R.M.E.N. e. V. aide activement aux créations et
au soin des programmes bavarois. Pendant la décade de 1992 à 2001, un total de 158
millions d’Euro de subventions (subvention du « Land », de l’État et de l’Europe) a été
versé, surtout pour l’utilisation énergétique des matières primaires renouvelables.

Actuellement trois programmes du ministère de l’agriculture et de la forêt sont à la
disposition :

- la subvention individuelle pour des projets de biomasse supérieurs à 500 kW de prise
  de chaleur

- « BioKomm » pour des projets de biomasse inférieurs à 500 kW de prise de chaleur,
  spécialement pour les communes et d’autres organisations du droit public

- « BioHeiz » (« Chauffage Bio ») pour des projets de biomasse compris entre 100 et 500
  kW de prise de chaleur
Subvention individuelle

La subvention individuelle dans le cadre du « concept intégrale des ressources renouvelables en Bavière » prévoit une vérification des cas individuels et l’appréciation des projets déposés officiellement.

Les centrales thermiques de biomasse peuvent être subventionnées par le Ministère bavarois de l’agriculture et de la forêt avec un taux de 30% des investissements subventionables, s’ils ont une prise de chaleur de plus que 500 kW. Pour les entreprises de taille moyenne ou petite, la subvention peut être majorée de 5%. Les chaudières de biomasse avec des installations pour rendement maximum, les parts d’immeuble et un réseau d’alimentation de chaleur éventuellement nécessaire sont comptabilisés comme investissements subventionables. Toute personne physique ou juridique, à l’exception de l’Etat, peut être candidat, et donc également les communes ou l’Eglise, parmi lesquelles il y a beaucoup de demandeurs. Pour obtenir une subvention le demandeur est obligé de couvrir une partie (25%) de ses combustibles directement par l’agriculture ou la forêt. Les autres combustibles ne peuvent être que des bois traités uniquement mécaniquement (la plupart des déchets de bois de scieries).

Les demandes officielles sont déposés au Ministère bavarois de l’agriculture et de la forêt ou au C.A.R.M.E.N. e.V.. Le C.A.R.M.E.N. e.V. traite la demande officielle par une vérification du cas individuel et transmet la demande au ministère en formulant un avis. Une des conditions préalables pour la subvention par le Ministère bavarois de l’agriculture et de la forêt est le fonctionnement économique avec les subventions éventuelles. La base d’une demande officielle devrait être une étude de projet ou un projet d’un planificateur expérimenté. Cette étude est estimé par C.A.R.M.E.N. e.V. non seulement du point de vue économique, mais aussi du point de vue technique et écologique.

Expériences et chiffres clés

Des subventions d’investissement élevées, comme ce fut le cas pendant les premières années des subventions bavaroises, avec des taux atteignant jusqu’à 50%, ne sont pas automatiquement une garantie pour de bons projets de biomasse. Les expériences qui ont été tirées des projets issus des programmes de subventions individuelles et l’évaluation profonde de douze centrales biomasses ont eu comme conséquence, que les projets futurs doivent atteindre des chiffres clés comme standards minimales :

- les investissements spécifiques rapportés à la prise de chaleur annuelle doivent être au maximum de 7,5 fois le prix de chaleur accessible (exemple : au maximum 375 €/(MWh/a) d’investissements spécifiques pour un prix de chaleur accessible de 50 €/MWh) ;
- 70% des acheteurs de chaleur doivent signer le contrat avant la demande officielle et le projet doit être réalisé dans les trois années qui suivent ;
- L’utilisation à plein rendement doit monter à plus que 2.500 h/a ;
• La part de biomasse pour la production de chaleur doit être égale ou supérieure à 80% ;
• La densité de jonction dans le réseau d’alimentation de chaleur doit être au moins 1,5 MWh/a par mètre du tracé de chaleur

Avec ces conditions, les grands acheteurs de chaleur sans réseau d’alimentation large existant déjà aujourd’hui sont prédestiné dans le futur pour des projets.

Résultats

La mise en place des chiffres clés comme condition préalable pour une subvention a eu comme résultat une amélioration sensible du point de vue investissement effectif.


Graphique 3 : Projets de biomasse issue de subventions individuelles en Bavière.
Programmes de subventions standardisés

En raison de la limitation des subventions individuelles pour les centrales de chauffages de biomasse avec une performance thermique de plus de 500 kW, il résultait un vide dans le spectre des performances moyennes pour le programme des subventions de biomasse bavarois. Mais justement les projets avec une performance jusqu’à 500 kW laissent présager une efficacité très haute, parce qu’ils ont comme clients des objets individuels, qui peuvent être alimentés facilement avec de la chaleur provenant de la biomasse.

Souvent des objets qualifiés se trouvent être la propriété de communes, de l’Eglise ou des institutions publics, qui sont exclue de la subvention du programme pour inciter le débouché. En plus cela peut réaliser des progrès technologiques avec des charges bien placés. Cela s’est illustré avec C.A.R.M.E.N. e.V. qui a réglé les deux projets de lancement dans le spectre de performance jusque à 100 kW sur ordre du Ministère bavarois de l’agriculture et de la forêt et par lequel plus de 3000 installations ont pu être subventionnées.

Pour ces raisons là, deux programmes de subventions standardisés ont été créés en Bavière avec l’aide de C.A.R.M.E.N. e.V. pour le spectre de performance entre 100 kW et 500 kW déroulé par le centre de technologie et de subvention à Straubing (voir adresses).

Programme de subvention « BioKomm »

Le programme de subvention « BioKomm », pour la subvention des installations de chauffages de biomasse automatiquement alimentés jusqu’à une performance de 500 kW, a été introduit spécialement pour ferme le vide de subvention dans le programme pour inciter le débouché pour les communes.

Les directives sont entrées en vigueur le 01.07.2001. Les conditions préalables et critères sont orienté vers les critères valables pour la subvention des installations de chauffages de biomasse automatiquement alimentés dans le cadre du programme pour inciter le débouché de l’Etat (voir plus haut). Les motions ne peuvent être présentées que par les institutions du droit public y compris les Eglises et les personnes juridiques du droit privé, qui se trouvent la plupart en possession des communes.

Les aides financières sont de 61,50 €/kW de puissance nominale de la chaleur atteint et au moins 2.050 € par installation.

Programme de subvention BioHeiz500

En complément, le programme de subvention « BioHeiz500 » a été créé. Il s’agit d’une subvention avec une bonification pour des avantages écologiques pour les centrales de taille petite (puissance nominale de la chaleur entre 100 et 500 kW) en Bavière, qui a comme but de réaliser des projets avec des taux de pollutions spécialement bas.
Outre une subvention de base dépendant de la demande de chaleur et une subvention dépendant de la longueur du tracé, un chiffre fixé pour le bâtiment, dépendant de sa taille, est accordé. La subvention ne doit pas dépasser plus de 15 % de l’investissement.

Une multiplication par deux des subventions est possible, si des valeurs d’émission spécialement basses sont atteintes pendant le mesurage de réception. Concernant les émissions, le programme de subvention est harmonisé avec le Ministère pour l’environnement. Outre des personnes privées, les moyennes entreprises (pour les installations des entreprises travaillant du bois, la subvention est divisé par deux) et les collectivités du droit public peuvent déposer une motion.

Conditions préalables de subvention et critères

- Subvention uniquement pour des installations nouvelles
- Investissements de remplacement, installations faites par soi même et prototypes (moins de quatre exemplaires) ne sont pas subventionnés
- Demande de puissance de chaleur: de 150 à 500 kW; la preuve de demande de puissance de chaleur et de la demande annuelle de la chaleur est donnée par l’installateur
- La chaudière des biomasse doit avoir au moins 100 kW et combler au moins 40 % de la puissance totale
- Utilisation exclusivement de Bois naturel et des combustibles de biomasse d’une production du pays (Nr. 4 à 5a et Nr. 8 après le 1. décret BimSchV)
- Le projet ne doit pas être commencé avant l’autorisation ; l’étude peut être faite.
- Installations de compteur de quantité de chaleur à chaque producteur de chaleur
- Présentation d’une conception concluante et un plan de financement sûr
- L’installation doit fonctionner au moins 12 ans en Bavière
- Relèvement annuel des dates (l’achat, quantité, source et prix pour la biomasse, chaleur produit)

Les valeurs d’émission du tableau 2 doivent être respecté (prouvé avec une déclaration de fabricant ou expertise)

**Tableau 2 :** Valeurs d’émission par rapport à 13 % Vol% oxygène (prouvé avec une déclaration de fabricant ou expertise)

<table>
<thead>
<tr>
<th>Combustibles</th>
<th>-bois naturel</th>
<th>-paie ou analogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO (puissance nominale (p.n.) et faible &lt;= 30 % p.n.)</td>
<td></td>
<td>150 mg/Nm³</td>
</tr>
<tr>
<td>NOx comme NO2 (p.n. et p. faible &lt;= 30 % p.n.)</td>
<td></td>
<td>250 mg/Nm³</td>
</tr>
<tr>
<td>Poussière (p.n. et p. faible &lt;= 30 % p.n.)</td>
<td></td>
<td>50 mg/Nm³</td>
</tr>
</tbody>
</table>
Bonification pour des avantages écologiques

La bonification pour des avantages écologiques peut être attribuée, si les valeurs d’émission spécialement basses sont atteintes pendant le mesurage de réception (p. e. mesuré par le ramoneur) présenté au tableau 3.

**Tableau 3 :** valeurs d’émissions BioHeiz500 par rapport à 13 % Vol% oxygène (mesurage de réception pour la bonification pour des avantages écologiques)

<table>
<thead>
<tr>
<th>Émission</th>
<th>Valeur en mg/Nm³</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO (p.n. et p. faible &lt;= 30 % p.n.)</td>
<td>300 mg/Nm³</td>
</tr>
<tr>
<td>Poussière (p.n. et p. faible &lt;= 30 % p.n.)</td>
<td>100 mg/Nm³</td>
</tr>
</tbody>
</table>

Le tableau 4 montre la hauteur des aides financières du programme BioHeiz500 partagé en subvention de base et bonification pour des avantages écologiques.

**Tableau 4 :** hauteur des aides financières du programme BioHeiz500

<table>
<thead>
<tr>
<th>Technique</th>
<th>subvention de base</th>
<th>bonification pour des avantages écologiques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technique</td>
<td></td>
<td>Technologie de chaleur</td>
</tr>
<tr>
<td>30 €/kW demande de puissance de chaleur, mais au maximum</td>
<td>60 €/kW demande de puissance de chaleur, mais au maximum</td>
<td></td>
</tr>
<tr>
<td>15 % des investissements</td>
<td>des investissements</td>
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<tr>
<td>pour la technique de chauffer</td>
<td>pour la technique de chauffer</td>
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<tr>
<td>réseau d’alimentation de chaleur</td>
<td></td>
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</tr>
<tr>
<td>30 € par mètre du tracé de chaleur</td>
<td>60 € par mètre du tracé de chaleur</td>
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</tr>
<tr>
<td>entre les bâtiments isolés, mais au maximum</td>
<td>entre les bâtiments isolés, mais au maximum</td>
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<tr>
<td>maximum 0,66 mètres tracé de chaleur</td>
<td>maximum 0,66 mètres tracé de chaleur</td>
<td></td>
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<tr>
<td>subventionné par ans chaleur utilisé en MWh et au maximum 15 % des</td>
<td>subventionné par ans chaleur utilisé en MWh et au maximum 30 % des</td>
<td></td>
</tr>
<tr>
<td>investissements pour le réseau de chaleur station de transmission inclus</td>
<td>investissements pour le réseau de chaleur station de transmission inclus</td>
<td></td>
</tr>
<tr>
<td>Bâtiment pour l’installation de biomasse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(au maximum 15 % des investissements de)</td>
<td>(au maximum 15 % des investissements de)</td>
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<tr>
<td>101 à 200 kW : au maximum 3.830 €</td>
<td>101 à 200 kW : au maximum 7.670 €</td>
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</tr>
<tr>
<td>201 à 300 kW : au maximum 7.670 €</td>
<td>201 à 300 kW : au maximum 15.300 €</td>
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</tbody>
</table>
Il n’y a pas encore d’expérience fondée avec les programmes standardisés, parce qu’ils n’existent que depuis un an. Mais il apparaît avec un grand intérêt, que même avec des aides financières modérées une incitation suffisante est donné pour réaliser des installations de biomasse.

**FIN**


**SOURCES**

2 [www.carmen-ev.de](http://www.carmen-ev.de)

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**TOPIC 3.2: MANAGING CLIMATE CHANGE RISKS**
Managing forests for adaptation to climate change

Paper by Mr. Zoltán Rakonczay, Jr.,
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ABSTRACT

There is now an overwhelming body of evidence indicating that our climate is changing at an alarming rate. It will force us to re-visit how we manage our natural resources, including forests. The various climate scenarios predict an average temperature rise of several °C over the 21st century, and changes of similar magnitude can be expected in other climatic variables. Such a drastic change in climate will be very hard to tolerate for any ecosystem. It is also predicted that the frequency of extreme weather events (like storms, droughts or extreme precipitation) will increase, which is also likely to adversely impact on forests. Species can adapt to the changing climate through phenotypic plasticity, adaptive evolution and migration to more suitable sites. The following recommendations can be made regarding the use and management of forests, to enhance their capacity to adapt:

- Nature reserves should be sufficiently large and should include a full range of forest types
- Avoid fragmentation and/or establish connectivity, minimise road network
- Protect climatic refugia and migration corridors
- Protect primary forests
- Provide buffer zones
- Practice low-intensity forestry and avoid plantations
- Maintain genetic diversity at all levels
- Monitor changes
- Identify and protect functional groups

Forest/timber users should be accommodated without compromising the adaptive capacity of forests.

Key words: diversity, connectivity, migration, reserves, monitoring
Gestion des forêts aux fins de l’adaptation aux changements climatiques

Document établi par M. Zoltán Rakonczay,
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RÉSUMÉ

L’on dispose à présent d’un nombre impressionnant d’informations attestant que le climat de la planète est en train d’évoluer à un rythme alarmant. Ce phénomène aura des répercussions importantes sur toute notre vie. Il nous contraindra également à revoir la façon dont nous gérons nos ressources naturelles, et les forêts en font partie. Les débats consacrés au changement climatique ont fait une large place aux forêts, principalement en tant que sources potentielles d’énergie renouvelable sans émission nette de carbone et en tant que puits de carbone. Les mesures de forsterie (boisement et amélioration de la gestion) sont souvent présentées comme un moyen efficace d’éliminer le carbone de l’atmosphère, et donc d’atténuer le changement climatique.

Il existe des instruments efficaces (dont le plus important est le Protocole de Kyoto) qui obligent les États à réduire les émissions nettes de gaz à effet de serre et des mécanismes financiers qui rendent de tels efforts rentables. Tout cela encourage l’investissement dans l’énergie renouvelable et les puiss de carbone. Malheureusement, on s’est beaucoup moins intéressé (et on y a investi moins d’argent) à la capacité des forêts à résister aux changements climatiques annoncés, alors que ces derniers affectent de manière radicale leur potentiel à long terme en tant que puiss de carbone ou sources de biomasse (sans parler de leurs autres fonctions plus importantes).

Les différents scénarios climatiques prédissent une élévation moyenne des températures de plusieurs degrés centigrades au cours du XXIe siècle, et l’on peut s’attendre à des changements de même ampleur pour d’autres variables climatiques telles que les précipitations ou l’humidité. Un changement climatique aussi radical sera très difficile à supporter pour n’importe quel écosystème. Constituées essentiellement d’organismes qui ont une longue durée de vie et une capacité de réaction très limitée, les forêts sont particulièrement exposées. Une augmentation de la fréquence des phénomènes météorologiques extrêmes (tels que tempêtes, sécheresses et très fortes précipitations) est également annoncée, ce qui, selon toute probabilité, aura aussi des conséquences négatives pour les forêts.

Tous ces motifs de préoccupation obligent à tout mettre en œuvre pour accroître la capacité des forêts à s’adapter au changement climatique. Il est particulièrement important de garder ces problèmes à l’esprit dans toute activité de régénération et de boisement. La mise en œuvre des recommandations suivantes devrait permettre de renforcer la capacité des forêts à s’adapter à l’évolution du climat:

- Faire en sorte que les réserves naturelles (zones de référence) comprennent un éventail complet de types de forêts;
- Éviter la fragmentation ou assurer une continuité et freiner l’expansion du réseau routier;
- Protéger les refuges climatiques et les couloirs de migration (qui ont joué un rôle déterminant dans la survie des espèces et communautés lors des changements climatiques précédents);
- Protéger les forêts primaires;
- Prévoir des zones tampons;
- Pratiquer une exploitation forestière de faible intensité et éviter les plantations;
- Maintenir la diversité génétique;
- Surveiller l’évolution de la situation.

Ces mesures devraient être appuyées par des mécanismes politiques et financiers suffisants.

Mots clefs: résilience, diversité, continuité, principe de précaution, zones de référence, surveillance.
Управление лесами в целях адаптации к изменению климата

Документ, подготовленный специалистом по лесному хозяйству и изменению климата, ВФП, Венгрия, г-ном Зольтаном Раконцаем

РЕЗЮМЕ

В настоящее время существуют убедительные доказательства того, что климат планеты меняется стремительными темпами. Эта тревожная тенденция будет иметь глубокие последствия для жизни всех нас. Она заставит нас также пересмотреть наши методы управления природными ресурсами, а также методы ведения лесного хозяйства. В ходе обсуждений вопросов изменения климата проблемам лесов было уделено значительное внимание, ибо они являются потенциальными поставщиками возобновляемой углеродонейтральной энергии и стоками углерода. Меры в области лесопользования (облесение и рациональное ведение лесного хозяйства) нередко упоминаются в качестве эффективных средств удаления углерода из атмосферы и смягчения изменения климата.

В настоящее время уже существуют эффективные политические механизмы (Киотский протокол в первую очередь), которые обязывают страны сокращать чистые объемы выбросов парниковых газов в атмосферу. Есть и финансовый механизм, который стимулирует деятельность подобных механизмов. Тем самым поощряются инвестиции в области возобновляемых источников энергии и роль лесов как стока углерода. К сожалению, гораздо меньше внимания уделяется (и меньше расходуется средств) тому, чтобы укреплять способность лесов противостоять надвигающимся изменениям климата, хотя в данном случае речь в основном идет об их долгосрочном потенциале в качестве стока углеводородов или в качестве источника биомассы (не говоря уже о других более важных функциях).

Различные сценарии изменения климата предсказывают среднее повышение температуры в XXI веке на несколько градусов Цельсия и другие возможные изменения в различных климатических переменных, таких как выпадение осадков или влажность. Никакая экосистема не сможет полностью справиться с резким изменением климата. В особенности тяжелым положением оказываются леса, в которых преобладают организмы, имеющие долгий срок жизни, но обладающие весьма ограниченной сопротивляемостью. Ученые также предсказывают рост числа погодных катаклизмов (например, бурь, засух или ливневых дождей), что также, весьма вероятно, скажется на лесах.

Учитывая все эти проблемы, мы должны сделать все от нас зависящее для того, чтобы укрепить способность наших лесов адаптироваться к изменению климата. Особенно важно иметь в виду эти проблемы, когда речь идет о лесовосстановительных работах или об облесении. Выполнение нижеследующих рекомендаций, весьма возможно, повысит способность лесов адаптироваться к изменению климата:

- заповедные зоны (контрольные районы) должны состоять из широкого диапазона типов лесов;
- следует избегать фрагментации и/или устанавливать связи между лесами и сводить до минимума сеть дорог в лесных местностях;
- необходимо обеспечивать защиту климатических убежищ и миграционных коридоров (т.е. тех районов, которые в прошлом в период климатических изменений помогали выживанию видов/сообществ);
- необходимо обеспечивать защиту девственных лесов;
• нужно создавать буферные зоны;
• следует практиковать малоинтенсивное лесоводство и воздерживаться от создания плантаций;
• необходимо сохранять генетическое многообразие; и
• проводить мониторинг изменений.
Для стимулирования/осуществления этих мероприятий потребуются адекватные финансовые/политические инструменты.

Ключевые слова: сопротивляемость, многообразия, обеспечение связи лесных зон, принцип предосторожности, контрольные зоны, мониторинг.

INTRODUCTION
There is a rapidly growing body of evidence indicating that our climate is changing at an alarming rate. What was once mostly a subject of scientific discourse has now become a major item on the global political agenda, and is featured regularly in the mass media. Climate change will have profound implications on our entire lives. It will also force us to re-visit how we manage our natural resources, and forests are no exception.

Forests have received considerable attention in the climate-change discussions. However, there is barely any indication that the predictions are taken to heart, and our approach to forest management has so far remained largely "business as usual". Although climate change has made it to the top of the agenda in the various forest policy fora (e.g., UNFF, MCPFE or national policies), the issue is primarily used to highlight the role of forests as potential providers of "renewable", "carbon-neutral" energy, and as carbon sinks. There are effective policy frameworks (most notably the Kyoto Protocol) that bind countries to reduce net greenhouse gas emissions, and there are financial mechanisms that make such efforts worth-while. This encourages investment into renewable energy and carbon sinks. Unfortunately, much less attention has been given to (and money invested into) the ability of forests to withstand the predicted changes in climate, although it fundamentally affects their long-term potential as carbon sinks, or as sources of biomass (not to mention their other, no less important functions).

This paper first provides a summary of the predicted changes in climate that are most likely to affect European forests, and their likely impacts. Then it highlights the most important measures countries and forest managers can implement to enhance the resilience and/or resistance of forests and to increase their capacity to adapt to the changing climate. Finally, recommendations are proposed for the "sound use of wood" in the context of climate change.
CLIMATE CHANGE AND ITS IMPACTS ON FORESTS

"An increasing body of observations gives a collective picture of a warming world and other changes in the climate system" (IPCC 2001a).

As climate change is a global phenomenon which cannot be substantiated with controlled trials, most of the evidence is indirect. However, a consistent pattern of observations together with ever more powerful global climate models indicate that our climate has discernibly changed over the past decades, and it is likely to change at a faster rate in the 21st century.

Projected changes in the environment

Below are a few highlights of the most likely climate change scenarios for Europe, based on the reports by the IPCC (1998, 2001b).

Temperature

Mean temperatures are generally expected to increase ("global warming"), although there might be regional exceptions. In Europe, annual temperatures are expected to grow at a rate of 0.1 to 0.4 °C/decade in the first half of the century. Warming is predicted on the whole continent in all seasons.

As with most other climate parameters, it is likely that changing averages will be accompanied by changes in patterns (unseasonable/extreme weather events). Winters currently considered "cold" (occurring once in ten years in the past) are likely to become less frequent, and disappear entirely by the end of the century. In contrast, hot summers are likely to become much more frequent.

Precipitation

Annual precipitation is expected to increase in northern Europe (1-2% per decade) and decrease across southern Europe. No (or uncertain) changes are predicted in central Europe. There is a marked contrast between winter and summer patterns of predicted precipitation change.

Extreme weather events

It is very likely that frequencies and intensities of summer heat waves will increase throughout Europe. The frequency of intense precipitation events is likely to increase (especially in winter), and the frequency/severity of summer droughts is likely to increase in central and southern Europe. It is possible that the frequency of gale-strength wind will increase.

Increasing concentration of CO₂

Climate change is largely driven by the release of greenhouse gases into the atmosphere, most important of which being carbon-dioxide. The concentration of atmospheric CO₂ has been increasing at an accelerating rate since the industrial revolution. This trend may be slowed down by efforts to curb emissions. However, even with a full implementation of
the Kyoto Protocol, CO₂ emissions are likely to keep increasing until at least the middle of the 21st century, and atmospheric concentrations are likely to keep increasing throughout the century.

**Likely impacts on forests**

Fossil records indicate that there have been significant changes in the earth’s climate in the past, and that ecosystems and species responded in a variety of ways. Changes in climate were likely to be major drivers of speciation as well as extinction. These are natural processes which, in and by themselves, would be no reason for concern.

However, the on-going, human induced climate change is different from past climate shifts in several respects, and should be a major cause for concern. The most important reasons are the following:

- The rate of change in the climate appears to be higher than most (or any) previous changes in the Quaternary period. This, in and by itself, would put species, functional groups and ecosystems under considerable stress.

- Unlike during past climate changes, the landscape is no longer pristine, which is particularly true for Europe. Ecosystems tend to be highly fragmented and altered by past and present human activity. In addition, there is an abundance of invasive introduced species which encroach on the habitat of native communities. All these factors make adaptation more difficult. Climate change will constitute still another stress factor impacting on forests which are already under suffering from a variety of pressures.

- Most ecosystems serve basic, often multiple human needs. Large-scale losses and damages to forest may cause such a deterioration of economic, environmental and social services that we cannot afford.

The most likely impacts on forests are the following:

**Shifting range boundaries**

Optimum ranges of species/communities will shift. In Europe, climatic zones are likely to shift towards the north and, in the mountains, to higher elevations (potentially elevating the tree line). This may naturally follow the changing climate under some circumstances, but their ability to do so can be seriously limited by land use, management interventions, natural dispersal rates and other factors (e.g. soil conditions). Due to their long life cycles and often slow dispersal speeds, (not to mention conservative management practices), forests are likely to complete their life-cycles (perhaps even for several generations) even if their environmental conditions exceed their historic range of variability. However, these forests are going to be under considerable stress, which is likely to make them more vulnerable and will lead to their decline.
Changes in phenology

Changes in the timing of some biological processes are among the most easily detectable effects of climate change. In Europe, a general lengthening of the growing season has been detected, and is likely to continue. This manifests itself in earlier bud break and flowering, and a later occurrence of the first frosts. At the same time, it also leads to higher evapotranspiration, potentially contributing to water scarcity. As different species use different environmental signals (heat, light, etc.) to time their life processes, changes in phenology may lead to the disruption of some functional groups (i.e., inter-species relationships like between plants and their pollinators, seed dispersers or parasites) with potentially serious consequences.

Changes in forest growth.

It is likely that forest productivity will increase, at least on the short run, in most of Europe. This is due primarily to the longer growing season, increased CO₂ concentrations (fertilisation effect). Factors unrelated to climate change, such as increased nitrogen deposition, are also likely to promote growth. Forest inventory data in Europe do indicate an increased growth rate, although the attribution of this to climate change and other factors is not yet possible. Increased growth is going to lead to increased evapotranspiration, which will contribute to water scarcity unless changes in precipitation make up the difference.

Carbon balance

Although increased growth suggests that forests are going to be more effective carbon sinks, it is not necessarily the case. Higher temperatures are likely to cause higher respiratory losses. The loss of soil carbon, especially in northern latitudes, can turn the overall carbon balance negative. While Europe's forests act as a net sink of carbon, models suggest that they will become a net source by the middle of the 21st century.

Increased incidents of calamities

As it has been mentioned, most climate models agree that an increase in the frequency/severity of extreme weather events can be expected. This is likely to translate into more frequent and/or more serious damages to forests. Such events include storm damage, fire (due to higher temperatures and drought), snow/ice damage, etc. Climate change may indirectly contribute to pest outbreaks in various ways. For example, higher winter temperatures may allow certain pests to survive winter in higher numbers, thus becoming more damaging. In addition, changing climatic conditions may lead to the migration of pests/pathogens to new areas.

Adaptation mechanisms

During past climatic changes, species adapted by physiological acclimation (phenotypic plasticity), evolution (micro-evolution) and/or migration to suitable habitats. Those species that could not adapt began to decline, eventually leading to their extinction.
Physiological acclimation

All species have a certain amount of physiological plasticity, allowing them to tolerate a range of environmental conditions. Trees, as they are long-living organisms, tend to have a relatively high plasticity, and can tolerate considerable changes in the environment. However, when environmental changes consistently exceed the range of historic variability, individuals eventually succumb to persistent stress.

In-situ evolution

Evolution is a typically slow process (requires many life cycles to be completed under a consistent selection pressure). There are many examples indicating that evolutionary changes have already been caused by climate change (and other human-induced environmental change), but most of these are from species of short life cycles (mostly invertebrates). This kind of adaptation requires viable populations with adequate genetic diversity. Rapid in situ evolution is likely to lead to losses of genetic diversity in the populations: while some traits are enhanced, others disappear. On a longer temporal scale, climate change can contribute to genetic diversity and can drive speciation (through the divergence of populations).

Migration

Paleological records indicate that during past changes in climate, most species adapted by migration, with little or no sign of evolutionary change. Whether or not migration is a successful adaptation response depends largely on the speed at which species are able to expand their ranges.

Migration requires freedom of movement along ecological gradients. It can also be a slow process, which is especially true for some tree species which are slow to mature and have low dispersal rates. The speed of migration of tree species after the last glaciation has been estimated to range from a few dozen to a few thousand meters per year. Functional groups of species have to migrate together, so factors limiting the migration of one species may impede the migration of others.

Refugia

Refugia are areas where the special microclimate and/or other environmental factors (like hydrology) allow species and communities survive extended periods of otherwise unfavourable macroclimatic changes. Refugia are crucial for the survival of species and they were important sources of re-colonisation after the reversals of climatic changes.

IMPLICATIONS FOR THE USE OF FORESTS AND THE USE OF (HARVESTED) WOOD

The above factors have implications on how we should manage and use our forest resource. The most important conclusions relate to the management and use of forests, but some recommendations can also be formulated for the wood processing sector and downstream activities.
Management measures favouring adaptation

Although our predictions about the future trends in climate change, especially its manifestations in given geographical areas, contain a lot of uncertainty, there are a number of land use and management principles which, when properly implemented, are likely to help ecosystems adapt to the changing climate. Most of these measures are such that would be beneficial without regard to climate change. The following is the summary of the land use and forest management guidelines (after Noss, 2000).

Nature reserves should be sufficiently large and should include a full range of forest types

Perhaps the oldest approach to nature conservation is the creation of reserves, where species and communities can be preserved, maintained and monitored. Climate change adds another strong argument for the creation and maintenance of a reserve network. Since it is poorly understood which species/communities are going to be most affected, and how they are likely to shift along environmental gradients, reserve networks should include all representative habitat types, preferably in reasonably large, contiguous areas along ecological gradients.

Avoid fragmentation and/or re-establish connectivity, minimise road network

Fragmentation is likely to hinder adaptation in various ways. First, large populations are broken up into smaller ones, which are more vulnerable to adverse impacts. Second, fragmentation increases the influence of the edge effect, and reduces the area typical of the interior of mature forest. Excessive fragmentation can lead to total disappearance of the interior zone. Last, but not least, fragmentation poses one of the most important obstacles to the migration of species.

When forest communities are already fragmented, connectivity has to be re-established by appropriate land-use planning and restoration measures.

Road networks are increasingly considered as major threats to biodiversity. Not only can they provide significant barriers to less mobile organisms, but they also facilitate the invasion of natural areas by exotic species (a problem that is likely to increase with climate change). Unused/unnecessary roads should be decommissioned and reclaimed, while the necessary road infrastructure should be developed in a way that it does not cause undue disturbance. There are a number of measures that can effectively reduce the impacts of roads (e.g., installation of wildlife crossings or closing roads to public transport)

Protect climatic refugia and migration corridors

Researchers have long recognised the importance of climatic refugia, areas were species/communities survived past changes in climate. These areas tend to have special microclimatic or other environmental features which largely override macroclimatic conditions. Despite our limited understanding of the functioning of refugia and the lack of certainty about their effectiveness in the future, it is safe to assume that these areas can
again play an important role in the survival of species/communities, and conservation efforts should pay special attention to these areas. Refugia can be identified (and should be protected) at various scales, from special micro-habitats (like cave entrances) to extensive regions (like whole mountain ranges).

Similarly to refugia, migration corridors were also instrumental in the adaptation (migration) of species in the past, and they also need special protection in the future. These include river valleys, mountain chains and other geographical features. Disruption of these may seriously impede the migration of various organisms.

**Protect primary forests**

Apart from their obvious role in harbouring biodiversity, mature primary forests are also considered to have a considerable resistance to climate change. Sufficiently large tracts of undisturbed old-growth forests are likely to persist under a changing climate, changing much slower than younger/disturbed communities of the same species.

**Provide buffer zones**

The importance of buffer zones around protected areas has long been recognised. Their role is even more important in light of the changing climate. Whenever possible, reserves should be surrounded by buffer zones that allow populations to change boundaries. If critical elements of biodiversity are monitored, the zoning of the reserve and its protection zones can be periodically reviewed.

**Practice low-intensity forestry and avoid conversion to plantations**

Close-to nature forest management is likely to lead to higher stability by limiting soil disturbance, by limiting the size of canopy openings (maintaining more favourable microclimatic conditions within the forest) and maintaining a higher diversity of not only tree species, but also of associated organisms. The conversion of (semi-)natural forests to plantations (even-aged monocultures) should be strongly discouraged. Whenever possible, plantations and other species-poor, degraded communities should be rehabilitated.

**Maintain genetic diversity at all levels**

A diverse gene pool makes it more likely that traits and genotypes that are well suited to the new environment are represented in sufficient quantities. Adaptation mechanisms like micro-evolution and speciation are fundamentally dependent on the genetic variation within populations. Breeding programmes that limit genetic variation, and favour only a few traits that are considered commercially desirable should be discouraged.

**Monitor changes**

Climate induced changes in ecosystems are already noticeable. Although variations in the distribution or phenology of individual species cannot be attributed to climate change with 100% certainty, there are indications of consistent shifts in species ranges and changes in phenology across a number of taxa. Recently published reports analysing the results of hundreds of studies on a number of taxa concluded with a high degree of confidence that
climate change is already affecting living systems (Parmesan et al. 2003 and Root et al. 2003). They found that observed changes are rather consistent with predictions from climate models.

Relevant changes in natural systems therefore can and should be monitored, and the results should be used in decision making.

**Identify and protect functional groups**

Functional groups, and keystone species within them, are essential elements in the resistance and resilience of forests to climate change. Our knowledge of these, however, is rather limited, mostly because they could be taken for granted. It is, however, very likely that some functional groups will be disrupted by climate change, leading to unpredictable effects. Efforts should be made to identify and protect these functional groups.

**Implications on the use of wood**

As it has been indicated in this paper, climate change is likely to have a potentially serious impact on forests, and the long-term security of our forest resource depends on the ability of the forests to adapt to the changing conditions. The adaptation measures listed in the previous section should be given priority during decision making, and that has implications also for the utilisation of wood.

From the earliest days of the profession, foresters had the mandate to produce the kind of wood that was needed by the users (industry, agriculture, etc.). For example, when before industry learned how to process beech, it was considered to be just a little better than a weed, and much beech forest has been replaced by conifers. Today beech is one of the more valuable hardwood species. Similar stories can be told about other species during different times.

Wood technology has made considerable progress in the past decades in exploring new processing methods. Particle boards, composites, finger-jointing, various biomass applications and other technologies all resulted in more opportunities for providing new uses to previously under-utilised sortiments.

This should be continued, and there should be systematic efforts aiming at finding ways for the economically viable utilisation of native tree species. Beyond technological advances, this should also include marketing efforts to change the consumption habits of end users. A more adaptive timber industry, capable of accommodating a variety of species, quality and size classes can provide a market for previously less-favoured species, and can make the diversification and restoration of forests economically more attractive to forest owners and managers. This is likely to require targeted research, and the involvement of the public sector.
CONCLUSION

Climate change is a potential threat to the long-term health of forests and to the resource security of the wood-based industries. Land use and management measures can reduce these risks by helping forests to adapt to the changing conditions. The recommended measures do not differ significantly from sound forest management under a more static climate, but there is an increased emphasis on refugia and connectivity. On the basis of precautionary principle, these adaptation measures should be given priority in forest management, and other uses of forest should try to accommodate these needs.

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Afforestation of bad lands financed through Joint Implementation Projects

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ABSTRACT

Financing afforestation works is relatively difficult for the countries with economy in transition. The carbon financing may act as an incentive for national resource identification (both in terms of funds and lands to be afforested) and it generally improves significantly the economic return of the afforestation works. The paper shows some practical ways to address degraded land improvement and management through afforestation by financial synergies (multiple partners, co-financing), environmental gains (biodiversity, climate change and local environmental benefits), social and economic improvements (local energy supply, construction material, non timber forest products, alternative activities and temporary jobs). The analysis of an afforestation project place in the context of the national forestry and environmental issues in Romania is also undertaken.

Key words: badlands, afforestation, Kyoto protocol, carbon sequestration, biodiversity, environmental synergies, financial instruments
Boisement des terres pauvres, financé à l’aide de projets communs

Document établi par M. V. Blujdea, Institut de recherche et de gestion forestières, M. I. Abrudan, Faculté de sylviculture et de génie forestier, Université de Brasov-Transylvanie, et M. C. Pahontu, Administration nationale des forêts, Service de régénération forestière, Roumanie

RéSUMÉ
Dans les pays en transition, le boisement des terres impropreuses à l’agriculture est associé dans bien des cas à des difficultés financières. Le Fonds pour le carbone peut être une incitation au boisement dans ce genre de situation (à la fois pour ce qui est de l’obtention de ressources financières et pour ce qui est de la désignation des terres à bois) et d’une façon générale il permettrait d’améliorer de façon notable l’utilité économique des opérations de boisement. Sont évoqués dans le document les moyens concrets d’aménager et de relever par le boisement les terres agricoles dégradées. On y trouve aussi exposés les synergies financières (partenaires multiples, cofinancement) et environnementales (biodiversité, changement climatique et avantages pour l’environnement local) et les aspects sociaux et économiques du boisement (offre d’énergie locale, matériels de construction, produits forestiers autres que le bois, activités différentes et emplois temporaires). La modélisation du piégeage du carbone, la paramétrisation des modèles et l’incertitude associée à la modélisation sont étudiées dans le contexte d’un projet précis de boisement. Les effets de la récolte de bois sur le stock de carbone seront évalués. La place du projet dans le cadre général de la foresterie nationale roumaine et des questions d’environnement est également examinée.

Mots clefs: boisement des terres, financement au titre du Fonds pour le carbone, projet commun, modèle de piégeage du carbone.
INTRODUCTION

Development of the flexible instruments under the Kyoto Protocol creates financing opportunities for the afforestation of badlands in transition countries, as specified in the articles 3.3 and 3.4 of the above-mentioned protocol. Afforestation is a valid option for the improvement of badlands in many cases, providing sustainable land uses in terms of forest resources, and appropriate long term management. Carbon financing may act as an incentive for national resource mobilization (both in terms of funds allocation and identification of lands to be afforested) and it could improve significantly the economic return of the afforestation works. Activities aiming at carbon sequestration are a challenge for a broad category of scientists as well as for many other social categories and they offer an opportunity for innovation in environmental services approach.

ENVIRONMENTAL SERVICES, CHALLENGES AND SYNERGIES

Practically, the degraded lands (with eroded soils) or the abandoned agricultural lands may be subject to different types of afforestation according to the planned land use: commercial or protection forests, belts, patches, corridors. The innovation regarding the afforestation under the joint implementation mechanism is associated with the financial efficiency of the activity itself, according to the rate of carbon sequestration in the ecosystem components (biomass, soil). Such a financing instrument may stimulate substantially the interest in land use improvement by afforestation of badlands, which are found in a large proportion in Eastern Europe.

Under the joint implementation mechanism approach, one of the environmental services provided by forest ecosystems, namely the sequestration of CO₂ (associated with its global atmospheric greenhouse warming effect) could be satisfactorily quantified, compared to the difficulties in accurate quantification of other services (soil and water protection, biodiversity conservation, landscape improvement, communities and crops protection). Despite the apparent emphasis on carbon sequestration in afforestation projects (due to its importance as a financial instrument) the afforestation activity target several environmental and social benefits at local and global level.

Although the global effect of afforestation on climate is still subject to debate (due to long term processes involving carbon sequestration, unpredictable late effects, associated uncertainties and large risks) this is for the moment the only accessible and easy-quantifiable forest activity associated with carbon sequestration.

The abundance of the agricultural badlands available for afforestation may raise significantly the positive effect of this activity at global level. In the temperate area of Europe, the potential for carbon sequestration in stable pools, of young plantations established on low degraded soils over 15th years of production cycle is presented in Table 1.
Table 1. Carbon sequestration in young plantations established in Romania

<table>
<thead>
<tr>
<th>Species</th>
<th>C (Mg/ha) accumulation* in …</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biomass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stems</td>
<td>Foliages</td>
<td>Branches</td>
<td>Roots</td>
<td>Total biomass</td>
<td>Soils (including litter)</td>
</tr>
<tr>
<td>Quercus sp.</td>
<td>6.0 – 8.0</td>
<td>0.5 – 0.6</td>
<td>4.0 – 5.5</td>
<td>4.5 – 6.0</td>
<td>15.0 – 20.1</td>
<td>5.5 – 7.5</td>
</tr>
<tr>
<td>Populus sp.</td>
<td>19.0</td>
<td>1.2</td>
<td>3.0</td>
<td>8.2</td>
<td>31.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Robinia sp.</td>
<td>5.0 – 22.0</td>
<td>0.3 – 1.4</td>
<td>5.5 – 11.3</td>
<td>2.2 - 9</td>
<td>12.5 – 43.7</td>
<td>4.0 – 15.0</td>
</tr>
<tr>
<td>Pinus sp.</td>
<td>2.2 – 6.0</td>
<td>0.4 – 0.9</td>
<td>0.5 – 1.3</td>
<td>0.7 – 3.5</td>
<td>3.8 – 11.7</td>
<td>1.0 – 2.3</td>
</tr>
</tbody>
</table>

* According to the CO2Fix parameterised according to the Romanian yield tables and other national data

During the young stages of stands, an important share of the total carbon allocation is in the biomass: 80-86 % in conifers and 73-76 % in broadleaved trees, compared to soils allocation: 14-20 % in conifers and respectively 24-27 % in broadleaved trees. Accordingly, some vulnerability is associated with stable pools of carbon on a long term, as above ground biomass may be exposed to different risks (fires, illegal cutting, grazing etc.).

Strategically the afforestation increases the wood resources not only for timber or rural construction, but it also supplies the “carbon neutral” combustible, an alternative to the present large use of fossil fuels. This is another important contribution of forest and its wood products to climate change mitigation in a sustainable pattern, associated with the promotion of tradition preservation in rural communities as appropriate alternative to the existing competing alternative forms of energy.

An optimisation of the local/regional communities’ resources requires a balance between the land uses as well as the integration of the wide range of local activities. Improvement of degraded lands by afforestation is a way to establish a local-regional resource balance and to approach challenging environmental problems like desertification or social problems associated with poverty in rural areas. In this sense is recommended that the afforestation projects are located in such areas, where environmental-social and financial synergies are needed to address and such issues in a sustainable manner.

Afforestation activities under Kyoto protocol raise important questions and uncertainties related to biodiversity conservation. Large areas to be afforested may represent (stable?) agro-ecosystems where specific biodiversity assessment is required, although long-term intensive management via soil works and irrigation/fertilization have created large and uniform agro-ecosystems, where only crops may be different among parcels. A significant problem is represented by the afforestation of pastures or grazing lands, as relatively stable bio systems, which often are treasures of biodiversity in terms of species or ecosystem structures, even if they have been managed for a long time. In such cases the change of
land use implies risks for biodiversity, while targeting multiple environmental benefits (including carbon sequestration) by changing the land use to forest plantations is not recommended. Still a decision of land use change would be taken according to the local circumstances and biodiversity impact assessment.

One major issue in biodiversity approach is represented by afforestation species. Generally, the afforestation work is considered as an “ecological reconstruction”, which means the re-establishment of the type of forest specific to the local soil and climatic conditions. Local tree species and provenances are used for this action. In such cases the reconstruction focuses only on trees species, counting on natural migration of animals and micro-organisms (litter and soil fauna and flora). In the case of isolated plantations on former long term managed cropland and far from the natural (old) forests, the sources for micro-organism migration are lacking, and this almost always leads to high accumulation of necromasis in the top soil, which is associated with high amount of carbon stored; meanwhile the stable humus transformation is also reduced. Consequently appropriate measures should be taken via the artificial transfer of microorganisms or by appropriate spatial linkages to the existing forests. Particular biotopes may raise real problems in biodiversity approach (moving sand dunes, salty soils, heavily degraded soils, etc). Traditionally, certain forest species are known as successful for the afforestation of all types of such lands. Since the majority of these species are exotic ones, the problem of substituting them with local or at least improving the plantation composition with local species is of great concern. One of such examples is black locust (Robinia) which is very productive, stable and minimal management demanding on moving sand dunes, where option for forest structure improvement with other species seems to be limited. One option could be the use of indigenous poplar in the afforestation formula; this would also increase the associated fauna population, and offer significant chances for sustainable management.

Specific management of plantations on sandy dunes, over the very early stages of development (1st and likely 2nd growing season) may have side effects on GHG balance of the soils due to fertilization and irrigation of other associated crops (i.e. water melon) established between planted tree rows. The use of ammonia nitrate may be followed by nitrate release in the atmosphere, an effect that has to be quantified. Irrigation is not expected to create additional release of carbon from such soils since their former management type is continued, so a certain the soil-atmosphere carbon balance is established.

To address leakages, a relevant question is if the compensation measures (especially for the benefits of the local communities) which are taken to achieve the successful implementation of the afforestation projects are going to be quantified in terms of GHG emission / sequestration. An example of such a compensation measure could be the improvement of the quality of pastures or grazing land for communities adjacent to the planted areas, which include small patches of trees plantation as shelter for livestock. Associated to this, both an increase of the carbon stock in the soil and a certain increase of the livestock will occur. Since those activities are taking place outside the boundary of the
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project but in the vicinity and as a consequence of it, are they subject only to the general GHG inventory or the GHG effect must be quantified and included in the project carbon calculations?

FINANCIAL SERVICES

Carbon sequestration may act as a financial incentive for the improvement of land use, mostly in the case of medium and heavy degraded lands on slopes with eroded soils in dry areas, which otherwise would remained abandoned. The share of afforestation costs covered by the value of the carbon sequestered could represent about 20 % of the total cost of afforestation. In the case of abandoned agricultural land or low degraded lands (which need less site preparation work and maintenance) the income from carbon sequestration may cover circa 40 - 50 % of the total afforestation cost. Additional environmental benefits like biodiversity one should be reflected in the price of CO₂, as a “biodiversity incentive”. Spatial pattern of plantations related to the existing forests could be also taken into account for the carbon price for gene flow and genetic pollution consideration (see Table 2).

Table 2. Proposed comparative bonuses for carbon price

<table>
<thead>
<tr>
<th>Tree species</th>
<th>Landscape approach</th>
<th>Bonus (1 = unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local species</td>
<td>Isolated plantations</td>
<td>&lt; 1</td>
</tr>
<tr>
<td></td>
<td>- Small patches</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Large areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adjoined or connected to existing natural forests</td>
<td>1</td>
</tr>
<tr>
<td>Exotic species</td>
<td>Isolated plantations</td>
<td>&lt; 1</td>
</tr>
<tr>
<td></td>
<td>Adjoined or connected to existing natural forests</td>
<td>0</td>
</tr>
</tbody>
</table>

The patterns of biomass and consequently carbon accumulation in plantations on badlands largely depend on the specific biological features of the tree species that are used (Figure 1), as well as on the afforestation schedule, considering that early plantations will produce early accumulation and likely environmental associated effects.
Actually the type and the intensity of soil degradation, the climatic conditions and the management purposes determine the assortment of species to be used, usually from a limited number of options. The improvement of degraded land by afforestation is associated with a trade off between the management purposes and the limited available site resources for forest establishment and growth. Traditionally, on heavy and medium eroded soils some exotic species are recommended, while low degraded soils are suitable for local indigenous species (specific to the natural type of forest in that area). Sustainability of forest in such areas is related to a certain management type adapted to the local environment, which actually contributes to the selection of the most suitable species (e.g. sprouting species are preferred to non-sprouting ones or those yielding other economic advantages than wood). In this respect some exotic species naturalized in Romania, like *Robinia pseudoacacia*, are the only viable solution for certain types of site (sandy dunes), where any local indigenous species has no chance to reach a minimum level of productivity or even to survive. In such situations these species show very convenient carbon sequestration patterns compared to local tree species, and thus contributing significantly to the afforestation cost coverage.

**AFFORESTATION JOINT IMPLEMENTATION PROJECTS IN THE NATIONAL FORESTRY CONTEXT**

Afforestation of degraded lands is already a traditional practice based on an almost one century experience in Romanian forestry. Appropriate technologies have been developed and refined in order to ensure afforestation success for different kinds of degraded land. Related to forestry and land use change, the main requirement of the Kyoto protocol is to set additional demonstrable sequestration of carbon by forest activities. The resources allocated for an afforestation joint implementation project should not hamper other similar activities of the implementation agency or the national pattern of afforestation. Within their boundaries the afforestation projects should demonstrate carbon accumulation. In the national context, it is the responsibility of both the implementation agency and the national authority of forests to avoid leakages like deforestation, increased allowable cut and to allocate financial resources for the project sustainability.
In the last two years the state forest administration and the Prototype Carbon Fund have developed an afforestation project under the JI mechanism. The project contributes to the expansion of forest areas in the low land of Romania, an area with limited forest resources and affected by excessive dry periods, desertification and increased poverty of the local communities.

Afforestation activities in such a project improve and strengthen significantly the cooperation between the scientists - philosophers of science, practitioners and environmentalists, in such a way that a basis for long-term partnership is established.

In the case of the above mentioned afforestation (which includes about 6,700 ha of degraded lands in south Romania) the project yields a without-carbon IRR of 2.04 % equivalent to a NPV of -$732/ha at 5 % discount rate, and a with-carbon IRR of 3.86 % equivalent to a NPV of -$272/ha. Estimated IRR values without carbon for pure black locust stands are 6.1 %, 4.3% and 1.5% for site classes II, III and IV respectively. Site Class V does not yield an IRR as costs are greater than potential revenues. Still relatively low, the IRR values do not reflect the social and environmental benefits of the afforestation.

THE AFFORESTATION OF BAD LANDS AND CARBON SEQUESTRATION

The many benefits associated with the afforestation projects improve the integrity of actions targeting the climate change mitigation as well as the processes related to the Kyoto Protocol. Vegetation establishment on badlands is associated in many cases with low productivity of the established forests due to the site conditions, and this creates difficulties in predicting and quantifying the carbon accumulation.

Project baseline – carbon approach

To demonstrate scientifically the accumulation of carbon in an afforestation project, the actual carbon stock in the soils of the area to be afforested should be determined just before the afforestation work starts. This should address both scientific issues (in terms of replicable techniques laboratory, statistical frame and quality assurance) and practical approach (field actions and duties, level of precision, achievable targets etc.). A correct baseline survey implies the stratification of the land to be afforested in homogenous strata from the point of view of carbon in the soil, largely variable with the soil type and land use type. Recent history of lands in terms of soil works carried out is also important, and the same type of soil preparation over a long period creates a certain carbon balance with the atmosphere. In this respect the soils under agricultural crops may be considered in a steady carbon balance with the atmosphere and tillage of soil as part of the site preparation for the afforestation is not associated with an increase of carbon release from soils. In the case of pasture lands an increase of carbon release from soils is expected during the site/soil preparation works and consequent soil maintenance operations. The minimal area to be
considered as a separate stratum in the baseline study and then in the carbon monitoring is still a matter of debate, but mainly the decision would be based on the differences between carbon stocks in various types of soils/sites included in the project.

**Predicting and validation of the carbon accumulation**

Several scenarios regarding the carbon accumulation in the project may be considered and accordingly several options would be available for the project negotiation and only one for the purchase agreement (Figure 2). According to the recent developments regarding the afforestation activities based on scientific achievements, there is a statistical evidence of carbon sequestration in the biomass (foliage, stems and branches, roots) and soil (litter and organic matter in the soils) over short time periods.

All three scenarios presented in Figure 2 represent “bona fides” estimates of the accumulation of the carbon in the afforested area, as each approach is based on certain requested input data and computation pattern. Consequently large uncertainties are associated with simulation of carbon accumulation in afforested areas, which is actually a continuous challenge for the scientists. How to solve in a satisfactorily manner the very practical aspects of the project in relation to the tradable amount between partners still remain under discussion.

One available option is to choose the minimum predicted accumulation in the project, which allows both partners to be pretty sure about the achievability of the carbon target of the project. This would also allow the seller to get the market price at the moment of delivering for the extra-carbon sequestered in case of better performance of the project, if initial purchase contract did not state otherwise.

In the case of the Romanian afforestation project (Figure 2), the field measurements done in adjacent plantations to the project area showed a higher amount of carbon than predicted with CO2Fix, mainly due to specific ecosystem processes (low rate of decomposition of necromasis) and the higher growth rate of the stand than the initially predicted one. Field estimation of carbon requests an appropriate approach for ecosystem components (stems, branches, foliage, necromasis, soil) both in terms of the method and the statistical frame adopted. The maximum yield approach could as a basis for a carbon purchase agreement.
could be risky in terms of carbon availability in the initially predicted timeframe, but additional measures as “hot air” compensation for non-performance projects could guarantee the transaction amount initially planned. Still, in such cases the real success of the project is under high uncertainties both in terms of environmental/social issues at local/global level as well as the environmental integrity of the Kyoto Protocol.

**Carbon monitoring**

Once the project implementation starts, the amount of carbon sequestered have to be quantified (estimated) at certain intervals of time, with the purpose to assess the project performance and to balance the cash flow between partners. The monitoring activities are suppose to identify any change of the size of the afforested area included in the project, any major damage that may disturb significantly the carbon accumulation process and to quantify the carbon stock at the initially established monitoring periods.

The monitoring activity should be carefully considered in terms of costs and desired objectives to be reached, since an increase of precision imply a larger number of permanent monitoring plots, which leads to an increased cost. Due to current progress in the laboratory techniques it is expected that in the near future high performance devices will be used for carbon measurement.

Biomass and soil assessment have to be done. Due to high phenological stages in forests, the right moment for the biometrical and soil measurement should be the one showing stable accumulation of carbon in the ecosystem parts, which may be the end of the summer, just before the leaf fall.

**Biodiversity monitoring**

The biodiversity gains associated with the afforestation work should be also monitored. A simple and economically key parameter may be assessed over the project period; perhaps the biodiversity gains generated by land use change from degraded agricultural land to forest require a more careful and multilateral study approach, beyond the pragmatic monitoring purposes in order to fulfil the Kyoto requirements.

**CONCLUSION**

Afforestation of badlands may be financially supported via sequestered-carbon transactions specific to the joint implementation mechanism under the relevant articles of the Kyoto Protocol, which could also be an incentive for national resource mobilisation for the afforestation of the degraded agricultural lands. Multi-benefits of the afforestation work associated with local population and local environment remain important objectives as well as all the synergies between them. The improvement of land use by afforestation contributes substantially to the environmental integrity of the Kyoto Protocol and the mitigation of the climate change effects.
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TOPIC 3.3: INNOVATIVE PRODUCTS AND USES
Modeling and forecasting the demand for sawnwood in western Europe from an end-use perspective

Paper by Mr. Anders Baudin, Professor, Forest Product Market Analysis, School of Industrial Engineering, Växjö University, Sweden

ABSTRACT
The traditional analysis of sawnwood demand is based on the aggregate relationship between sawnwood consumption and GDP. Sawnwood is, however, used in a variety of sectors with different consumption patterns. To account for the specific characteristics of end-uses sector models are applied. Sector classification is undertaken, a data base is constructed, and econometric models are specified for the activities in these sectors and, in some applications, for the market share of sawnwood in the sector to account for substitution. This approach has been used in analysing and forecasting the demand for sawnwood in Sweden, Norway, United Kingdom and Germany. In some of the applications, Seemingly Unrelated Regressions (SUR) and Vector AutoRegression (VAR) models are used.

Keywords: Econometric models, end-use analysis, sawnwood demand, sector models, Seemingly Unrelated Regressions, substitution, Vector Autoregression.
**Utilisation finale des sciages en Europe: aperçu des méthodes et des résultats**

Séance thématique III

Document établi par M. Anders Baudin, École d’ingénieur, Université de Växjö, Suède

**RÉSUMÉ**

Les volumes de sciages utilisés pour les différentes applications ne sont quasiment jamais connus. Les organisations de la filière ni aucune autre autorité ne recueillent de statistiques qui permettraient d’avoir une indication de l’utilisation des sciages dans tous les pays. L’industrie des sciages aurait pourtant tout à y gagner car ces informations sont un outil essentiel pour la prise de décisions en matière de commercialisation et de vente auprès des différentes catégories de clientèle. En l’absence de données concrètes sur la consommation de sciages par catégorie d’utilisateurs, des indications peuvent être obtenues par des méthodes de calcul en suivant le développement des secteurs les plus importants d’utilisation finale. La méthode proposée dans le document repose sur les données officielles relatives au logement, à l’investissement dans la construction de différentes catégories de biens immobiliers tels que les bâtiments à usage industriel, les bureaux, les établissements scolaires, les infrastructures de génie civil, etc. Des produits finis tels que les fenêtres, les portes, les revêtements de sol, les aménagements intérieurs, etc., seront l’objet de l’analyse. Les séries chronologiques obtenues pourraient servir de base à des projections, en appliquant différentes méthodes telles que analyse de coïntégration, régressions sans relations apparentes, VAR, etc.

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**Анализ конечных видов использования пиломатериалов в Европе - обзор методов и результатов**

Документ, подготовленный сотрудником факультета промышленного инжиниринга Университета города Вёкшё, Швеция, г-ном Андерсом Баудином,

**Резюме**

В документе отмечается дефицит информации об объемах пиломатериалов различного назначения. Местные организации и официальные органы, как правило, не занимаются сбором статистики, которая могла бы пролить свет на то, каким образом в той или иной стране используются пиломатериалы. Вместе с тем для самой отрасли такая информация имеет исключительно важное значение, поскольку она может повлиять на решения, касающиеся сбыта и продаж пиломатериалов различным категориям потребителей. В отсутствие реальных данных о моделях потребления пиломатериалов той или иной категорий потребителей индикативные данные могут быть получены методами расчетов на основе отслеживания тенденций в наиболее важных конечных секторах. Предлагаемый в документе метод разработан на базе официальных данных, касающихся жилищного строительства, инвестиций в строительство различных категорий объектов, таких как промышленные здания, учреждения, школы, объекты гражданского назначения и т.д. Анализ охватывает также продукты конечного потребления, таких, как окна, двери, полы, внутренние перегородки и т.п. Получаемый временной ряд может стать основой прогнозов с использованием различных альтернативных методов, такие, как коинтеграционный анализ, кажущиеся несвязанными регрессии, VAR и т.д.
INTRODUCTION

The demand for sawnwood is generally analysed on an aggregated level, where the most important explanatory variables in econometric models are GDP (FAO, 1985), construction (Martin et al, 1988) or an end-use indicator (FAO/ECE, 1986). Sawnwood is, however, used in a number of sectors and its consumption pattern differs substantially among sectors. One important determinant of sawnwood demand is substitution, which is difficult, if it all possible, to analyse on an aggregate level since the underlying consumption patterns vary considerably between sectors. The conclusion is that end-use (or sector) analysis is essential for understanding the behaviour of sawnwood demand; specifically because substitution requires disaggregated analysis and each sector has its own consumption pattern that should be accounted for in the analyses.

OBJECTIVES

The objective of this paper is to present the methodology of constructing the data base, sector modelling and forecasting sawnwood consumption in a given country from the standpoint of (end-use) sector classification. More precisely, the objective is

- to specify homogenous sectors with respect to sawnwood consumption
- to produce a time series data base for sawnwood consumption by sector for analysis and forecasting
- to specify a set of models that explain consumer behavior in the sectors that are based on sound theoretical formulation and practical consideration
- to use the estimated model system to produce forecasts.

The objective of this paper is to give an overview of the research in this field, an outline of modelling approaches and to present some aggregate results with examples of details.

DATA

No time series data base exists for any country regarding quantities of sawnwood consumption by sector. Cross sectional studies may exist for some years that provide us with quantitative information about sawnwood used in various sectors. Here, a methodology has been developed based on previous studies (e.g Cardellichio & Veltkamp, 1981) to construct a consistent time series data base for end-uses of sawnwood. Existing cross sectional end-use studies constitute one piece of information necessary for construction of approximate historical data. The other source is time series data from available construction and industry statistics for the country studied. By combining these different data sets an annual data base is set up that covers the period from, say, 1980 to the present day. One complication, however, is that for a given country, sector classifications in cross-sectional studies are often inconsistent over time.
The classification of end-use sectors depends on the availability of data and the objective of analysing homogenous sectors with respect to sawnwood demand. The sector classification in Table 1 is appropriate for the United Kingdom.

Table 1. Sector classification for the United Kingdom.

**Construction**
- New dwellings
  - Private
    - Traditional
    - Timber framed
  - Non private; 'Public' and 'Housing Associations'
    - Traditional
    - Timber framed
- Non-domestic constructions
  - Education
  - Health
  - Industries
  - Commercial
  - Other non-domestic constructions
- Other construction
  - Civil engineering
  - Scaffolding
  - Portables
  - Agricultural/horticultural (which are not dwellings)
  - Mining and quarrying
  - Repair, Maintenance and Improvement (RMI)

**Joinery**
- Windows
- Doors
- Floors
- Stairs and ladders
- Fencing

**Furniture**

**Packaging incl pallets**

**Do-It-Yourself (DIY)**

**Other uses**
Here, joinery is not included in construction to avoid double-counting. Joinery is partly used in RMI, but is here included under joinery. 'Other uses' include mouldings, glue-laminated wood, coffins, specially treated wood, instruments etc. The sector classification varies among countries because of different consumption patterns and differences in available data.

The data used in the construction of the database are essentially based on building, construction, other industrial statistics (production, imports and exports) and national accounts data. Price and cost data are obtained from Central Statistical agencies as well as from sector organizations.

Key numbers are essential for constructing the time series of sawnwood used in the sectors. For new housing, time series of the number of housing starts exist in official publications. Cross sectional studies may give the amount of sawnwood used per dwelling. Multiplication of the key number by the number of housing starts give approximate quantities of sawnwood used for new housing. Similar calculations are undertaken for other sectors where the key numbers may be the amount of wood used per invested GBP, for instance. All information of variation over time for key numbers exist, it is used in constructing the time series database.

The estimated consumption of soft sawnwood in Sweden is given in Figure 1 for the period 1985 to 2002 with the corresponding classification in Sweden. Here the total is the officially reported level of sawnwood consumption.

A pilot study was carried out for Norway (Baudin & Solberg, 1986, 1987 and 1989) with only five end-use sectors analysed. In the Swedish study (Baudin, 1989A, 1989B and 1990, Lönner 1991) 14 sectors were analysed and forecast, and in the UK study (Baudin,
1992, 1993) 19 sectors were analysed and forecast. In a study for Germany, 21 sectors were investigated (Flinkman, 1993, 1994). An update for Sweden was done by Dackling (2001).

The time series obtained are short both for modeling and proper long term forecasting purposes. This, however, is the only data set available at this detailed level.

The second step of the forecasting procedure involves the specification and estimation of econometric demand models. The third step entails forecasting of demand by using input forecasts on exogenous variables (GDP; private consumption, interest rates, inflation etc) from national sources, such as NEDO in the UK, the IFO-institute in Germany and the Swedish Government's Long-Term Studies.

MODEL FORMULATION

The demand for sawnwood and its substitutes is basically a function of the variation and level of activity in the different economic sectors which use forest products. It is also a function of the intensity of their utilization for different end uses. The level of consumption of sawnwood is therefore affected both by changes in the level of activity of the end use sectors and by changes in the patterns of use (substitution).

Models of this type are intended to cover two alternative aspects of sector demand: demand for wood products in the sector in terms of units produced, production value etc. or demand for the sector's output, where wood is one of many competing products.

Priority is given to primary data in the analysis; estimated quantities of sawnwood used in sectors are not included in the econometric models. In forecasting sawnwood consumption for dwellings, for instance, the number of dwellings produced is the target variable. Only at the final step of the forecasting procedure are key numbers such as the assumed average use of sawnwood per dwelling etc. used to make final calculations of quantities of sawnwood used in the sectors.

The econometric models can be classified as combined factor/consumer demand models, derived from the following considerations.

(i) Total production in sector m can be represented by a twice differentiable production function

\[ y_{mt} = y_{mt}(v_{mt}, z_{mt}, t) \]  

where \( y_{mt} \) is the production output from sector m during time period t

\( v_{mt} \) is the input of sawnwood in sector m during time period t

\( z_{mt} \) is a vector of other production inputs in sector m during time period t

\( t \) is a time index representing technological change; \( t = 1, \ldots, T \).
Minimizing costs subject to (1) and with prices given, Shepard's lemma implies that producers' demand for sawnwood in sector m during time period t will be

\[ v_{mt} = v_{mt}(y_{mt}, p_{0t}, p_{1t}, \ldots, p_{nt}, t) \tag{2} \]

where \( p_{0t} \) denotes the unit price of sawnwood during time period t; \( p_{1t}, p_{2t}, \ldots, p_{kt} \) are unit prices of other inputs in sector m; and \( p_{k+1t}, \ldots, p_{nt} \) are unit prices of all other goods during time period t.

Now, \( y_{mt} \) is determined by consumer demand. If the utility function is maximized for individual i subject to income constraint \( I_{it} \) we obtain

\[ y_{mt} = y_{mt}(p_{0t}, p_{1t}, \ldots, p_{nt}, I_{it}) \tag{3} \]

where \( y_{mit} \) is the ith individual's demand for product m during time period t.

On the assumption that identical and homotetic utility functions exist (i.e., income changes do not alter proportions) an aggregation across individuals gives

\[ y_{mt} = y_{mt}(p_{0t}, p_{1t}, \ldots, p_{nt}, Y_{t}) \tag{4} \]

where \( Y_{t} \) is the average per capita income during time period t.

According to information theory, it is reasonable to assume that time is needed for consumers (whether they are 'individuals' or 'organizations') to react to changes in income or prices. Thus time \( t \) is included in the model as an explanatory variable, giving

\[ y_{mt} = y_{mt}(p_{0t}, p_{1t}, \ldots, p_{nt}, Y_{t}, t) \tag{5} \]

Alternatively, and using the same argument, lagged variables can be included in the model. The dependent variable can be lagged as can independent variables.

Now, combining (2) and (4), we obtain

\[ v_{mt} = h_{mt}(p_{0t}, p_{1t}, \ldots, p_{nt}, Y_{t}, t) \tag{6} \]

The data quality does not permit \( v_{mt} \) to be used directly in the analysis, since only estimated quantities of sawnwood are available. Instead, primary data are used: the number of dwellings, the number of windows, the value of wooden packaging etc. When primary data are available, key numbers are applied to them, e.g., the sawnwood content per dwelling, per window, per GBP of sales of wooden packaging, to give us sawnwood consumption forecasts.

The estimated sector models are log-linear, where coefficients are directly interpreted as elasticities.

A log-linear model for a given sector is specified as

\[ \ln y_{i} = \alpha + \beta_1 \ln x_{1i} + \beta_2 \ln x_{2i} + \ldots + \beta_p \ln x_{pi} + u_i \tag{7} \]
where $\ln y_t$ denotes the natural logarithm for the dependent (endogenous) variable time period $t$ and $\ln x_{1t}, \ldots, \ln x_{pt}$ are logarithms of independent (exogenous) variables in (6). $\alpha, \beta_1, \ldots, \beta_p$ are coefficients to be estimated and $u_t$ is a random error with zero expectation and constant variance.

Lagged endogenous and exogenous variables can also be included in (7).

If residual analysis reveals that the model is not in equilibrium, differencing is used to achieve stationarity (Banerjee et al. 1993). For the United Kingdom, equation (7) is estimated for 11 sectors (Table 2).

<table>
<thead>
<tr>
<th>Sectors analysed by applying econometric models in the United Kingdom.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwellings</td>
</tr>
<tr>
<td>Furniture</td>
</tr>
<tr>
<td>Stairs</td>
</tr>
</tbody>
</table>

The sector models seem to be unrelated, but there are common underlying structures, e.g., construction, the general trend and the business cycle. Consequently, Seemingly Unrelated Regression (SUR) procedures are applied (Zellner, 1962) since the overall precision of the models is expected to be improved if SUR-estimation is applied.

In the Swedish study, substitution analyses are carried out and particular issues of investigation considered in the Swedish analyses (Baudin, 1990) are the reasons for substitution:

(i) Is the substitution between different materials based on price competition?
(ii) Is it a cost based substitution?
(iii) Is substitution balanced by income factors?
(iv) Does substitution depend on other factors such as fashion, legislation, technology which are not included in cost or price variables?

Substitution is considered from the viewpoint of competition between sawnwood and alternative materials such as metals, fibreboard, particleboard, plastic materials, etc. The market share of sawnwood is defined as value share, volume share or surface share depending on the character of data available. For sectors where data on substitutes for sawnwood are available, the market share for sawnwood, denoted $g_{m}$ in sector $m$, is analysed to find the causes of substitution.
The most important explanatory factors of the behaviour of the market share $g_m$ are expected to be the real price of sawnwood ($p_{wt}$) and a vector of prices of substitutes ($p^*_{i,t}$). Other important explanatory factors are real private consumption ($pc_t$) and unit labour costs ($c_t$). The reason for including private consumption is that, with varying income, household preferences may change to other materials. Unit labour costs, $c_t$, are included to take application costs into consideration: Materials associated with lower application costs may be favoured at the expense of materials with higher application costs. Furthermore, a time trend variable ($t$) is introduced to represent other factors such as technology, fashion and legislation. Time lags of dependent and independent variables are introduced to 'explain' the inertia of the model system.

The market share model is then:

$$g_m = g_m(p_{wt}, p^*_{i,t}, t, pc_t, c_t, u_t)$$

(8)

Here, $u_t$ is a random error with zero expectation and constant variance. Since the market share, $g_m$, lies in the range (0,1) the functional specification of (8) should be chosen to meet this requirement. One such specification is the logistic function, which is s-shaped ranging from 0 to 1.

Defining $X_t$ as the vector of independent variables, $p_{wt}, p^*_{i,t}, t, pc_t, c_t$, the specification of (8) is

$$g_m = \frac{1}{1 + \exp\left(-\left(\alpha + \beta X_t + u_t\right)\right)}$$

(9)

This nonlinear expression can be transformed to a linear function, a logit model:

$$\log it_{m,t} = \alpha + \beta X_t + u_t$$

(10)

Here, $\log it_{m,t}$ is the logit transform $\ln\left(g_m / (1 - g_m)\right)$. In some model specifications the lagged dependent variable $\log it_{m,t-1}$ is included as an explanatory variable in (10) as are lagged independent variables.

With respect to the limited number of observations available and the obvious risk of multicollinearity, all variables in (7) and (10) cannot be estimated simultaneously. Therefore, a step by step procedure is applied where subsets of variables are tested and at the final stage a combination of important variables from the subsets has been retained. The procedures are manual and the choice of model is governed more by economic considerations than by significance criteria.

Substitution analysis is not carried out for the United Kingdom and Germany. Preliminary analyses for these countries revealed that the market share for sawnwood is rather constant over the observation period and, furthermore, since data for wooden materials (wooden
doors, wooden windows etc.) exist, substitution analysis is not necessary. This means that, for these countries, model (7) is applied directly to the sectors, and that, e.g., the number of wooden windows, value of sales of wood furniture etc. are analysed based on the log-linear approach.

For Sweden, the model outline is presented in Figure 2 where the upper part includes the substitution (logit) models and the lower part the sector models.

**Figure 2.** A model of the demand for sawnwood in Sweden.

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**MODEL ESTIMATION**

Examples of models are shown here rather than complete sets. From the set of 11 equations estimated by SUR for the United Kingdom, the equations for dwellings and windows are shown in Tables 3 and 4.

**Table 3.** Estimated model for housing starts in the United Kingdom.

Dependent variable: lnHS, the natural logarithm of housing starts  \[ R^2_{\text{adj}} = .68 \]
Time period analysed: 1970 - 90 (annual data)       $s_c = .15$

$DW = 1.45$

<table>
<thead>
<tr>
<th>Variable</th>
<th>Elasticity</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnR</td>
<td>-.3505</td>
<td>-3.09</td>
</tr>
<tr>
<td>lnI</td>
<td>.6822</td>
<td>2.88</td>
</tr>
<tr>
<td>t</td>
<td>-.0474</td>
<td>-7.54</td>
</tr>
</tbody>
</table>

Independent variables:

lnR, the natural logarithm of the (nominal) interest rate
lnI, the natural logarithm of real gross fixed capital formation
t, a time index; t=1 for 1970, t=2 for 1971 etc.

Different specifications have been tested, including the price index of new housing, the real interest rate, inflation, private consumption etc. The nominal interest rate is included in the model since it can be expected to reflect the buyers' long-term cost expectations. Gross fixed capital formation is included since it can be expected that the incentives for the consumers investments in new housing are the same as the reasons for their investments in industry and the public sector. The trend is negative, indicating a decline in new housing when all other factors are kept constant. This can be an effect of long-term demographic factors such as the decline in the number of households and/or the decreasing share of young people in society.

Table 4. The estimated model for the demand for wooden windows in the United Kingdom.

Dependent variable: lnWIN, the natural logarithm of the number of wooden windows produced in the UK       $s_c = .06$

$R^2_{adj} = .83$       $s_c = .06$

$DW = 1.88$

<table>
<thead>
<tr>
<th>Variable</th>
<th>Elasticity</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnHS</td>
<td>.4571</td>
<td>8.47</td>
</tr>
<tr>
<td>lnRMI</td>
<td>.8723</td>
<td>9.98</td>
</tr>
<tr>
<td>DUM73</td>
<td>.3022</td>
<td>9.26</td>
</tr>
</tbody>
</table>

Independent variables:

lnHS, the natural logarithm of housing starts,
ln RMI, the log of real investment in repair, maintenance and improvement of construction
DUM73, a dummy variable, unity for 1973 and zero elsewhere.

Among the explanatory variables in this model are variables that are endogenous in other models (cf. the model for housing starts in Table 3). Here, the obvious reason is that windows are included in new buildings and repair and maintenance (RMI). The
coefficients are positive: increased building activity implies increased demand for wooden windows. The elasticities are, however, less than one which can be an indication of substitution. A dummy variable is included for the extreme year 1973.

Model (10) is applied for substitution analyses. In the estimation, special attention is paid to the multicollinearity problem. Here, only one example will be shown: the market share model of packaging in Sweden (Table 5).

**Table 5.** A model of the market share of wood in packaging in Sweden.

Dependent variable: Logit of the (value) market share for wood in packaging

Time period analysed: 1970 - 1986 (annual data). \( R^2_{adj} = .83 \) \( s_e = .09 \) \( DW = 1.74 \)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-2.6254</td>
<td></td>
</tr>
<tr>
<td>( t )</td>
<td>-.032325</td>
<td>-7.1</td>
</tr>
<tr>
<td>( p_t )</td>
<td>-.004616</td>
<td>-2.6</td>
</tr>
<tr>
<td>( p_{1t-1} )</td>
<td>-.013136</td>
<td>-2.6</td>
</tr>
<tr>
<td>( p_{2t-1} )</td>
<td>.021952</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Here, \( p_t \) denotes the real unit price of sawnwood; \( p_{1t} \) is the real producer price index of paper and paperboard; and \( p_{2t} \) is the real price index of chemical products (an indicator for the price of plastic films).

The price coefficient of sawnwood is negative, which is expected from theory, while the coefficient of prices of chemical products is positive, indicating substitution between the products. The coefficient of paper and paperboard is negative which indicates that the two materials do not compete in the same segment. The trend factor is negative which means that, with all other factors constant, sawnwood will lose market share.

To obtain a figure for the level of sawnwood consumption for packaging, the market share model is supplemented by a model of the demand for packaging. The results for Sweden are shown in Table 6.
Table 6. A model for the total consumption of packaging in Sweden.

Dependent variable: The natural logarithm of the total sales of packaging in Sweden (million SEK).

Time period: 1970 - 86. \[ R^2_{\text{adj}} = .76 \quad s_e = .04 \quad \text{DW} = 2.20 \]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Elasticity</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnMX\textsubscript{t}</td>
<td>.754514</td>
<td>2.6</td>
</tr>
<tr>
<td>t</td>
<td>.043431</td>
<td>5.6</td>
</tr>
<tr>
<td>lnC\textsubscript{t}</td>
<td>1.374601</td>
<td>6.4</td>
</tr>
</tbody>
</table>

The index of industrial production in the manufacturing industry (MX) is an important explanatory variable, as expected. The trend factor is also important - this is positive indicating overall growth in the packaging industry. More surprising is the cost factor which has a positive sign. This could be an expression of indirect factors indicating that increased consumption of packaging materials follows from higher wages. The model fit is shown in Figure 6.

**FORECASTING**

To obtain forecasts of the endogenous variables of the model system the exogenous variables of the system must be forecast. The forecasting procedure is based on the following conditions:

(i) Official macroeconomic forecasts of GDP, Private consumption, Gross fixed capital formation etc. are used as exogenous inputs to the estimated model system

(ii) For those variables where official forecasts are not available, ARIMA-modelling (Box & Jenkins, 1976) is used to establish projections. This is the case for variables such as price levels, inflation, interest rates etc. Low and high forecasts are compared to average projections, where the low/high values are given by 75% confidence limits of the ARIMA projections. Alternatively, multivariate methods such as Vector ARIMA (VARIMA) or Vector Autoregression (VAR, e.g. Lütkepohl, 1993) are applied.

(iii) For the UK and Germany, the econometric system is estimated using SUR. Forecasts of exogenous variables are, for Germany, obtained by VAR models (Flinkman 1994).

The observations to 1988 and forecasts to year 2000 of the end-uses and total sawnwood consumption in Sweden for the main alternative forecast are presented in Table 7. We can now compare with the outcome that indicates an underestimation of the total consumption.
Table 7. The consumption of sawnwood in Sweden classified by end-use. Observations are up to and including 1988 and forecast are up to and including year 2000. Main forecast alternative. Note: Joinery includes windows, doors, flooring, moulding and interior fittings (thousand cubic meters). RMI is Repair, Maintenance and Improvement.

<table>
<thead>
<tr>
<th>Year</th>
<th>Construction</th>
<th>Joinery</th>
<th>Furniture</th>
<th>Packaging</th>
<th>Treatment</th>
<th>RMI</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>1773</td>
<td>435</td>
<td>289</td>
<td>1351</td>
<td>294</td>
<td>81</td>
<td>716</td>
<td>4938</td>
</tr>
<tr>
<td>1975</td>
<td>1853</td>
<td>484</td>
<td>331</td>
<td>947</td>
<td>455</td>
<td>111</td>
<td>863</td>
<td>5045</td>
</tr>
<tr>
<td>1980</td>
<td>1298</td>
<td>453</td>
<td>240</td>
<td>983</td>
<td>461</td>
<td>140</td>
<td>1121</td>
<td>4696</td>
</tr>
<tr>
<td>1985</td>
<td>795</td>
<td>409</td>
<td>214</td>
<td>900</td>
<td>490</td>
<td>290</td>
<td>455</td>
<td>3553</td>
</tr>
<tr>
<td>1988</td>
<td>1148</td>
<td>516</td>
<td>230</td>
<td>1086</td>
<td>550</td>
<td>270</td>
<td>900</td>
<td>4700</td>
</tr>
<tr>
<td>1990</td>
<td>923</td>
<td>559</td>
<td>232</td>
<td>958</td>
<td>575</td>
<td>296</td>
<td>691</td>
<td>4234</td>
</tr>
<tr>
<td>1995</td>
<td>772</td>
<td>497</td>
<td>215</td>
<td>935</td>
<td>722</td>
<td>322</td>
<td>644</td>
<td>4107</td>
</tr>
<tr>
<td>2000</td>
<td>721</td>
<td>463</td>
<td>203</td>
<td>813</td>
<td>854</td>
<td>357</td>
<td>590</td>
<td>4001</td>
</tr>
</tbody>
</table>

In the FAO-forecast of 1985, the consumption level in the year 2000 was expected to be around 5.6 million cubic metres. This can be compared to the forecasts of FAO/ECE, the high and low alternatives of which are 5.0 million and 4.5 million cubic meters, respectively. The FAO/ECE came close to the outcome. It should, however be mentioned that the time series of sawnwood consumption was revised at the end of the decade and a measurement error of approximately one million cubic meters was discovered.

The main advantage of the end-use approach is that substitution is accounted for and consequently the forecasts are less optimistic, and so far more realistic, than in the aggregate approaches.

Alternative forecasts of the demand for sawnwood in the sectors can be derived with the objective of demonstrating forecast uncertainty. By adding the low and high alternatives, respectively, an aggregate picture of the inherent uncertainty of the forecasts can be established.

DISCUSSION

This paper presents an overview of methods used for obtaining a deeper understanding of the inherent patterns of use of sawnwood in some countries in West Europe. In situations where end-use data are not available, which is most frequently the case, the methods used here may serve as guidelines for similar studies in other countries having the same purpose. Furthermore, the methods used reveal that it is possible to specify and estimate sector demand models. It is then possible not only to study total demand in a sector but also to find reasons for substitution. Generally it has been found that macro-economic factors such as GDP play a less dominant role in end-use analysis than in aggregate analyses. Instead, factors such as investment, interest rates, industrial production and prices of final products are important determinants of sector growth in sector models.
Substitution, in positive or negative directions, occurs as a consequence of price changes for sawnwood relative to competing products. One consequence is that the forecasts obtained from end-use analysis differ substantially from those obtained from more aggregate analyses. In general, the end-use (disaggregate) analyses give lower projections than those obtained from aggregate analyses.

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The United Kingdom wood for good programme

Paper by Mr David Bills,
Director General, Forestry Commission of Great Britain, the United Kingdom

ABSTRACT

This promotion programme is perhaps unique as it involves both countries exporting to the UK and domestic forest growers and processors. The programme has recently completed its third year and has been reviewed by independent consultants. There have been significant changes in attitude towards timber by consumers and by specifiers (architects and engineers).

The promotion has involved TV and printed media and has focused on consumers, opinion leaders and on specifiers. The advertising has been supported by technical information made available via traditional and electronic means. As well as a strong message on the design and utility advantages of timber there has been a strong environmental message. There has also been a focus on new or innovative uses of timber. Some of these are genuinely new, others new in the context of the British market. The paper will outline the programme – summarise the findings of the review and describe the recent innovative uses featured in the promotion.
Le programme «Wood for good» du Royaume-Uni

Document établi par David Bills,
Directeur général de la Commission forestière de Grande-Bretagne, Royaume-Uni

RÉSUMÉ

Ce programme de promotion a peut-être ceci d’unique qu’il fait participer à la fois les pays exportateurs vers le Royaume-Uni et les entreprises nationales d’exploitation des forêts et de transformation du bois. Il a récemment achevé sa troisième année d’application et des consultants indépendants en ont fait le bilan. On a pu constater d’importants changements d’attitude des consommateurs et des prescripteurs (architectes et ingénieurs) à l’égard du bois.

La promotion a fait appel aux chaînes de télévision et à la presse, en ciblant particulièrement les consommateurs, les personnalités influentes et les prescripteurs. Aux messages publicitaires s’ajoutaient des informations techniques accessibles par les voies habituelles mais aussi par les moyens électroniques. Un message fort sur les avantages du bois en termes de conception et de qualité s’accompagnait d’un message écologique fort.

Программа Соединенного Королевства "Древесина на благо процветания"

Документ, подготовленный Генеральным директором Комиссии по лесоводству Великобритании, Соединенное Королевство, г-ном Давидом Биллом,

РЕЗЮМЕ

Эта программа пропаганды использования древесины, возможно, является уникальной в своем роде, поскольку в ней участвуют как страны, экспортирующие лес в Соединенное Королевство, так и национальные производители и деревообрабатывающие предприятия. Программа проводится уже три года; она была проанализирована независимыми консультантами. Отмечались значительные сдвиги в улучшении отношения к лесопродуктам со стороны потребителей и специалистов (архитекторов и инженеров).

В пропагандистских мероприятиях принимали участие телевидение и печать, а их основными объектами были потребители, лица, формирующие общественное мнение, и специалисты. Рекламная кампания подкреплялась технической информацией, которая распространялась через традиционные и электронные каналы. Мощный призыв к пониманию значения и полезности лесоматериалов сопровождался не менее мощным призывом к бережному отношению к природе.
SESSION IV: STRATEGIES FOR SOUND USE OF WOOD IN CENTRAL AND EASTERN EUROPE
The wood market in central and eastern Europe

Paper by Mr. Leonard Padureanu, Financial Manager, National Forest Administration, Mr. Gheorghe Florian Borlea, Forest Research & Management Institute, and Mr. Sabin Bratu, Head of the Commercial Office, National Forest Administration, Romania

ABSTRACT

The wood market in central and eastern European countries (CEEC) has had a sinuous evolution in the last decade. The lack of information on development of wood markets in some CEEC countries is still important.

The price of wood in this sub-region is a market driven price, established according to demand and supply. The relation between forestry enterprises and wood buyers is a commercial relation. Most CEEC countries have invested in marketing in order to provide the sound use of wood as natural resource. All CEEC are interested in developing strategies to use wood and wood waste as raw material for energy generation, but only some of the CEEC have invested in it. At present forest enterprises from CEEC use their own regulations and standards for timber assortments with internal use for domestic market (their main customer). The European standards for wood assortments are used mainly at customer's demand in international trade.

Forest certification in CEEC has been imposed by the market and both recognized schemes (FSC and PEFC) exist. Romania and some other CEEC consider that in the long term they should elaborate their own forest certification system, compatible with FSC.

After a decline at the beginning of the transition period in CEEC, the production, trade and consumption of forest products increased in the last two years, and the commercial flow with Western Europe has been intensified. The forecast for 2003 indicates an increase of the production, trade and consumption of wood products in this sub-region.
Le marché du bois en Europe centrale et occidentale

Document établi par M. Leonard Padureanu, Directeur financier, Administration nationale des forêts, M. Gheorghe Florian Borlea, Institut de recherche et de gestion forestières, et M. Sabin Bratu, chef du Bureau commercial, Administration nationale des forêts, Roumanie

RÉSUMÉ

Le marché du bois dans les pays d’Europe centrale et orientale a eu une évolution erratique au cours des 10 dernières années. Le manque d’information sur le développement des marchés du bois dans certains pays d’Europe centrale et orientale est toujours important.

Le prix du bois dans cette sous-région est fonction du marché et il suit l’offre et la demande. La relation entre les entreprises forestières et les acheteurs de bois est d’ordre commercial. La plupart des pays de la sous-région ont investi dans la commercialisation afin d’assurer l’utilisation rationnelle du bois en tant que ressource naturelle. Tous les pays de la sous-région souhaitent élaborer des stratégies visant à utiliser le bois et les déchets du bois comme matière première pour la production d’énergie, mais seuls quelques-uns ont investi dans la recherche. À l’heure actuelle, les entreprises forestières des pays d’Europe centrale et orientale appliquent leur propre réglementation et leurs propres normes pour les assortiments de bois utilisés sur les marchés nationaux (leur principal client). Les normes européennes applicables aux assortiments de bois sont utilisées principalement dans les échanges internationaux, à la demande du client.

La certification des forêts dans les pays de la sous-région a été imposée par le marché et les deux systèmes reconnus (celui du Forest Stewardship Council – FSC et le Programme européen – PEFC) existent. La Roumanie et certains autres pays estiment qu’à longue échéance ils devront élaborer leur propre système de certification des forêts, en veillant à ce qu’il soit compatible avec le FSC.

Après un recul enregistré au début de la période de transition, la production, le commerce et la consommation de produits forestiers dans les pays d’Europe centrale et orientale ont augmenté ces deux dernières années et les courants commerciaux avec l’Europe occidentale se sont intensifiés. Les prévisions pour 2003 font apparaître une augmentation de la production, du commerce et de la consommation des produits forestiers dans cette sous-région.
Рынок древесины в странах Центральной и Восточной Европы

Документ, подготовленный распорядителем финансов Национальной лесной администрации г-ном Леонардом Падуряном, сотруднику Научно-исследовательского института по вопросам лесоводства и управления г-ном Георге Флорьаном Борля и директором Коммерческого управления Национальной лесной администрации г-ном Сабином Брату, Румыния

Резюме

Рынок древесины в странах центральной и восточной Европы (СЦВЕ) в последнее десятилетие претерпевал подъемы и падения. Характерным для этого этапа является факт отсутствия информации о развитии рынков древесины в некоторых странах СЦВЕ.

Цена на древесину в этом субрегионе определяется рынком в зависимости от спроса и предложения. Взаимоотношения между лесозаготовительными предприятиями и покупателями древесины строятся на коммерческой основе. Многие страны СЦВЕ вкладывают средства в мероприятия по маркетингу древесины с тем, чтобы обеспечить ее рациональное использование как природного ресурса. Все СЦВЕ заинтересованы в таких стратегиях развития, которые способствовали бы использованию древесины и отходов древесины в качестве сырьевого материала для производства энергии, но лишь отдельные страны СЦВЕ в действительности вкладывают в это средства. В настоящий момент лесозаготовительные предприятия СЦВЕ пользуются собственными правилами и стандартами для сортировки лесоматериалов, которые предназначены для отечественных рынков (их основные потребители). Европейские стандарты сортировки древесины используются в основном в международной торговле по требованию клиентов.

Сертификация лесов в СЦВЕ осуществляется под давлением рынка. Одновременно действуют признанные схемы ИПС и ОЕСЛ. Румыния и некоторые другие СЦВЕ считают, что в перспективе им следует разработать собственную систему сертификации лесов, которая была бы сопоставимой с ЛПС.

После спада в начале переходного периода в СЦВЕ производство, торговля и потребление лесопродуктов в последние два года стали увеличиваться, а торговые обмены со странами Западной Европы стали более интенсивными. Прогнозы на 2003 год указывают на возможное увеличение производства, торговли и потребления продуктов из древесины в этом субрегионе.
Improvement of the organization of forest use in Russia

Paper prepared by the representative of the Russian Union of Timber Producers and Exporters, Russia

ABSTRACT

Issues of forest use in Russia, the preservation of forests’ ecological potential and the establishment of favourable conditions for the operation of the forest products sector have in the past year been subjects of intensive discussion not only by the direct participants in forestry practices in Russia - forest managers and industries, but among the general public, and also in various executive and legislative bodies. One example of this is the International Forestry Forum, “Forest and Man”, which was held in Moscow in September 2002 and brought together more than a thousand participants, including people from 62 foreign countries. Such discussions have resulted in a number of programme documents on the development of Russia’s forest sector. These include the National Forest Policy and proposals for making important changes in Russia’s Forest Code, and the Russian Government-approved Main Guidelines for the Development of the Forestry Sector until 2015.

The problem, however, is that these proposals at the practical level - in terms of effective forest use - have not as yet made a significant impact. According to data from Russia’s Ministry of Natural Resources, no more than 25% of the allowable cut has been utilized in any of the last few years. One of the reasons for this is certainly the non-regulation and often inconsistency in the methodology of forest management.

The tasks to be accomplished in the immediate future may therefore be said to include the following:

- Completion of the development and approval of the National Forest Policy at the highest level;
- Completion of the development (review) of the legislative framework for forest management in Russia, and especially the Forest Code of the Russian Federation;
- Formulation of a national system of voluntary forest certification, making it an integral part of international certification systems;
- Review of the many laws and regulations and methodological documents governing forest use and bringing them into conformity with today’s political, economic and environmental realities and with the requirements of national forest policy;
- Establishment of an effective system for constantly upgrading the skills of the directors and specialists concerned with practical issues related to the organization of forest use in the regions.

The above tasks should be accomplished drawing on the wealth of international experience and recommendations of specially constituted interdisciplinary expert groups. Experience with the establishment of such groups has been gained by the Russian Union of Timber Producers and Exporters and it has shown its effectiveness.

Key words: forest policy, forestry legislation, forest management, organization of forest use.
Amélioration de l’exploitation des forêts en Russie
Document de base, établi par le représentant de l’Union des producteurs et exportateurs de bois de Russie

RÉSUMÉ
Les problèmes liés à l’exploitation forestière en Russie, à la préservation du potentiel écologique des forêts et à la création des conditions favorables aux activités du secteur forestier ont fait l’objet l’année passée de débats intenses de la part non seulement des parties directement intéressées – gestionnaires des forêts et producteurs de bois – mais aussi de l’opinion publique, ainsi que de divers organes du pouvoir exécutif et législatif. On citera pour exemple le Forum international sur la foresterie «L’homme et la forêt» organisé à Moscou en septembre 2002, qui a rassemblé plus de 1 000 participants, dont les représentants de 62 pays étrangers.


Toutefois, ces travaux n’ont encore débouché sur aucune mesure concrète concernant l’aménagement des forêts. Selon le Ministère russe des ressources naturelles, le taux de réalisation des coupes prévues n’a jamais dépassé 25 % au cours des dernières années. L’une des raisons en est évidemment l’absence de réglementation, ainsi que, bien souvent, le manque de cohérence des méthodes de gestion des forêts.

Les questions à régler dans un avenir très proche seront donc, notamment, les suivantes:

• Élaboration et approbation au plus haut niveau de la politique nationale de la forêt;
• Mise au point (révision) du cadre législatif de l’aménagement des forêts, à commencer par le Code forestier de la Fédération de Russie;
• Mise en place d’un système national de certification forestière, sur une base volontaire, faisant partie intégrante des systèmes de certification internationaux;
• Révision des nombreux textes normatifs et relatifs aux méthodes de production qui régissent l’activité du secteur forestier, en vue de les adapter aux réalités politiques, économiques et écologiques d’aujourd’hui et aux principes directeurs de la politique nationale de la forêt;
• Création d’un système efficace de formation continue (perfectionnement) des responsables et des spécialistes chargés des aspects pratiques de l’aménagement des forêts au niveau régional.

Ces questions doivent être réglées en tenant compte de l’expérience riche d’enseignements acquise au plan international et des recommandations formulées par des groupes d’experts interdisciplinaires ad hoc. L’expérience obtenue dans la création de tels groupes par l’Union des producteurs et exportateurs de bois de Russie s’est révélée particulièrement utile.

Mots clefs: politique forestière, législation forestière, exploitation forestière, aménagement des forêts.
Совершенствование организации лесопользования в России

Основой документ, подготовленный представителем Союза лесопромышленников и лесэкспортеров России, Россия

РЕЗЮМЕ

Проблемы лесопользования в России, сохранения экологического потенциала лесов, создания благоприятных условий для работы лесопромышленного комплекса, на протяжении последнего года являлись предметом интенсивного обсуждения не только непосредственных участников лесных отношений в России – лесохозяйственников и лесопромышленников, но и общественности, а также различных инстанций исполнительной и законодательной власти. Примером может служить проходивший в Москве в сентябре 2002 г. Международный лесопромышленный форум «Лес и человек», собравший свыше тысячи участников, в том числе из 62 зарубежных стран.

Результатами таких обсуждений стали ряд программных документов по развитию лесного сектора России. Это и «Национальная лесная политика», и предложения по внесению важных изменений в Лесной Кодекс России, и одобренные Правительством России «Основные направления развития лесопромышленного комплекса до 2015 г.» и др.

Однако проблема заключается в том, что эти программные проработки на практическом уровне – реального лесопользования - пока не сказались. По данным Министерства природных ресурсов России, уровень освоения расчетной лесосеки все последние годы не превышал 25%. Одной из причин этого, безусловно, является неурегулированность, а часто, и противоречивость методологии организации лесопользования.

Поэтому к числу задач, подлежащих решению в самое ближайшее время, можно отнести следующие:

- Завершение разработки и утверждение на самом высоком уровне Национальной лесной политики
- Завершение разработки (пересмотра) законодательной основы лесопользования в России, в первую очередь, Лесного Кодекса Российской Федерации;
- Формирование национальной системы добровольной лесной сертификации, органично входящей в международные сертификационные системы;
- Пересмотр многочисленных нормативно-правовых и методических документов, регламентирующих деятельность в сфере лесопользования, их приведение в соответствие с политическими, экономическими и экологическими реалиями сегодняшнего дня, с постулатами национальной лесной политики;
- Создание эффективной системы непрерывного повышения квалификации руководителей и специалистов, занятых практическими вопросами организации лесопользования в регионах.

Перечисленные задачи должны решаться с учетом богатого международного опыта и рекомендаций специально создаваемых междисциплинарных экспертных групп. Опыт создания таких групп наработан Союзом лесопромышленников и лесэкспортеров России и показал свою эффективность.

Ключевые слова: лесная политика, лесное законодательство, лесопользование, организация лесопользования,
По запасам лесных ресурсов Россия является безусловным мировым лидером. Покрытая лесами территория России составляет 64.6% и равна 774.3 млн. га. Общий запас древесины достигает 81.9 млрд. куб. метров, что в 4 раза больше, чем в США (20.3 млрд. куб. метров), в 40 раз больше, чем в Швеции (2.1 млрд. куб. метров), почти в 16 раз больше, чем в Финляндии (5.1 млрд. куб. метров). Запасы спелых и перестойных насаждений составляют 44 млрд. куб. метров.

Определяемая лесоводственными и экологическими требованиями годовая расчетная лесосека по рубкам главного пользования составляет 551 млн. куб. метров. Ее использование в последние годы составляет 22-24 процента.

Так, в 2000 году по рубкам главного пользования заготовлено 130 млн. куб. метров, а в 2001 году – 126 млн. куб. метров. Кроме того, при проведении рубок промежуточного пользования и прочих рубок ежегодно заготавливается около 40 млн. куб. метров древесины.

Столь невысокий уровень использования древесных ресурсов имеет под собой ряд причин, в основе которых лежит затянувшийся по времени переход от плановой экономики и рыночной в сфере лесопользования. Важнейшими из них являются устаревание основных фондов лесозаготовительных предприятий, низкий и неравномерный по регионам России спрос на продукцию лесозаготовки, высокий уровень затрат на транспортировку древесины по территории России и т.п. Особое место среди причин, непосредственно влияющих на уровень лесопользования в России, безусловно, занимает несовершенная нормативно-правовая база организации лесопользования.

Принципиальное изменение ситуации в лесном секторе страны, увеличение степени использования национальных лесных богатств, требует формирования и последовательной реализации национальной лесной политики, которая была бы одобрена на самом высоком уровне и адекватно воспринята всеми участниками лесных отношений.

Еще в 2002 году, по инициативе наиболее крупной и авторитетной общественной организации российского лесопромышленного комплекса – Союза лесопромышленников и лесозэкспортеров России, - была создана Рабочая группа, в которую вошли представители министерства природных ресурсов (МПР) России, министерства промышленности, науки и технологий (Минпромнауки) России, администраций многолесных регионов России, организаций лесного хозяйства и предприятий лесной промышленности и научных центров страны.

Цель Рабочей группы - разработка основных положений национальной лесной политики Российской Федерации, которая призвана стать «общественным договором» между всеми субъектами лесных отношений, устанавливая для них «правила игры» в виде экономического, правового и организационного механизмов реализации положений этой политики.
Лесная политика — многоплановый документ, в котором максимально учитываются особенности макрорегионов, резко отличающихся друг от друга по характеру роли лесов, условиям их использования, формированию лесных рынков, внешнеэкономической деятельности, приоритеты развития отраслей ЛПК.

Не секрет, что наиболее слабым звеном в деятельности лесопромышленного комплекса страны является отсутствие в ряде лесопокрытых регионов возможностей переработки мелкотоварной и низкосортной древесины, отсутствие достаточного количества производственных мощностей. Поэтому крайне важно развивать отечественные конкурентоспособные лесоперерабатывающие производства.

В территориальном плане значительного расширения использования лесов необходимо достичь в Центральном, Южном и Уральском регионах России, там, где более всего развиты транспортная, энергетическая инфраструктура и потребительский рынок.

Приоритетной является также задача стимулирования глубокой переработки древесины в Дальневосточном регионе, который ориентирован на Японский, Китайский и рынки Азиатско-Тихоокеанского региона.

Одним из центральных звеньев национальной лесной политики является совершенствование нормативно-правовой базы лесопользования.


Кроме того, в области лесопользования действует более 30 нормативно-правовых актов, утвержденных Правительством Российской Федерации и федеральными органами управления лесными ресурсами, в которых недостаточно полно, а зачастую и противоречиво отражены отношения, которые возникают между участниками в рыночных условиях.

Вот только два примера несовершенства действующего законодательства:

1. Практика применения действующего Положения об аренде участков лесного фонда убедительно свидетельствует о необходимости пересмотра отдельных его условий. В частности, требуют пересмотра условия предоставления участков лесного фонда в аренду без проведения конкурсов по решениям администраций субъектов Российской Федерации на срок от 1 года до 5 лет. При этом арендатору не гарантируется пролонгация аренды даже при выполнении условий договора, что не стимулирует долгосрочные программы освоения лесосырьевых ресурсов и развития предприятий-арендаторов.

2. При продаже древесины на корню через аукционы участки лесного фонда выкапываются, как правило, непрофильными предприятиями, мелкими фирмами, которые не вкладывают средства в развитие инфраструктуры (строительство лесных дорог, содержание лесных поселков, развитие производственно-технической базы и
др.), но пользуются ими (например, существующими лесовозными дорогами, построенными основными лесозаготовителями). Отсутствие такого рода затрат позволяет этим предприятиям предлагать более высокую плату за древесину, отпускаемую на корню, и выигрывать на лесных аукционах.

Кроме того, в соответствии с законодательством ряд лесопользователей имеют возможность получать участки лесного фонда для заготовки древесины на льготных условиях. Ежегодный объем льготного отпуска древесины, заготавливаемой лесозаготоза Росии, составляет более 20 млн. куб. метров, организациями Минсельхоза России – 9 млн. куб. метров, другими мелкими лесозаготовителями (на основании решений органов исполнительной власти субъектов Российской Федерации) - 33 млн. куб. метров. Указанные объемы составляют около 37% от общего объема заготовки древесины по Российской Федерации. Заготовленная на льготных условиях древесина часто продается по демпинговым ценам как внутри страны, так и на экспорт.

Сложившееся положение с области нормативно-правового обеспечения лесопользования вызывает справедливую критику со стороны многих участников лесных отношений, в первую очередь, лесопользователей.

Проект Лесного кодекса, подготовленный в сентябре 2002 г. МПР России, также подвергся критике лесной общественностью.

По инициативе Союза лесопромышленников и лесоэкспортеров России прошло широкое обсуждение этого проекта.

Предложения, которые выработаны по результатам этого обсуждения, сводятся к тому, что действующий сегодня Лесной кодекс должен быть уточнен и дополнен. Основными направлениями такой доработки являются:

1. четко определить в Кодексе следующие права пользования участками лесного фонда: аренду, концессию и краткосрочное пользование.
2. уточнить понятия, которые определяют условия преемственности прав пользования участками лесного фонда, в частности, предусмотреть залог права пользования, введение которого позволит улучшить финансово-экономическое состояние лесозаготовительных предприятий путем привлечения дополнительных инвестиций.
3. отменить статью Кодекса, предусматривающую обязательную сертификацию, приведя, тем самым, российскую практику в соответствие с практикой лесной сертификации ведущих леспромышленных стран мира, где используется добровольная лесная сертификация, осуществляемая по критериям (показателям), признанным потребителями лесобумажной продукции.
4. ввести статью «лесные дороги», в которой определить понятие и назначение лесных дорог, номинировать заказчика и источники финансирования.
строительства этих дорог. Заказчиком должен быть федеральный орган управления лесным хозяйством, источники финансирования – средства федерального бюджета, бюджетов субъектов Российской Федерации, собственные средства лесопользователей. Существующее же сегодня деление дорог в лесном фонде на лесохозяйственные, противопожарного назначения и лесовозные условное, так как лесовозные дороги используются как для вывозки древесины, так и в лесохозяйственных и противопожарных целях и, наоборот.

5. ввести лицензирование отдельных видов лесопользования, включая заготовку древесины, определить основные условия и порядок лицензирования, передав функции лицензирования субъектам Российской Федерации.

6. создать нормативно-правовую базу для передачи в концессию участков лесного фонда. Из-за отсутствия инфраструктуры лесосырьевые ресурсы в резервных лесах не осваиваются и требуются значительные капитальные вложения для развития лесозаготовок, деревообработки и выпуска конкурентоспособной продукции глубокой переработки. Передача участков в концессию способна обеспечить необходимый приток инвестиций, однако сегодня нет необходимого законодательного регулирования концессий.

7. определить участие общественности в обсуждении и решении вопросов использования, охраны, защиты лесного фонда и воспроизводства лесов.

8. ввести положения, определяющие методы и средства борьбы с незаконным оборотом древесины и порядок координации этой работы.

9. исключить льготы по платежам за пользование лесным фондом, как не рыночную норму. В случаях, предусмотренных законодательством Российской Федерации, пользователям должна выделяться финансовой помощи из бюджетов всех уровней в соответствии с действующим законодательством.

Механизм реализации рекомендаций и предложений, подготовленных лесной общественностью, Рабочей группой, Союзом лесопромышленников и лесозаводов России включает несколько инструментов. Среди них - соглашения, подписанные между Союзом и большинством федеральных министерств и ведомств о сотрудничестве в вопросах поддержки деятельности лесного комплекса, привлечение возможностей, которыми располагают общественные объединения и Союзы, профильные комитеты Федерального Собрания Российской Федерации, утверждение Правительством Российской Федерации стратегических программ, базирующихся на этих рекомендациях и др.

В то же время, среди участников лесных отношений имеется четкое понимание того, что в обеспечении нормального функционирования лесного сектора важнейшая роль принадлежит государству. По мере развития глобализационных процессов в мировой экономике, необходимости реализации обязательств вытекающих из решений конференции ООН по устойчивому развитию, Рамочной конвенции ООН
об изменении климата и Киотского протокола, объективно повышается роль государства в регулировании экономических условий для успешной реализации национальной лесной политики.

Именно поэтому предложения, подготовленные по результатам обсуждения проекта Лесного Кодекса, были направлены Союзом лесопромышленников и лесоэкспортеров России председателю Правительства Российской Федерации с просьбой обеспечить их реализацию.

В соответствии с распоряжением главы Правительства, эти предложения в настоящее время рассматриваются заинтересованными министерствами с целью их отображения в нормативно-правовой базе.

По всей видимости, новая редакция Лесного кодекса будет рассмотрена Государственной Думой еще в первом полугодии т.г.

Представитель Союза лесопромышленников и лесоэкспортеров России

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The sound use of wood and other resources in Romania

Paper by Mr. Gheorghe Dumitriu-Director, Gheorghe Pirnuta-Scientific Director, Iovu Biris – Scientific Secretary and Gheorghe Florian Borlea-project leader; Forest Research and Management Institute-Bucharest, Romania

ABSTRACT

The sustainable forest management in Romania has a long tradition and the national forest area was managed in terms of the silvicultural regime (system of technical, economic and legal norms/regulations issued by the Central Public Authority for Forestry). The allowable cut is determined taking into account rotation length, average species composition, forest structure according to the site indices and the existing distribution of age classes. The actual present-day contribution of the forestry sector to the GDP show us that wood and other forest resources in Romania are still underused resources from the economical point of view. The primary wood processing sector is important but an important part of the primary and secondary timber industry has been operating in an environment of outdated technology. The main problem of the forest products industry in Romania nowadays is the poor knowledge of marketing and market information and little access to finance grants and loans. Also, the reliable and accurate information about the forest business sector is missing in the business environment. The fundamental objective of the present-day national forestry policy and strategy in Romania is the development of the forestry sector in order to increase the sector contribution to the improvement of the quality of life, based on the sustainable management of the forests. There are four principal policy statements encompassing the sustainable development of the forest resources in Romania: to ensure the management according to the principles of sustainable management of natural resources, taking into account the diversification of forest land ownership; the integration of the logging and wood processing activities within the concept of sustainable forest management, to better utilise the wood resources; to promote the development of the exploitation of forest resources, especially to the wood high added-value products, to achieve the sustainable development of the sector; to develop scientific research and education, to support the sustainable forest management, the economic development of the forestry sector and the improvement of the environment.

Key words: forest resources, sustainable forest management, forest restitution process, private forestry, allowable cut, harvested wood, wood sale policy, wood logging, wood products, wood products structure, non-wood products, biodiversity, naturalness, forestry policy and strategy
L’utilisation rationnelle du bois et d’autres ressources forestières en Roumanie

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RÉSUMÉ

L’histoire et la civilisation (une «civilisation du bois») du peuple roumain ont toujours été liées à la forêt, qui couvre la majeure partie du territoire. Les forêts ont de tout temps joué un rôle essentiel dans le développement économique et social du pays, constituant une ressource stratégique de premier plan pour l’emploi et le revenu en zones rurales, grâce aux activités d’exploitation et de transformation du bois mais aussi grâce à l’utilisation de produits forestiers autres que le bois. En Roumanie, la gestion durable des forêts procède d’une longue tradition, et les massifs forestiers nationaux sont aménagés conformément à un régime de sylviculture constitué de normes et règlements techniques, économiques et juridiques émis par l’office public central de la foresterie. La méthode appliquée actuellement pour déterminer les volumes d’abattage admissibles repose sur un système traditionnel de rendement soutenu qui tient compte de la durée de rotation, de la composition moyenne des essences et de la structure des forêts en fonction des caractéristiques du site et de la composition par âge existante. La durée de rotation est calculée selon le principe de la rente maximale et établie en fonction de l’accroissement moyen de la mesure cible dans la catégorie de dimensions, signe d’une politique prudente soucieuse de préserver l’environnement. Il ressort de la situation actuelle du secteur forestier, de son potentiel et de sa contribution au PIB qu’en Roumanie, le bois et les autres ressources forestières restent sous-exploités du point de vue économique. La capacité actuelle du secteur de la transformation primaire du bois est estimée à 17 millions de m³ par an, mais l’industrie de transformation primaire et secondaire du bois est en grande partie caractérisée par une technologie obsolète, une valeur ajoutée limitée, des connaissances insuffisantes en matière de stratégie commerciale et de caractéristiques des marchés et un accès restreint au financement par subventions ou par prêts. Les principaux organismes de soutien et de promotion des investissements extérieurs sont limités en raison d’un manque d’informations fiables et précises concernant les aspects commerciaux du secteur forestier. On compte plus de 40 donateurs (dont l’Union européenne) et institutions rattachées à ces derniers qui sont actifs, ouverts et disposés à soutenir directement ou indirectement l’investissement dans la foresterie et les activités connexes en Roumanie. Les organismes donateurs constatent que la foresterie et les activités qui s’y rattachent ne font l’objet d’aucune demande d’aide. Actuellement, la politique et la stratégie forestières nationales de la Roumanie visent principalement à développer le secteur forestier de manière à accroître la contribution de ce secteur à l’amélioration de la qualité de la vie grâce à une gestion rationnelle des forêts. La politique de la Roumanie en matière de développement durable des ressources forestières est axée sur quatre grands principes:

- Assurer la gestion en accord avec les principes de la gestion durable des ressources naturelles, en tenant compte des différents modes de propriété des terres forestières;
- Inscrive l’exploitation et la transformation du bois dans une perspective d’aménagement durable des forêts, en vue d’une utilisation rationnelle des ressources en bois;
- Promouvoir l’exploitation des ressources forestières, en particulier le secteur des articles en bois à forte valeur ajoutée, pour parvenir à un développement durable du secteur;

Intensifier la recherche scientifique et l’éducation pour favoriser l’aménagement durable des forêts, le développement économique du secteur forestier et un meilleur respect de l’environnement.
Стратегия в области обеспечения рационального использования древесины и других ресурсов леса в Румынии

Документ, подготовленный сотрудниками Института лесохозяйственных исследований и управления, Бухарест, Румыния, г-ном Георге Думитриу, г-ном Георге Парнютой, г-ном Ийову Биризом и г-ном Флорьяном Борля

РЕЗЮМЕ
Вся история и цивилизация ("лесохозяйственная цивилизация ") румынского народа неразрывно связана с лесами, которые покрывают большую часть территории страны. Леса издавна играли важную роль в социально-экономическом развитии, являясь основным стратегическим источником занятости и дохода жителей сельских районов, занимавшихся лесоповалом, обработкой древесины, а также сбытом различных других лесных продуктов. Устойчивое лесоводство в Румынии имеет давние традиции, и национальные леса всегда управлялись в условиях соответствующего режима лесоразведения (на базе систем технических, экономических и правовых норм/положений, разработанных центральным государственным управлением по делам лесного хозяйства).
Используемый в настоящее время метод определения учетной лесосеки основывается на традиционном подходе к устойчивому выходу продукции: принимается во внимание продолжительность ротации, средний состав видов, структура леса и соответствующие показатели участков и возрастные параметры. Оборот рубки рассчитывается с учетом принципа максимальной платы и устанавливается согласно показателю среднего прироста деревьев соответствующего класса, что согласуется с политикой сохранения лесов с учетом экологической составляющей. Нынешняя ситуация, потенциал и размеры вклада отрасли в ВВП свидетельствуют о том, что древесина и другие лесные ресурсы в Румынии до сих пор с экономической точки зрения остаются недостаточно используемыми ресурсами. Сегодняшние мощности деревообрабатывающего сектора по расчетам составляют 17 млн. кубометров в год. Вместе с тем значительная часть предприятий первичной и вторичной обработки действуют на базе устаревшего оборудования, производят продукты малой добавленной стоимости, обладают недостаточными знаниями в области маркетинга, плохо знакомы с функционированием рынка и почти не имеют доступа к финансовым субсидиям и кредитам. Развитие основных предприятий, которые стремятся поддерживать и наращивать внутренние инвестиции, сдерживается отсутствием надежной и достоверной информации о деятельности лесоторгового сектора. В Румынии действуют свыше 40 доноров (включая ЕС) и связанные с донорами учреждения, которые ведут активную, транспарентную деятельность и которые готовы поддержать прямые и непрямые инвестиции в лесоводство и мероприятия, связанные с ведением лесного хозяйства. Учреждения-доноры указывают на отсутствие просьб об оказании помощи на ведение деятельности, связанной с лесоводством. Главной задачей, поставленной в национальной политике и стратегии в области лесоводства в Румынии, сегодня является развитие сектора лесоводства в целях увеличения вклада отрасли в дело улучшения качества жизни на базе устойчивого управления лесами. Следует отметить четыре главные задачи в области политики, которые касаются устойчивого развития лесных ресурсов в Румынии:
• обеспечение управления в соответствии с принципами устойчивого управления природными ресурсами и с учетом диверсификации в сфере владения лесными хозяйствами;
• интеграция лесозаготовок и деревообрабатывающей деятельности в концепцию устойчивого управления лесами в целях более рационального использования лесных ресурсов;
• содействие рациональной эксплуатации лесных ресурсов, в особенности производству древесной продукции с высокой добавленной стоимостью, для обеспечения устойчивого развития отрасли;
• проведение научных исследований и расширение просветительской работы в поддержку устойчивого управления лесами, экономического развития сектора лесоводства и улучшения окружающей среды.
INTRODUCTION

The whole history and civilisation of the Romanian people was continuously connected to the forest covering the main part of the land area. Forests have historically played an important role in the social and economic development, providing a strategic major source of rural employment and income through wood logging and processing but also through non-timber forest products. The tradition of private forestry has been lost after 50 years of absence, and the management of these forests became a real issue for Romania. The restitution of the forest land to the ex-owners is an on-going process (around 25% of the Romania forest area is already private). In this new context, the sustainable management of the forests, the sound use of wood and of the other forest products including the conservation of the outstanding biodiversity of the natural forests of Romania, become important and actual challenges for forestry in Romania nowadays. The forest certification in Romania is considered a market tool which can also contribute to the sustainable forest management especially in the private forestry. The forestry system components must prove that they are able to make a consistent effort in a short time in order to face these challenges during the transition period.

FOREST RESOURCE AND MANAGEMENT IN ROMANIA

Forest cover 6.337 million ha, which represents 26.7% of the total area of Romania, decreasing with more than 0.76 million hectares during last century (table 1). The restitution process of the forests to the ex-owners is ongoing, and it is estimated that around 30% of the total Romanian forest area will be private. The 4.695 million ha is publicly owned at the end of the year 2002. Sixty-seven percent of the forest area is in the mountains (30% of the country), 25% in the hilly regions (37% of the country), and 8% on the plains (33% of the territory).

Table 1: The evolution of the forest area in Romania (million ha)

|------|------|------|------|------|------|------|------|------|------|

Forest composition is varied: 30.7% conifers, 30.7% beech (pure and mixed stands), 18.2% oak species, 20.4% various hard and soft broad-leaves. Standing volume is about 1.350 million m3/ha and the average growing stock is 217m3/ha. In 2002 there was 0.28 ha of forest per capita.
Table 2: The allowable cut and the annual wood harvest evolution in Romania
(source Bud, 2000; National Forest Administration)

<table>
<thead>
<tr>
<th>Period (year)</th>
<th>Total allowable cut (million m3)</th>
<th>The wood harvest (million m3)</th>
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<tr>
<td>1918-1923</td>
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</tbody>
</table>

The low values of the annual wood harvest in the last period is similar to other European countries with important mountain forest areas. The correlation between the period with high values of the annual wood harvest and floods is a subject of discussion in Romania.

The sustainable forest management in Romania has a long tradition and the national forest area was managed in terms of the silvicultural regime (system of technical, economic and legal norms/regulations issued by the Central Public Authority for Forestry). The main
characteristics of Romanian forest management are: functional repartition by forest zone, the maintenance of natural composition in forests; the utilization of natural regeneration, maintenance of a high-level rotation age for native forest species, utilization of adequate treatments to maintain the ecological balance, evolution towards multi-use forests. The current method used to determine the allowable cut is based on a traditional sustained yield approach: takes into account rotation length, average species composition, forest structure according the site indices and the existing distribution of age classes. Rotation length is calculated according to the maximum rent principle, and have been set according to the average increment of the target dimensional class, reflecting a conservative policy with an environmental dimension. The current structure of age classes result in a reduced share of exploitable forests with important consequences for the wood industry (Sustainable Forest Management in Romania-National Forest Administration 2000).

THE USE OF WOOD AND OTHER FOREST PRODUCTS IN ROMANIA

The development of the wood industry in Romania starting at the end of the XIXth century was characterised by a favourable environment based on high quality raw material, low prices of wood and existing demand on the labour market. At the beginning of the XX century, the share of foreign investments was 70% in total wood industry and 40% in the paper and pulp industry (Bud -2000). Wood imports represented 0,65% (65 millions $) of total Romania imports in 1999 and wood exports represented 5,8% of total Romania (489,4 million $). The wood industry sector employed: 67,000 people for the woodworking industry, 20,800 people in the pulp and paper industry and 104,000 people in the furniture industry, at end of year 2000. The actual situation, the potential and the contribution of the sector to the GDP (5,9% din GDP in 2000) show us wood as forest resource in Romania like still underused resources.

Table 3: The use of wood for industrial purposes in Romania (% of total harvested wood)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>35</td>
<td>49,1</td>
<td>52,1</td>
<td>52,1</td>
<td>60,3</td>
<td>71,2</td>
<td>75</td>
<td>66</td>
</tr>
</tbody>
</table>

source Bud,2000 and ASFOR*-Professional Association of Foresters from Romania

A great discrepancy between the percentage of forests within the country area and the insignificant contribution of sylviculture- as forestry system component- to the GDP was reported for the period 1990-1996. During that period, when a centralised system to set floor prices for auctions (the starting prices for various species and dimensional classes) did not consider local conditions. The wood prices policy was adjusted in time, especially for the high quality wood, (fig. 1). The national forest administration which has been for a long time the main actor for the forest management in Romania, improved his wood sale
policy working with three types of contracts: for short-terms, for middle terms and for long terms (up to 10 years), for different types of clients in close connection with the direct sound use of resource. The new type of long-term contract between National Forest Administration and selected companies (minimum 3 years, maximum 10 years) for standing timber is stipulated in the Governmental Ordinance/2002. This new type of contract will be available for selected companies producing secondary wood products only, as a result of auctions. The companies will be accepted to compete in auctions if they have the capacity to use minimum 20,000 m3 of wood/year/company and the total amount available for long term contracts will not exceed 20% of total allowable cut, each year. This seems to be a very important tool in order to improve the environment for the direct investments in the wood industry sector in Romania. It is expected that the wood price policy will be further improved with the EU accession process.

**Wood products industry**

The present-day capacity of the primary wood processing sector is estimated at 17 millions cubic meters per annum, but an important part of the primary and secondary timber industry has been operating in an environment of outdated technology, limited added value, poor knowledge of marketing and market information and little access to finance (grant and loan). National exports of wood and wood products in 1997 were estimated at 10% of the country’s total exports. Exports of wooden products, excluding furniture, were 356 million $ 1997, out of which the European Union accounted for 31%, and 410 million $ in 2000. The State owned logging and wood processing sector was supported by a centrally planned economy before 1991. Log prices were kept artificially low and Eastern Europe, ex-USSR bloc countries and the Middle East were the most important markets. The processing sector specialised in producing high quantities of low quality output. Naturally, in the context of missing investments in the sector and because these markets have declined rapidly after 1990, the privatisation of the state owned forest industry complexes started in early 1990s. The consequences were the closure of many large units of forest industry and a rapid growth in the number of new privately owned and operated sawmills. From 107 wood processing companies, and 244 companies in total wood industry in the year 1990, at the end of year 2000 there were around 4000 wood processing companies and around 7000 companies in total wood industry, but 96.5% of them were small and medium sized (less than 500 employees). Most primary processing companies undertake their own logging, although increasingly, small private logging companies are supplying logs to wood processing customers.
Table 4: Aspects of wood products evolution - the total production in Romania (furniture not included)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Sawn-wood m³</th>
<th>Conifers Sawn-wood m³</th>
<th>Beech Sawn-wood m³</th>
<th>Oak Sawn-wood m³</th>
<th>Veneer mill.m²</th>
<th>Plywood mill.m²</th>
<th>Particle-board tonnes</th>
<th>Fibre-board tonnes</th>
<th>Pulp, paper, paperboard &amp; articles tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1938</td>
<td>2.238</td>
<td>2.050</td>
<td>92</td>
<td>67</td>
<td>1.9</td>
<td>6.8</td>
<td>-</td>
<td>-</td>
<td>94</td>
</tr>
<tr>
<td>1948</td>
<td>2.176</td>
<td>1.967</td>
<td>92</td>
<td>67</td>
<td>0.5</td>
<td>5.7</td>
<td>-</td>
<td>-</td>
<td>110</td>
</tr>
<tr>
<td>1950</td>
<td>3.559</td>
<td>3.252</td>
<td>224</td>
<td>63</td>
<td>1.3</td>
<td>15.1</td>
<td>-</td>
<td>-</td>
<td>153</td>
</tr>
<tr>
<td>1955</td>
<td>3.218</td>
<td>2.549</td>
<td>503</td>
<td>136</td>
<td>4.2</td>
<td>30.7</td>
<td>-</td>
<td>-</td>
<td>190</td>
</tr>
<tr>
<td>1960</td>
<td>3.928</td>
<td>2.800</td>
<td>933</td>
<td>139</td>
<td>11.8</td>
<td>67.7</td>
<td>31</td>
<td>-</td>
<td>232</td>
</tr>
<tr>
<td>1965</td>
<td>5.004</td>
<td>2.912</td>
<td>1.627</td>
<td>254</td>
<td>24.5</td>
<td>199.7</td>
<td>124</td>
<td>139</td>
<td>508</td>
</tr>
<tr>
<td>1994</td>
<td>1.723</td>
<td>891</td>
<td>548</td>
<td>88</td>
<td>37</td>
<td>90</td>
<td>200</td>
<td>103</td>
<td>897</td>
</tr>
<tr>
<td>1995</td>
<td>1.637</td>
<td>817</td>
<td>568</td>
<td>88</td>
<td>37</td>
<td>90</td>
<td>200</td>
<td>103</td>
<td>1170</td>
</tr>
<tr>
<td>1996</td>
<td>1.767</td>
<td>1.054</td>
<td>500</td>
<td>72</td>
<td>37</td>
<td>93</td>
<td>208</td>
<td>81</td>
<td>904</td>
</tr>
<tr>
<td>1997</td>
<td>1.738</td>
<td>1.030</td>
<td>525</td>
<td>67</td>
<td>33</td>
<td>91</td>
<td>182</td>
<td>74</td>
<td>1029</td>
</tr>
<tr>
<td>1998</td>
<td>1.618</td>
<td>1.051</td>
<td>427</td>
<td>45</td>
<td>24</td>
<td>75</td>
<td>130</td>
<td>46</td>
<td>922</td>
</tr>
<tr>
<td>1999</td>
<td>1.449</td>
<td>868</td>
<td>440</td>
<td>36</td>
<td>22</td>
<td>67</td>
<td>116</td>
<td>51</td>
<td>939</td>
</tr>
</tbody>
</table>

(source Bud, N.,- 2000; Statistic Yearbook of Romania)

Table 5: The structure of production/type of products in wood processing

(125 wood processing analysed-primary data –Ministry of Industry and Trade- MIC, 2000).

<table>
<thead>
<tr>
<th>Type of products</th>
<th>No. of producing companies from the total analysed</th>
<th>%*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumber</td>
<td>113</td>
<td>90</td>
</tr>
<tr>
<td>Solid parquet</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>3-layers parquet</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Garden furniture</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Small furniture</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>Windows/doors</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td>Semi-products</td>
<td>49</td>
<td>39</td>
</tr>
<tr>
<td>Wooden houses</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Packages</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>
Table 6: The structure of the raw material used in wood processing

<table>
<thead>
<tr>
<th>Structure of timber raw material</th>
<th>No. of companies from the total analysed (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softwood (conifers)</td>
<td>84</td>
</tr>
<tr>
<td>Oak</td>
<td>65</td>
</tr>
<tr>
<td>Beech</td>
<td>74</td>
</tr>
<tr>
<td>Poplar</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
</tbody>
</table>

The activity in wood processing was directed mainly to lumber production in 2000, when analyzing the number of producing companies. Semi-products and small-furniture are also important. The timber raw material used in wood processing was mainly softwood. This is very much connected with the existing technology.

Recent developments of the wood industry sector in Romania

After 2000, there were important investments and developments in the wood industry sector in Romania. The first FSC certificated forests are reported in Romania, in 2002: National Forest Administration - Piatra Neamț Branch - 31,600 ha. This activity will continue in 2003. Actions for certification of private forests and for the certification of "chain of custody" have been initiated.

There are some important developments with important inputs in the wood industry sector in 2002:

- Gruppo Fratti, Italy, started in 1997 in Sebes
- Alba, continues the development of investments in MDF factories (input 900,000 tones of raw material/year-80% broadleaves, 20% coniferous). This is important from an ecological point of view using the wood residues.
- Finnforest Corporation- Finland invested in North of Romania (Moldova) for timber and MDF production and will invest in the South of Romania in order to build a new Pulp factory (using poplar).
- Kronno Gruppe from Switzerland, has started an important investment in the Center of Romania, Brasov- MDF factory.
Losan from Spain made in 2001-2002, an important investment for producing a veneer factory in the Center of Romania - Brasov (input logs 35,000 m³/year; output veneer: 35 millions m²/year). The development of new investments is ongoing.

Werzalit (Constantia Group), Germany, has developed in Lugoj (West of Romania) an important investment for veneer products (input logs 25,000 m³/year). The whole production is for export.

Non-Wood Forest Products

In the context of new challenges for the forestry sector nowadays, non-wood forest products related activities could be an important source of revenue for the sector. Besides traditional non-wood forest products, new products related to recreation, multi-functional role of forests, biodiversity conservation, carbon sequestration or bioenergy from wood gained importance recently.

Traditional non-wood forest products

"Traditional non-wood forest products" is an important production activity of National Forest Administration (NFA) which controls the main part of this activity in Romania: willow for wicker products, forest fruits (bilberry, raspberry, strawberry, wild rose and blackberry), mushrooms, medicinal plants, game meat, game animals, hunting, live game, fishing and trout farms, Christmas trees and foliage, forest seeds and ornamental products. 90% of the production is exported and the rest is for the domestic market. The production is regulated under the Forest Code -1996, which states that non-wood products from the “forest fund” must be harvested under technical conditions specified by the Central Authority for Forests (MAAF) including game and fish from mountain waters which must be harvested only on the basis of authorizations issued according to harvesting plan and the laws in force. Unfortunately, the private sector of traditional non-wood forest products has grown only slightly in recent years, except in mushroom harvesting. Forest management units prepare an annual production plan based on local historical data and prospective trends of market demand. The production of the traditional non-wood products recovered after a decline in 2000, with a better management of the resource nowadays.

Biodiversity and Forest Protected Areas

Romania owns very important forest biodiversity resources: 60 native tree species, 10 groups of natural forest formations and 150 types of forest ecosystems (Doniţă, Chiriţă and Stănescu - 1990). The natural capital of Romania is unique having a high bio-diversity level, due to its geographical setting:

- 3100 native species of plants, 23 species are natural monuments, 74 species are extinct, 39 species are endangered, 171 species are vulnerable and 1253 are rare species. More than 4% of plant species are endemic (57 endemic taxa and 171 sub-endemic taxa).
over 33802 animal species, 717 vertebrates (191 fish species, 20 amphibian species, 30 species of reptiles, 364 of nesting and migratory (312) birds and 102 mammal species (MWEP-2000).

Romania ratified the UNESCO World Cultural and Natural Heritage Convention, the Bern Convention for the conservation of European wildlife and natural habitats, and the Convention on Biological Diversity. With GEF support and World Bank assistance, Romania prepared the National Biodiversity Conservation Strategy and Action Plan (BSAP). In order to address priorities identified in the BSAP, with the assistance of the World Bank and GEF, the Government of Romania has prepared a Biodiversity Conservation Management Project (BCMP), which is implemented by the Ministry of Agriculture, Food and Forests (MAAF) and the National Forest Administration (NFA). The BCMP project established effective and sustainable conservation management at three largely forested areas of the Carpathian Mountains, and the mechanisms of replication of this best practice was successfully used by NFA with other priority conservation sites throughout Romania. NFA and its Research and Management Institute are very much involved together with other organisations in the implementation of other existing ongoing projects in Romania: (in connection with the Action Plan for BCM): standardisation of the protected areas in Romania-Ministry of Water and Environmental Protection-MWEP Standards forms (in process), Life-Natura, WWF Large Carnivores, PINMATRA/2001/ KNNV- (Royal Dutch Society for Nature Conservation in cooperation with IUCN and experts; Inventory and strategy for sustainable management and protection of Virgin Forests in Romania), PHARE CBC- transboundary project- Natural Park - Mures River Meadow under Directia Silvica Arad management. All these projects will lead to a national network of Forest Protected areas which could contribute to the sound use forest resources and to poverty alleviation of the local communities. The silvotourism will very much develop due to the existing NFA network of chalets.

**Carbon sequestration projects**

The legislative framework in Romania includes the Afforestation of Bad Lands Law. The financial means in order to implement this Law (in the framework of Articles 6 and 12 of the Kyoto Protocol) could be provided by the Prototype Carbon Funds -PCF funds projects or by Joint Implementation projects. The large area suitable and available for afforestation in Romania, could provide important benefits to the forestry sector by carbon trading in the context of the above mentioned mechanisms.

**FORESTRY POLICY AND STRATEGY IN ROMANIA**

The fundamental objective of the present-day national forestry policy and strategy in Romania is the development of the forestry sector in order to increase the sector contribution to the improvement of the quality of life, based on the sustainable management of the forests. There are four principal policy statements encompassing the sustainable development of the forest resources in Romania:
to ensure the management according to the principles of sustainable management of natural resources, taking into account the diversification of forest land ownership;

- the integration of the logging and wood processing activities within the concept of sustainable forest management, to better utilise the wood resources;

- to promote the development of the exploitation of forest resources, especially to the wood high added-value products, to achieve the sustainable development of the sector;

- to develop scientific research and education, to support the sustainable forest management, the economic development of the forestry sector and the improvement of the environment conditions.

CONCLUSION

The forest resource in Romania is highly valuable and the present-day level of the revenue coming from (3.2 billion $ for the annual value of all products and services provided by Romania's forest) could be improved by adequate measures. The sustainable forest management in Romania has a long tradition and actually has to face up to the new coming private forestry challenge.

The main issue facing the wood processing sector seems to be the inability of the domestic wood industry to raise loans for capital investment. The new wood sale policy includes long-term contracts in order to improve the continual supply of raw material. The wood products industry has to step toward a better co-ordination with forest administration in order to have a common policy for the sound use of forest resources. The access to information about wood market is a big issue to be solved by implementing the components of the new "Forestry Development Project" financed by WB. The valuable existing resource and the improvement of the business environment in Romania, have led to a important development of investments in the secondary wood industry. The annual value of non-wood traditional forest products is estimated at $50 million and has the potential through development to be a significant contributor to the poverty alleviation in forest areas. According to the existing situation, the strategy for the non-wood traditional forest products must include a market information system, measures to improve the products quality, timely delivery, improving packaging, processing, and transport logistics. The restitution process, should not affect the market of non-wood forest products in the context of free access to the forest and adequate legislative framework. Forest certification, biodiversity conservation and carbon trading provide unconventional opportunities for the sound use of forest resources products in Romania. The forestry policy and strategy and the existing legislation define the framework to implement investment projects for the sector: "Forestry Development Project", the SAPARD programme, the PHARE programme and others.

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***MAAP, ICAS, 2002, Criterii și indicatori pentru gestionarea durabilă a pădurilor României***
Romanian and Bulgarian responsible timber trade opportunity for the region

Paper by George Dinicu, Forest officer for WWF in Romania.

ABSTRACT

Forests in Romania and Bulgaria are some of the most biologically important temperate forests in the world. As an example, Carpathian forests belong to one of 200 most important ecoregions defined by WWF in the world.

Through the establishment of a Producer Group, WWF is currently working to promote Romanian and Bulgarian timber trade based on responsible forest management and towards the protection of those forests with outstanding or critical biological, environmental or social values defined as High Conservation Value Forests (HCVFs).

The forest sector in both countries is at present, dominated by the state and the restitution of the up to half of all forest to new owners is in progress. At the same time the importance of these forests as wood suppliers to the market is growing.

To improve forest management in these countries, support groups focused on forest managers and primary wood processors are needed. The gap between current management practices and those required for responsible management and timber trade can in some cases, especially for private forests and companies, be very wide.

A Producer Group offers forest managers and companies a program that includes basic membership requirements, routines for verification and improvement, information, training and help for them to move from current practices to the level required for certification or for achieving chain of custody.

Promoting responsible timber trade in Bulgaria and Romania through the establishment of a Producer Group and through the development of the HCVF Toolkit are activities included in the "WWF and IKEA Co-operation on Forest Projects". WWF International and the IKEA Group have joined forces to promote responsible forestry. In a three-year cooperation, the organisations will carry out a series of forest projects that will contribute to the development of global toolkits on forestry issues.

The aim of WWF through the HCVF project is to create in Romania and Bulgaria a set of practical guidelines which can be used by forest managers, standard setters, certification bodies or anyone else using the concept to identify High Conservation Values and manage High Conservation Value Forests.

Romanian and Bulgarian responsible timber trade based on responsible forest management will contribute to the sustainable management of forests in this region and also to the protection of those forests with outstanding or critical biological, environmental or social values defined as High Conservation Value Forests (HCVF).

Key words: producers group, transition timber, high conservation value forests, sustainable management, responsible management.
INTRODUCTION

Forests in Romania and Bulgaria are some of the most biologically important temperate forests in the world. As an example, Carpathian forests belong to one of 200 most important ecoregions defined by WWF in the world.

Through the establishment of a Producer Group, WWF is currently working to promote Romanian and Bulgarian timber trade based on responsible forest management, and towards the protection of those forests with outstanding or critical biological, environmental or social values defined as High Conservation Value Forests (HCVFs).

SUPPORT TO FOREST MANAGERS AND PRIMARY WOOD PROCESSORS

The forest sector in Bulgaria and Romania is at present dominated by the state and the restitution of up to half of all forest to new private ownership is in progress. At the same time the importance of these forests as wood suppliers to the market is growing. For example, in 2001 the value of Romania’s export of forest products (excluding furniture) to countries in the European Union reached 210 million Euro, and total value of exports was 474 mil Euro.

The gap between current management practices and those required for responsible forest management and timber trade can in some cases, especially for private forests and companies, be very wide. Lack of support to help managers through the improvement process and the lack of incentives for managers while improvements are underway are two of the main barriers to forest certification in many producer regions.

To improve forest management in these countries, support groups focused on forest managers and primary wood processors are needed.

To overcame these challenges mechanisms are needed that can provide support for forest managers and companies.
One such mechanism is Producer Groups, which are now being set up in many regions in the world by WWF’s Global Forest and Trade Network (GFTN). A Producer Group offers forest managers and primary processing companies a program that includes basic membership requirements, routines for verification and improvement, information, training and help for them to move from current practices to the level required for certification or for achieving chain of custody.

As a part of the WWF’s Global Forest and Trade Network the aim of the Romanian/Bulgarian Producer Group is to promote improved forest management and certification through a combination of services such as:

- Information and training on how to reach certification through a modular approach
- Links to markets for certified forest products
- Training and capacity building on RFM (responsible forest management).

**HIGH CONSERVATION VALUE FORESTS**

The WWF Carpathian Ecoregion Initiative has carried out a gap analysis of the protected area network and identified the most biodiversity significant forests which still require protection. A system of protected areas and protection for biodiversity is being developed in both countries. This is the most significant problem and challenge, requiring the development of an institutional framework and the enforcement of forest regulations, in that there is the potential if not carried out properly for major negative impacts on forest ecosystems and their biodiversity. WWF is, in co-operation with other stakeholders, currently developing a High Conservation Value Forest Toolkit, which will enable the HCVF concept to become a practical reality for responsible forestry and the protection of critical conservation values globally and in the Carpathian’s and Balkan’s region.

Promoting responsible timber trade in Bulgaria and Romania through the establishment of a Producer Group and through the development of the HCVF Toolkit are activities included in the "WWF and IKEA Co-operation on Forest Projects". WWF International and the IKEA Group have joined forces to promote responsible forestry. In a three-year co-operation, the organisations will carry out a series of forest projects that will contribute to the development of global toolkits on forestry issues. By strengthening multi-stakeholder based forest certification, and management and promoting legal compliance in forestry and trade, the projects are important steps in implementing IKEA's forest action plan and in achieving WWF's conservation goals.

High Conservation Value Forests (HCVFs) are those forests with outstanding or critical biological, environmental or social values and who posses one or more of the following globally, regionally or nationally attribute:

- HCV1. Significant concentrations of biodiversity values (endemism, endangered species.)
HVC2. Significant large landscape level forests where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.

HCV3. Forest areas that are in or contain rare, threatened or endangered ecosystems.

HCV4. Forest areas that provide basic services of nature in critical situations (watershed protection, erosion control)

HCV5. Forest areas fundamental to meeting basic needs of local communities

HCV6. Forest areas critical to local communities’ traditional cultural identity.

The aim of WWF through HCVF project is to create in Romania and Bulgaria a set of practical guidelines which can be used by forest managers, standard setters, certification bodies or anyone else using the concept to identify High Conservation Values and manage High Conservation Value Forests.

CONCLUSION

Romanian and Bulgarian responsible timber trade based on responsible forest management will contribute to the sustainable management of forests in this region and also to the protection of those forests with outstanding or critical biological, environmental or social values defined as High Conservation Value Forests (HCVF).

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SESSION V: TRADE AND ENVIRONMENT
TOPIC 5.1: CERTIFICATION
ABSTRACT

The PEFC Council, an independent, non-profit, non-governmental organisation, promotes the independent third party certification of environmentally appropriate, socially beneficial and economically viable management of forests.

This is achieved through nationally or regionally multi stakeholder developed, independent third party forest certification schemes, based on the criteria, indicators and operational level guidelines developed by the Ministerial Conference on the Protection of Forests in Europe or other similar intergovernmental processes promoting sustainable forest management.

In addition the PEFC provides a framework and umbrella for the mutual recognition of independent, national forest certification schemes so developed. The PEFC Council encourages national forest certification schemes to join its umbrella for independent schemes, to apply for mutual recognition and to use the common PEFC Logo for labelling products originating from forests certified according to their requirements.

PEFC is the largest forest certification system in the world representing forest certification initiatives from 25 countries of 5 continents. Over 46 million hectares of forests has been certified and this area is increasing rapidly. More than 450 companies have obtained chain of custody certificate and more than 6000 entities has received a license for PEFC logo usage.

Key words: PEFC, forest certification, sustainable forest management, chain of custody
INTRODUCTION

Ladies and Gentlemen

My name is Jaroslav Tymrak and I work as a Technical Expert for the PEFC Council which is based in Luxembourg. Forest certification is one of the leading topics of international and national discussion and I am glad that I have been given the opportunity to share with you our achievements and the experiences we have gained in the last four years during which the PEFC Council, initiated by owners of small scale family forests and now has become the international leader in forest certification and mutual recognition supported by a broad range of stakeholders from all walks of life.

1. BACKGROUND

Forest Certification has increased exponentially in the last few years and major schemes today account for over 130 Million hectares, out of the world’s 3,856 million hectares of forests mainly in the northern hemisphere. The reasons for the certification is partly in response to increasing concerns about the origins of forest products in light of the ongoing deforestation. According to FAO (2001), the world’s forest cover shrunk by approximately 9 million hectares per year in the 1990s.

![Figure 1a - Certified Forest cover](image1)

![Figure 2 - Changes in Forest Cover per year 1990-2000](image2)

Key: PEFC = Pan European Forest Certification
FSC = Forestry Stewardship Council
SFI= Sustainable Forestry Initiative
ATFS= American Tree Farm System
CSA =Canadian Standards Association
In addition, the forestry sector has become more cognitive of its environmental weaknesses in competition with materials such as plastics, steel, aluminium and concrete. A recent study undertaken by the Joint FAO/ECE Team of Public Relations Specialists in the Forest and Forest Industries Sector (Burrows and Sanness, 1998) shows that this weakness lies mainly in the area of material procurement. The certification of the management of the raw material procurement will therefore go a long way to address this weakness and thus help the competitiveness of wood. Forest management certification therefore serves two main purposes— to improve forest management, and to improve market access and share for the products of such management.

Due to the international dimension of many forest related problems, international forest policy has undertaken efforts to alleviate these problems. Sustainable forest management (SFM) has been, since the UNCED in Rio in 1992, a leading concept in international deliberations and work. The result today is often broad consensus on principles, guidelines, criteria and indicators for SFM at international governmental level. One such process is the Pan European Ministerial Conference on the Protection of Forests in Europe (MCPFE). At a conference held in Lisbon 1998, MCPFE declared its commitment to endorsing the voluntary Pan –European Operational Level Guidelines for Sustainable Forest Management, which had been previously adopted by an expert level preparatory meeting.

The guidelines form a common framework of recommendations that can be used on a voluntary basis and as a complement to national and or regional instruments to further promote sustainable forest management at the field level, on forest areas. Potential uses of the guidelines as stated by the ministers include its use as an indicative reference for the establishment of standards for forest certification schemes. Other similar intergovernmental processes also serve as basis for development of forest certification schemes.
2. EXPECTATION FROM THE MARKET

Forest certification is considered as a voluntary market oriented tool which was introduced in the beginning to prevent bad forestry practices, especially the destruction of tropical forests, and to promote good forestry practices. The forest certification today has become more and more a marketing tool to assure customers that raw material used in the product comes from sustainably managed forests. In addition, forest certification is also a positive tool to improve forest management.

There are different expectations from the forest certification among the different market players:

- **Consumers** have got the opportunity to support sustainable forest management through the purchase of labelled products which use raw material from sustainable sources.

- **Forest owners, forest and wood-processing industry** expect from the forest certification:
  - recognition of environmental acceptability of their forest management and their products,
  - improving environmental image of the company
  - improving environmental image of the whole forestry and wood-processing sector.

- **Society** has got the opportunity to find sustainable solutions to societal problems.

3. PEFC COUNCIL

The PEFC Council is an independent, non-profit, non-governmental organisation, which promotes the independent third party certification, of environmentally appropriate, socially beneficial and economically viable management of forests.

The PEFC Council provides a framework and umbrella for the mutual recognition of independent, national forest certification schemes and provides the common PEFC logo for labelling of products which include raw material coming from forest certified according to national forest certification schemes endorsed by the PEFC Council.

The PEFC Council was established just over three years ago and since that time the PEFC Council has seen an increase in membership from 9 to 25 countries including organisations representing forest certification schemes from Canada, the United States, Australia, Malaysia, Chile and Brazil. The current membership includes national organisations from the following countries: Australia, Austria, Belgium, Brazil, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Latvia, Luxembourg, Malaysia, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland, Great Britain, UK and USA.
<table>
<thead>
<tr>
<th>Country</th>
<th>PEFC National Governing Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>AFS Ltd</td>
</tr>
<tr>
<td>Austria</td>
<td>PEFC Austria</td>
</tr>
<tr>
<td>Belgium</td>
<td>WoodNet asbl</td>
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<tr>
<td>Brazil</td>
<td>Inmetro (on behalf of CERFLOR)</td>
</tr>
<tr>
<td>Canada</td>
<td>Canadian Standards Association (CSA)</td>
</tr>
<tr>
<td>Chile</td>
<td>CERTFOR Chile</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>PEFC Czech Republic</td>
</tr>
<tr>
<td>Denmark</td>
<td>PEFC Denmark</td>
</tr>
<tr>
<td>Estonia</td>
<td>Estonian Forest Certification Council</td>
</tr>
<tr>
<td>Finland</td>
<td>Finnish Forest Certification Council</td>
</tr>
<tr>
<td>France</td>
<td>PEFC France</td>
</tr>
<tr>
<td>Germany</td>
<td>PEFC Germany e.V.</td>
</tr>
<tr>
<td>Ireland</td>
<td>PEFC Council of Ireland</td>
</tr>
<tr>
<td>Italy</td>
<td>PEFC Italia</td>
</tr>
<tr>
<td>Latvia</td>
<td>PEFC Latvia Council</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>PEFC Luxembourg</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Malaysian Timber Certification Council</td>
</tr>
<tr>
<td>Norway</td>
<td>PEFC Norway</td>
</tr>
<tr>
<td>Portugal</td>
<td>Conselho da Fileira Florestal Portugesa</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>Slovak Forest Certification Association</td>
</tr>
<tr>
<td>Spain</td>
<td>PEFC España</td>
</tr>
<tr>
<td>Sweden</td>
<td>Svenska PEFC ek för</td>
</tr>
<tr>
<td>Switzerland</td>
<td>HWK-Zertifizierungsstelle</td>
</tr>
<tr>
<td>UK</td>
<td>PEFC UK Ltd</td>
</tr>
<tr>
<td>USA</td>
<td>AF&amp;PA (on behalf of ATFS and SFI)</td>
</tr>
</tbody>
</table>

Extraordinary members of the PEFC Council are important European associations representing forestry, wood-processing and pulp and paper sectors.

<table>
<thead>
<tr>
<th>CEI-Bois</th>
<th>European Confederation of Woodworking Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEPF</td>
<td>Confédération des Propriétaires Forestiers</td>
</tr>
<tr>
<td>CEPI</td>
<td>Confederation of European Paper Industries</td>
</tr>
<tr>
<td>ELO</td>
<td>European Landowners' Organisation</td>
</tr>
<tr>
<td>ENFE</td>
<td>European Network of Forest Entrepreneurs</td>
</tr>
<tr>
<td>FEBO</td>
<td>European Timber Trade Association</td>
</tr>
<tr>
<td>FECOF</td>
<td>Fédération Européennes Communales Forestiers</td>
</tr>
<tr>
<td>UEF</td>
<td>Union of European Foresters</td>
</tr>
<tr>
<td>USSE</td>
<td>Union of Silviculturalists of Southern Europe</td>
</tr>
</tbody>
</table>
4. PEFC BASIC PRINCIPLES

Since its establishment, the PEFC Council has been based on respecting some fundamental principles, which were in danger of being eroded by other efforts to promote sustainable forest management. These include among others:

The respect for and use of the regional political processes for promoting sustainable forest management as a basis for developing certification standards

Many countries have, and are developing, their national forest certification schemes based on Pan European Ministerial Conferences on Protection of Forests in Europe or the other all-inclusive political processes, which continue to evolve, and form the basis of a mutual recognition process provided through the PEFC scheme.

About 149 countries are participating in these Inter-governmental processes for the promotion of SFM, which cover more than 85 % of the world’s forests.

It is important to note that hundreds of experts from a very wide range of stakeholder groups have been involved in the development of these political processes and that they are ongoing processes.

The support for the subsidiarity principle for each country and encouraging a “bottom up” approach to the development of certification standards

More and more stakeholders around the world are realising that the certification schemes they develop should be truly independent and appropriate to the political, cultural, economic and ecological reality of their country.

True independence of any mutual recognition or endorsement process can be checked by asking the question whether the national scheme can still remain fully operational when the scheme owners decide to withdraw from a mutual recognition or endorsement process. In case of the PEFC umbrella the answer is emphatically Yes. If a national scheme were to decide to withdraw from the PEFC Council, then the use of independent certifier accredited by a national accreditation bodies would ensure it was still fully operational the next day.

In addition to the standard setting process, the PEFC Council structure and internal procedures assures the democratic input of the PEFC National Governing Bodies and their stakeholders in the PEFC Council decision-making process.

Usage of the internationally recognised certification and accreditation procedures which are used in product or management systems certification in all sectors of human activities.

PEFC Council basic principal requires genuine separation of bodies responsible for setting the standards from those assessing and delivering the final certificate (certification bodies) and those assessing competence and impartiality of the certifiers (accreditation body) to
Strategies for the sound use of wood, March 2003, Romania

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ensure the total independence, impartiality and professional competence of the certification process.


The technical competence and impartiality of the certification body and implementation of required certification procedures are assessed by a national accreditation body which belongs to EA (European co-operation for Accreditation) or IAF (International Accreditation Forum) and uses the same procedures as in cases of other certifications such as ISO 9001 [6] or 14001 [7].

Respect to multi-stakeholder process and involvement of relevant interest parties in the standard setting and certification processes.

PEFC Council requires that forest certification can be carried out only against the forest certification standard which has been developed at the national level and that all relevant interested parties have been, and continue to be, given the opportunity to participate in this process. The multi-stakeholder standard setting process creates partnership among different stakeholders and ensures the long term “buy in” and support by the users of the scheme and society in general.

All stakeholders whether individuals or groupings at local, national or international level also have the opportunity to express their views or comments during the public consultation period of the PEFC endorsement process in which national schemes are assessed.

In addition, the certification body is obliged to deal with all disputes and complaints of any interest party or individual which occurred during the certification process.

5. FOREST AND CHAIN OF CUSTODY CERTIFICATION – WHAT DOES IT INCLUDE

Forest certification schemes recognised under the PEFC umbrella includes two parts which together give a forest product consumer information about the origin of wood included in a product.

Part 1, forest management certification provides assurances that the forest management applied on certain forest area fulfils requirements given in a standard given in advance. All the national scheme and standards recognised by the PEFC Council are based on the definition of sustainable forest management (SFM) developed by intergovernmental processes supporting SFM (e.g. Helsinki process, Montreal process, etc.).

Part 2, called chain of custody certification has been developed to guarantee that information about the origin of raw material, i.e. origin in certified sustainable managed forest, is not lost during the various stages of transport, processing and distribution from “forest gate” to a final consumer.
The PEFC Council provides forest related industries with two approaches for chain of custody verification. The first one is based on physical separation where wood raw material from “certified” and other sources has to be stored, processed and sold separately to ensure it is identifiable during the whole production process. The second approach is based on inventory control and accounting of raw material flows, known also as percentage methods, including input / output method and Minimum average percentage method. Using the percentage model, the companies within the chain calculate and communicate the percentage of raw material included in a batch of products.

For most of the wood processing industries, the percentage based method is the only technically and economically feasible solution because:

a) **Extremely high number of suppliers** (e.g. over 12 mill. forest owners in Europe, 15 000 wood processing enterprises in Spain) makes it practically impossible to be oriented only on suppliers of raw material from certified sources in a voluntary system

b) **Transport, storage and processing cannot always be carried out separately** for raw material coming from certified and other sources.

### 6. SUCCESS OF THE PEFC COUNCIL

PEFC has become the world’s largest forest certification umbrella organisation covering 26 national independent schemes from all over the world, delivering hundreds of millions of tones of wood to the market place from tens of millions of hectares of certified forests. PEFC has strong grass root support from many stakeholders including the forestry sector, governments, trade unions and non-governmental organisations.

**PEFC certified forests and chain of custodies**

The PEFC Council has endorsed 13 national forest certification schemes and forest area certified according to them has increased to 46.5 million hectares in January 2003. Other member schemes are under development or are preparing an application for the PEFC endorsement. More than 450 wood procurement or wood processing companies around all Europe have obtained the PEFC chain of custody certificate and thus have access to the PEFC logo to label their products.
<table>
<thead>
<tr>
<th>Country</th>
<th>Scheme name</th>
<th>Certified forest area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Austrian Forest Certification Scheme</td>
<td>3,924,000 ha</td>
</tr>
<tr>
<td>Belgium</td>
<td>Belgian Forest Certification Scheme</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Czech Forest Certification Scheme</td>
<td>1,809,012 ha</td>
</tr>
<tr>
<td>Denmark</td>
<td>Danish Forest Certification Scheme</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>Finnish Forest Certification Scheme</td>
<td>21,910,000 ha</td>
</tr>
<tr>
<td>France</td>
<td>French Forest Certification Scheme</td>
<td>890,706 ha</td>
</tr>
<tr>
<td>Germany</td>
<td>German Forest Certification Scheme</td>
<td>6,273,658 ha</td>
</tr>
<tr>
<td>Latvia</td>
<td>Latvian Forest Certification Scheme</td>
<td>17,295 ha</td>
</tr>
<tr>
<td>Norway</td>
<td>Norwegian Scheme and Living Standard</td>
<td>9,352,000 ha</td>
</tr>
<tr>
<td>Spain</td>
<td>Spanish Forest Certification Scheme</td>
<td>86,679 ha</td>
</tr>
<tr>
<td>Sweden</td>
<td>Swedish Forest Certification Scheme</td>
<td>2,203,531 ha</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Swiss Q Label Holz Scheme</td>
<td>64,572 ha</td>
</tr>
<tr>
<td>UK</td>
<td>UK Certification Scheme for SFM</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>46,600,829 ha</td>
</tr>
</tbody>
</table>

Detailed statistics on PEFC certification and info on issued certificates or PEFC logo users can be found at our website [www.pefc.org](http://www.pefc.org)

**CONCLUSION**

**Forest certification is today’s reality.** It brings improvement to sustainable forest management and market benefits to forest owners, forest and wood-processing industry, final consumers and society in general.

The PEFC Mutual Recognition process **respects and adheres to the political processes** designed to promote sustainable forest management developed by multi stakeholder involvement.

The PEFC mutual recognition process **operates as a bottom up process, respecting the principles of subsidiarity** and independency of national forest certification schemes. The independence of each scheme from PEFC is its strength.

**PEFC relies on the use of normal certification and accreditation processes** (which are completely independent of PEFC) and which have their own rigorous procedures to ensure the reliability, independence and credibility of their work.

**PEFC is the largest forest certification umbrella** representing 26 national schemes, more than 46 million hectares of certified forests with growing number of countries expressing their interest to join it.
REFERENCES


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Forest certification – experiences with PEFC in Germany

Paper by Mr. Dirk Teegelbekkers, General Secretary, PEFC Germany

ABSTRACT

At the beginning there was a demand for evidence that wood came from sustainable forest management (SFM). The public had been sensitive of the destruction of tropical rainforests and a boycott of tropical timber seemed to be the only alternative but did not solve the problem.

A possible solution was the development of forest certification schemes. First the Forest Stewardship Council (FSC) as global approach was founded by the major ENGOs. In 1999 the Pan European Forest Certification (PEFC) was established as alternative to the FSC due to unsolved problems like an appropriate representation of forest owner’s interests or a cost-efficient certification of small scaled forest ownership.

None of the existing forest certification scheme can be regarded as “perfect” system which is able to eliminate the problem at once. The last two years have proved that the competition between PEFC and FSC has favoured a continuous improvement process. It has lead, for instance, to decreased certification costs and the globalisation of PEFC.

A part of the original problem has been eliminated: now there is a sufficient supply of certified timber from sustainably managed forests. 45 million hectares of forests in Europe and over 6 million hectares in Germany (60% of the German forests) have been certified according to PEFC within three years.

And new problems have evolved: the timber market is not willing or able to promote more than one label at the point of sale. Consequently there are strong forces pushing towards mutual recognition between credible certification schemes. Latest studies in Germany reveal that there is no demand for certified/labelled timber from the end consumer. Less than two percent have ever heard from PEFC or FSC. Forest certification as a market driven tool to implement SFM is threatened by one-sided political influence, e.g. the intended procurement policy of the German government. Another risk derives from new legal regulations which adopt high certification standards to define the term “good practice”.

Key words: forest certification, PEFC, demand/supply of certified timber, mutual recognition, procurement policy
Certification des forêts – expérience de l’application du Programme européen de certification des forêts en Allemagne

Document établi par M. Dirk Teegelbekkers,
Secrétaire général, du Programme européen de certification des forêts pour l’Allemagne, Allemagne

RÉSUMÉ

La théorie de la science distingue quatre phases dans le travail scientifique: le problème, la mise à l’essai de plusieurs solutions possibles, la disparition du problème, l’apparition d’un nouveau problème. En ce qui concerne la certification des forêts, le problème était de répondre à une demande, des éditeurs de journaux par exemple, de bois provenant de forêts gérées rationnellement. Les populations se sont émues de la destruction des forêts tropicales et un boycottage des bois tropicaux semblait être la seule réponse, sans pour autant résoudre le problème.

Il y avait une autre solution possible: l’élaboration de plans de certification des forêts. La première initiative mondiale dans ce domaine a été la création par les principales organisations non gouvernementales de protection de l’environnement du Forest Stewardship Council (FSC). Est venu ensuite le Programme européen de certification des forêts (PEFC), mis en place en 1999 à titre de substitut au Forest Stewardship Council qui présentait certaines lacunes comme l’insuffisance de la représentation des intérêts des propriétaires forestiers ou l’absence d’une certification d’un bon rapport coût/efficacité pour les petites exploitations forestières.

Aucun des plans existants de certification des forêts ne peut être considéré comme un système «parfait», capable d’éliminer le problème d’un seul coup. Une amélioration continue est nécessaire et c’est un élément essentiel du Programme européen. L’expérience des deux dernières années a montré que la concurrence entre les deux systèmes (PEFC et FSC) avait favorisé cette amélioration. Elle a conduit par exemple à une réduction des coûts de certification et à une généralisation du Programme européen.

Une partie du problème initial a disparu: aujourd’hui l’offre de bois certifié provenant de forêts gérées de façon rationnelle est suffisante. En trois ans, 45 millions d’hectares de forêts en Europe et plus de 6 millions d’hectares en Allemagne (60 % des forêts du pays) ont obtenu la certification selon le Programme européen. Une autre partie du problème, la protection des forêts tropicales menacées, demeure en revanche plus ou moins entière.

Et de nouveaux problèmes sont apparus: le marché du bois ne veut pas ou ne peut pas promouvoir plus d’un label à la vente. Par conséquent, des motifs puissants militent pour la reconnaissance mutuelle de plans de certification crédibles. Il ressort des dernières études menées en Allemagne que du côté du consommateur final, la demande de bois certifié ou ayant un label est nulle. Moins de 2 % des consommateurs ont entendu parler du Programme européen ou du FSC. La certification des forêts, en tant qu’instrument dirigé par le marché pour mettre en œuvre une gestion rationnelle des forêts, est menacée par une influence politique unique, par exemple la politique du Gouvernement allemand en matière d’achat. Un autre risque tient à la nouvelle réglementation qui fixe des normes de certification élevées pour définir le critère de «bonne pratique».

Mots clefs: certification des forêts, PEFC, demande et offre de bois certifié, reconnaissance mutuelle, politique en matière d’achat.
Сертификация лесов - опыт ОЕСЛ в Германии

Документ, подготовленный Генеральным секретарем ОЕСЛ, Германия,
г-ном Дирком Тегельбеккерсом

РЕЗЮМЕ

В науке различают четыре фазы научной работы: изучение проблемы, проверка вариантов возможных решений, решение проблемы, эволюция новой проблемы. Что касается проблемы сертификации лесов, то здесь всегда возникал вопрос об удовлетворении спроса, например со стороны издателей газет, на древесину, получаемую в результате устойчивого лесопользования. Общественность всегда была особо чувствительной к проблемам вырубки тропических дождевых лесов, а бойкот тропической древесины всегда представлялся единственной альтернативой действий, хотя и не решал саму проблему.

Одно из возможных решений было найдено в развитии планов сертификации лесов. Вначале рядом ведущих экологических НПО был создан Лесной попечительский совет (ЛПС) в качестве глобальной организации. В 1999 году была разработана система общеевропейской сертификации лесов (ОЕСЛ) в качестве альтернативы ЛПС в связи с тем, что Совет оставил нерешенными такие проблемы, как надлежащее представление интересов владельцев лесов или эффективная с точки зрения затрат сертификация малых лесных хозяйств.

Ни одну из действующих схем сертификации лесов нельзя назвать безупречной и решающей одновременно все проблемы. Нужна непрерывная кропотливая работа. Именно эта задача является главной в системе ОЕСЛ. Последние два года показали, что сопротивление между ОЕСЛ и ЛПС дает положительные результаты. Так, например, сократились расходы на сертификацию и на глобализацию ОЕСЛ.

Частично первоначальная проблема была решена: в настоящее время имеется в достаточных объемах сертифицированная древесина, получаемая с помощью устойчивого лесопользования. 45 млн. га леса в Европе и свыше 6 млн. га в Германии (60% лесов Германии) были сертифицированы в соответствии с требованиями ОЕСЛ в прошедшие три года. Вместе с тем по-прежнему в той или иной степени остается нерешенной проблема защиты находящихся под угрозой тропических дождевых лесов.

Возникли и новые проблемы: рынок древесины не в состоянии либо не готов предлагать более одной маркировки в пункте продажи. Как следствие, приводятся в действие мощные силы, выступающие за взаимное признание надежных схем сертификаций. Согласно данным последних исследований, в Германии конечный потребитель не проявляет интереса к сертифицированной маркировке древесины. Об ОЕСЛ или ЛПС известно лишь менее двум процентам потребителей. Сертификация лесов как инструмент, ориентированный на рынок и предназначенный для обеспечения устойчивого лесопользования, оказывается под угрозой со стороны традиционно проводимого политического курса правительства Германии на плановую политику в области заготовок. Другая проблема таится в реализации новых правовых положений, где утверждаются высокие нормы сертификации согласно определению термина "добросовестная практика".

Ключевые слова: сертификация лесов, ОЕСЛ, спрос и предложение на сертифицированные лесоматериалы, взаимное признание, политика поставок.
INTRODUCTION

The philosophy of science distinguishes four phases of scientific work: a problem, testing several possible solutions, eliminating the problem, evolving of a new problem. The problem dates back to discussions about the destruction of tropical rainforests by irresponsible wood procurement. A possible solution was the development of forest certification schemes, like the Forest Stewardship Council (FSC) or the Pan European Forest Certification (PEFC) system. This paper takes the track record of PEFC in Germany as example to show that the original problem could be solved partly but other problem evolved. It reports on the market reactions and barriers in Germany, as one of the world’s most important marketplaces.

THE PROBLEM: TIMBER FROM UNKNOWN SOURCES

“Save our last rain forests” – this slogan from environmental pressure groups in the 80s let to a high sensitiveness of the public and to the boycott of tropical timber. In 1991 a declaration of the German association of tropical timber importers called for a certificate for origin. The aim was that all tropical timber imported to Germany would be sustainably produced in the medium term.

“Thursday is Clearcut Day” – this slogan of 1995 referred to a popular German magazine appearing weekly on Thursday. It made the German newspaper publishers to ask for evidence that the wood used for the production of pulp and paper comes from known and well-managed sources. “The main aim of the publisher’s was to get ‘conflict-free’ paper”(1).

POSSIBLE SOLUTION: FOREST CERTIFICATION

A possible solution to contain forest destruction and promote a Sustainable Forest Management (SFM) is forest certification. The FSC as global approach was founded 1993 in Toronto by the major ENGOs. FSC has defined 10 principles for forest management as basis for certification standard. The Pan European Forest Certification Council was established six years later in Paris originally as umbrella for independent European forest certification schemes. PEFC uses as a common basis the criteria, indicators and operational level guidelines developed and endorsed by 39 nations in the Ministerial Conference on the Protection of Forests in Europe, an ongoing inter-governmental process (also know as the “Helsinki Process”). Hundreds of experts from a very wide range of stakeholder groups have been involved in the development of this process.

Why PEFC in Germany?

In Germany there are about 1.3 million forest owners managing 10.8 million hectares of forest. Almost half of the forest (46%) is privately owned. The private forest enterprises have an average size of only 3.6 ha. An individual certification on this level has two
disadvantages: indicators for sustainability cannot be measured on such a small unit and the certification fees are disproportionately high. Before the development of a regional certification approach by PEFC these forest owners had no alternative and would have been excluded from the “certification” market.

Another main reason for demanding an alternative to FSC was the three chamber system which – in the view of the majority of forest owners - does not adequately represent their interests and responsibilities. As a result in the German Forest Certification Council as decision making body of PEFC private, communal and state forest owners cannot be outvoted.

The starting shot for PEFC in Germany was a demonstration of European forest owners in Hamburg in 1997. Subject matter of the protests were the magazine publisher Axel Springer Verlag and the mail-order company Otto-Versand. Both companies were suspected to force the forest owners to a FSC certification which appeared not acceptable to them for the reasons mentioned above.

**How PEFC works**

PEFC supports the subsidiarity principle for each country and encourages a bottom up approach to the multi-stakeholder development of certification standards based on the political processes to ensure the long term “buy in” and support by the users of the schemes and society in general. Moreover PEFC respects the democratic principles appropriate to each country for developing, with broad stakeholder participation, national certification schemes which can be delivered by certification bodies accredited by national accreditation bodies who are independent of the standard setting bodies and scheme owners. There is a genuine separation of the bodies responsible for setting the standards from those assessing and delivering the final certificate to ensure the total independence and impartiality of the certification decision-making(2).

In Germany participation is guaranteed both on national and on regional level. Due to ideological motives German ENGOs rarely realise this possibility, as forest owners rarely participate in the economic chamber of FSC.

The regional certification process starts with the establishment of a regional working group. Under the co-ordination of the forest owners’ organisation all relevant stakeholders of the region are invited to participate in this working group. The regional working group has two main tasks. One is to compile the Regional Forest Report following a list of 121 indicators. This includes identifying fixed targets for improvements during the coming 5 years as well as developing specific measures to reach this targets. It has to be ensured that forest owners and other concerned parties receive adequate information and that they understand the implications of the decisions made.

When the Regional Forest Report is completed, an independent certification body makes the assessment on the quality of forest management in the region based on the report. On the premises of a positive result the certification body issues a conformity assessment for
the region. After the conformity assessment is issued to the region forest owners in the region may join the certification. The forest owners willing to participate have to sign a voluntary self-commitment and agree to follow the enterprise-level guidelines in their forest management. Having paid the fee (11 Euro once, 0.11 Euro/ha*a annually) they receive a certificate and have the possibility/risk of being part of an area-weighted control sampling. Through the annual control sampling, the compliance of individual enterprises with the enterprise-level guidelines is assessed.

**ELIMINATING PART OF THE PROBLEM**

Forest certification mechanisms has been implemented to supply evidence that timber comes from sustainably managed forests. As the consequence a part of the original problem has been eliminated: there is currently a sufficient supply of certified timber from well-managed forests. Geographically the total certified area (FSC, PEFC plus national certification schemes of Canada, Malaysia, USA plus Keurhout) is unevenly distributed: more than a half is located in Europe, and almost 40% in North America. The developing countries account for no more than 8% (as of February 2002)(3).

**Certification Progress**

PEFC is the largest certification system in the world with more than 46 million hectares from 13 endorsed schemes and the area is increasing rapidly. Since it was established three years ago, the PEFC Council has seen an increase in membership from 9 to 26 schemes, including the CSA Sustainable Forest Management Standard (CSA) from Canada, the Sustainable Forestry Initiative (SFI) and the American Tree Farm System (ATFS) from the USA, NAFI from Australia, CERFFLOR from Brasil, CERTFOR from Chile and MTCC from Malaysia, which will all be seeking endorsement in the near future(4).

Concerning the endorsement of non-European schemes it is currently proposed that when standards developed on other intergovernmental processes than the “Helsinki” process apply for PEFC Council endorsement, the documentation shall include a common reference base for each process that is compatible with the Pan European Operational Level Guidelines in respect of scope and level of requirements. It is therefore proposed that the PEFCC will approve such a reference base prior to commencement of the scheme assessment.

In Germany 6.3 million hectares (almost 60% of the German forests) in 10 regions have been certified according to PEFC(5). The results of a survey indicate that forest owners with a total forest area of 7.7 million ha intend to become certified according to PEFC. For comparison: only 0.4 million hectares are certified by other forest certification schemes because only PEFC is accepted by the vast majority of forest owners. As a general rule success results from win-win situations. Forest owners will not be too enthusiastic about certification if they are told that their management in the past was unsustainable and only
certification can save their forests. Especially in Germany you have to acknowledge that the concept of sustainable yield has a long tradition of 200 years.

Chain-of-Custody-Certification

Evidence that wood comes from sustainably managed sources can only be provided by chain of custody certification of the wood processing industry. A certified chain of custody is a way to prove that an enterprise has a system to track the wood flow in the production process all the way from the certified forests to a workshop or factory and from there on to the retailer. Together these certificates provide proof to customers about the origin of the wood used in the wood processing industry. Every enterprise is a link in the overall “chain” for the wood from forest to the final product. It is therefore important that all enterprises dealing with wood have their area of responsibility certified so as to ensure that the “chain” is complete.

Within the last two years the number of CoC certificates has grown exponentially. In Germany it amounts to 180 at the moment. The main incentive comes from paper industry. After the newspaper publishers had announced that FSC as well as PEFC fulfil their requirements, almost every German paper mill has a PEFC CoC certificate resulting in a demand for certified raw material from their suppliers, like saw mills and timber traders.

PEFC has never promised an additional profit for timber from certified forests. But at present there is – beyond small niche markets – an example of a big timber trader in North Rhine Westphalia paying 2 EURO additionally per stacked cubic meter of pulp wood from certified forests.

NEW PROBLEMS EVOLVE

“One label only”

From the point of view of PEFC we can be content with the development of the certified forest area, the CoC certification and on the paper market. Still the attitude of DIY stores, especially the market leader OBI, causes the biggest concern although a positive change has been observed. Having threatened to reject any timber with the PEFC label, hundreds of forest owners protested in front of the OBI stores in May 2002 against the discrimination against timber from PEFC certified native forests. The franchisees reacted startled and started questioning the procurement policy of the OBI head quarters. As one outcome the association of German DIY stores declared to accept all timber from native certified forest but expressed their doubt that the end consumer will ever be able to distinguish between two different, competing labels. So OBI still supports only one label, which is not the PEFC label.

Basically behind this “FSC-label-only” policy is the anxiety of companies to be attacked by ENGOs and make the headlines if displaying the PEFC logo. The case of a school book producing factory shows that this concern is legitimate. After their decision to implement
the PEFC CoC certification and printing the PEFC logo on the front page of their products, the company received angry letters from Greenpeace, Robin Wood and WWF.

Lack of Interest by the end consumer

The study “Certification of Wood – Level of Awareness and Opinions of the Target Groups” conducted by the Federal Research Centre for Forestry and Forest Products on behalf of the Timber Sales Promotion Fund brought some interesting, partly disillusioning, results:

1. Only 8% of the interviewed households, builders and timber buyers have ever dealt with sustainable forest management.
2. 75% of the interviewees are content with the sustainability of forest management in Germany.
3. Labels for harmlessness in respect to health and for product quality are regarded as far more important than labels for SFM.
4. 0,7% of the households know PEFC, 1,6% FSC. But 2,1% know the “false” label “Wood from Plantations” without third party auditing and 4,0% the eco-farming label “Naturland” which is also a label for “organic” forestry.
5. Architects, builders, timber traders and craftsmen prove to know FSC better than PEFC; interviewees from industry have rather heard from PEFC (60%).
6. With respect to credibility ENGOs achieve the same results as forest authorities, both have higher values than forestry associations and consumer organisations.
7. 3% of the consumers expressed their interest for certified timber (21% for “Wood from Plantation”, 11% for the “Naturland”-Label, 6% for FSC and 0% for PEFC).
8. In average the consumers were willing to pay an extra charge of 3 – 4%.
9. At the point of sale 62% of the customers have chosen wood products (garden furniture, flooring, boards) from certified forest, because of the environmental friendliness and 49% because of a higher quality.(6)

Political Interference

Forest certification as a market driven tool to implement SFM is threatened by one-sided political influence. One example: the intended procurement policy of the German government, consisting of a coalition between Social Democrats and the Green party. The coalition government’s contract from September 2002 states that within four years all the timber purchased by the federal government shall come from FSC certified forests.

In January 2003 PEFC Germany published an opinion of an expert in competition law. This paper proves that the implementation of the agreement would violate actual German legislation in the field of public procurement. Due to the equivalence of FSC and PEFC in principle, public orderers are not allowed to dictate one certification scheme exclusively. As one of the possible solutions which would be in conformity with law, the professor
suggested the wording “Timber has to be used originating from forests which have been certified according to a generally accepted forest certification scheme (FSC or PEFC)”.

The wording of the government’s agricultural report published some weeks later is much more benevolent: it recognises that PEFC is in a position to improve forest management in Germany referring to ecological requirements.

Another target of the new government is the revision of forest regulation. In the preliminary stages of the negotiations it is discussed whether and how to define the term “good practice”. Some proponents argue that the definition shall be based on the certification criteria of PEFC and FSC. As both standards are above the level of current legislation, new forest law could easily destroy the voluntary tool of certification or force the existing schemes to raise the standards to a level, which would be not acceptable for the majority of forest owners.

CONCLUSION

PEFC does not believe in the principles of monopoly, but believes that competition improves standards and drives cost down. None of the existing forest certification scheme can be regarded as “perfect” system which is able to eliminate all problems at once. A continuous improvement is necessary and an essential component of the PEFC system. The last two years have proved that the competition between PEFC and FSC has favoured this improvement process.

Mutual recognition between PEFC and FSC is vehemently postulated by timber industry, because of its interest in “conflict-free” products and its problems with a double CoC certification. As competition is desirable, mutual recognition will not result in one common label but it can result in a constructive and peaceful co-existence. The end consumer does not care much about certified forest products, which is a pity, but he does not care about the present struggle for power either, which is a blessing.

Our common aim is promoting the use of certified forest products on the market. Talking about procurement policies other materials like concrete, aluminium or plastic must never become the better alternative to wood, even if this is not certified.

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FSC certification as a tool for socially and environmentally responsible trade

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ABSTRACT

The Forest Stewardship Council (FSC) now has almost 10 years of experience with forest management certification and the labelling of products from well managed forests. As of January 2003, FSC has certified over 31 million hectares of forests, in 56 countries, over 6 continents. Over 20 million hectares of these certified forests are located in Europe, including state owned forests in several Western and Eastern European countries. In the marketplace there are now more than 10,000 products carrying the FSC logo, giving a proud guarantee that the material in that product comes from well managed forests.

FSC was created through a joint initiative by environmental, social and economic stakeholders with the goal of promoting environmentally responsible, socially beneficial and economically viable management of the world's forests. This has been realized through establishing a worldwide standard of recognized and respected Principles of Forest Stewardship to enable the identification of well managed forests and the products coming from those forests. This has enabled FSC to provide consumers with an independent assurance of the sources of forest products. Since its foundation in 1993, FSC has been embraced by leading retailers around the world, such as Home Depot, B&Q, Obi and Carrefour, and also by international forest products companies, such as Assi Doman, Norske Skog and Tembec.

FSC considers forest certification as a market instrument. For retailers certification provides their consumer with a credible guarantee that the company is acting responsibly with respect to the environment and the social circumstances of those involved in forests and forestry. Recent research, undertaken for WWF in The Netherlands, shows that about 75% of Dutch consumers expressed that if they had a choice, they would prefer timber from well managed sources. This is however only a preference, and consumers may not put this into practice if they find price differences between certified and uncertified products. Internal research of Intergamma, a Do-It-Yourself (DIY) chain in The Netherlands and Belgium, has however shown that consumers feel that the retailer is responsible for the environmental quality of the product, not the consumers themselves. Further research by WWF NL in 2002 has backed up this finding. If responsible retailers are looking for a long lasting relationship with their customers they will therefore benefit from an independent and credible certification of timber. For Intergamma, and other retailers, this has been the primary reason to introduce a long-term policy to supply only FSC labelled timber to their customers. This attitude of consumers to the responsibility expected of the corporate sector has encouraged the ‘Profit, People, Planet’ approach to become an increasingly significant tendency in the business world.

FSC labelled products are considered by many forest owners, trade partners, governments and NGO’s to be an integral part of a free market of environmentally responsible trade. FSC will continue to deliver a credible and independent certification system to support this developing sector.

Key words: certification, FSC, sustainable forest management, social and environmentally responsible trade, ‘People, Planet, Profit’
La certification du Forest Stewardship Council (FSC): un instrument de commerce socialement et écologiquement responsable

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RÉSUMÉ
Le Forest Stewardship Council (FSC) est riche aujourd’hui de neuf années d’expérience en matière de certification de la gestion forestière et des produits provenant de forêts bien gérées. Au mois de janvier 2003, plus de 31 millions d’hectares de forêts, dans 56 pays et sur six continents, avaient été certifiés selon le système établi par le FSC. Plus de 20 millions d’hectares de forêts ainsi certifiées se situent en Europe; ces superficies incluent des forêts publiques dans plusieurs pays d’Europe centrale et orientale. Sur le marché, on compte désormais plus de 10 000 produits arborant le logo du FSC, garantie visible que le matériau du produit provient de forêts bien gérées.

Le FSC est le fruit d’une initiative conjointe de groupes représentant les intérêts écologiques, sociaux et économiques. Il a été créé dans le but de promouvoir dans le monde entier une gestion des forêts écologiquement responsable, socialement avantageuse et économiquement viable. Pour ce faire, des principes et critères de bonne gestion forestière reconnus et respectés mondialement ont été mis en place, afin de permettre l’identification des forêts bien gérées et des produits provenant de ces forêts. Le FSC a ainsi pu apporter aux consommateurs une garantie indépendante concernant la provenance des produits. Depuis sa création, en 1993, le FSC a été adopté par les principaux distributeurs du monde (Home Depot, B&Q, Obi et Carrefour), ainsi que par des entreprises internationales de produits forestiers (Assi Doman, Norske Skog et Tembec).

Le FSC considère la certification forestière comme un instrument du marché. Du point de vue du distributeur, le certificat apporte à ses consommateurs un moyen fiable d’avoir l’assurance que l’entreprise agit de façon responsable en ce qui concerne l’environnement et les conditions sociales du travail dans les forêts et la foresterie. Une étude récemment menée aux Pays-Bas pour le WWF a montré qu’environ 90 % des consommateurs néerlandais avaient déclaré qu’ils opteraient pour du bois provenant de forêts bien gérées. Mais il ne s’agit là que d’une préférence et les consommateurs pourraient bien ne pas concrétiser ce choix s’ils constatent des différences de prix entre les produits certifiés et les autres. Une étude interne réalisée par Intergamma, chaîne de magasins de bricolage implantée aux Pays-Bas et en Belgique, a montré que les clients avaient le sentiment que la responsabilité du respect de la qualité écologique d’un produit incombait au vendeur et non à l’acheteur. D’autres travaux réalisés en 2002 par le WWF aux Pays-Bas confirment cette conclusion. Le distributeur responsable qui cherche à instaurer une relation durable avec sa clientèle aura intérêt à ce qu’une certification indépendante et fiable du bois soit en place. C’est principalement pour cette raison qu’Intergamma et d’autres chaînes de distribution ont adopté une stratégie à long terme tendant à ne proposer à la vente que des produits du bois certifié selon le système du FSC. Cet attachement des consommateurs au sens des responsabilités des entreprises a contribué à la promotion de la triple stratégie économique, sociale et environnementale (stratégie dite «Profit, People, Planet») dans les entreprises.

Les produits portant le label FSC sont considérés par de nombreux propriétaires forestiers, partenaires commerciaux, gouvernements et ONG comme partie intégrante d’un marché ouvert fondé sur un commerce écologiquement responsable. Le FSC continuera à proposer un système de certification crédible et indépendant pour appuyer ce secteur en pleine expansion.

Mots clefs: certification, FSC, gestion forestière durable, commerce socialement et écologiquement responsable, «People, Planet, Profit».
Сертификация по системе ЛПС как средство развития социально ответственной и экологической торговли

Документ, подготовленный директором Европейского отделения Международного центра Лесного попечительского совета (ЛПС), Германия, Геммой Бутекс

РЕЗЮМЕ

Лесной попечительский совет (ЛПС) вот уже десять лет занимается вопросами сертификации лесов и маркировки продуктов, полученных с помощью устойчивого лесопользования. По состоянию на январь 2003 года ЛПС сертифицировал более 31 млн. га лесов в 56 странах, расположенных на 6 континентах. Более 20 млн. га таких сертифицированных лесов расположены в Европе, включая леса, находящиеся во владении государств нескольких западно- и восточноевропейских стран. В настоящее время на рынок поступает более 10 000 продуктов, несущих логотип ЛПС, который является гарантией того, что материал, содержащийся в том или ином продукте, получен с помощью методов устойчивого лесопользования.

ЛПС был создан благодаря совместной инициативе экологических, социальных и экономических субъектов, поставивших перед собой цель пропаганды экологически ответственного, социально значимого и экономически жизнеспособного управления лесами мира. Эта цель была достигнута посредством разработки международного стандарта признанных и соблюдаемых принципов лесного попечительства, предназначенных содействовать идентификации рационально управляемых лесов и продуктов, поступающих из такого рода лесов. Это позволило ЛПС предоставлять потребителям независимые гарантии источников лесных продуктов. С момента своего создания в 1993 году система ЛПС была признана ведущими торговыми предприятиями мира, такими как "Хоум депо", "Би энд Кью", "Оби" и "Карефур", а также международными компаниями по производству лесных продуктов, такими как "Асси доман", "Норски ског" и "Тембек".

ЛПС рассматривает сертификацию лесов как рыночный инструмент. С точки зрения торговых предприятий, сертификация дает их потребителям надежную гарантию того, что они ответственно относятся к окружающей среде и к социальным проблемам тех, кто занимается лесоводством и лесопользованием. Последние исследования, проведенные для ВФП в Нидерландах, показывают, что примерно 90% голландских потребителей придерживаются мнения, что, имея выбор, они отдали бы предпочтение лесоматериалам, которые бы соответствовали принципам устойчивого управления лесами. Это, однако, всего лишь предпочтение, которое, возможно, оказалось бы нереализованным, если бы потребители увидели, насколько различаются цены на сертифицированные и несертифицированные продукты. Внутренние исследования компании Интергамма, объединяющей сети магазинов "Сделай сам" в Нидерландах и Бельгии, показали, однако, что, по мнению потребителей, торговые предприятия, а не потребители, несут ответственность за экологическое качество продукции. Новые исследования ВФП в Нидерландах в 2002 году подтверждают этот вывод. Если ответственные торговые предприятия планируют установить долгосрочные взаимоотношения со своими клиентами, им только пойдет на пользу независимая и надежная сертификация лесоматериалов. Для Интергаммы и других коммерческих предприятий это и явилось основной причиной разработки долгосрочной политики, в соответствии с которой они намерены поставлять своим клиентам только те лесоматериалы, которые имеют маркировку ЛПС. Подобное отношение потребителей к вопросам ответственного поведения, которые они ожидает от корпоративного сектора, способствовало тому, что подход, основанный на принципе "прибыль, народ, планета", постепенно превращается в наиболее популярную тенденцию в мире бизнеса.
INTRODUCTION

The Forest Stewardship Council (FSC) now has almost 10 years of experience with forest management certification and the labelling of products from well managed forests. As of January 2003, FSC has certified over 31 million hectares of forests, in 56 countries, over 5 continents. Over 20 million hectares of these certified forests are located in Europe. These include state owned and private forests in several Western and Eastern European countries, like Croatia (almost 2 million hect.), Estonia and United Kingdom (more than 1 million hectares each), Poland (3.5 million hectares), Sweden (more than 10 million hectares) and Latvia (almost 1 million hectares).

To allow products to carry the FSC logo, FSC has issued 2,840 certificates for the chain of custody in 67 countries. These are issued in Europe, Africa, Asia, Oceania and the Americas. In the marketplace there are now more than 10,000 products carrying the FSC logo, giving a proud guarantee that the material in that product comes from well managed forests.

WHY WAS THE FSC CREATED?

The forest Stewardship Council (FSC) is a non-profit, international standards and accreditation organisation, committed to the conservation, restoration and protection of the world’s working forests.

FSC was created through a joint initiative by environmental, social and economic stakeholders with the goal of promoting environmentally responsible, socially beneficial and economically viable management of the world's forests.

This has been realized through establishing a worldwide standard of recognized and respected Principles of Forest Stewardship to enable the identification of well managed forests and the products coming from those forests. FSC’s forest management standard processes are inclusive and transparent. FSC strives for the participation of a wide range of stakeholder groups – industry, government, community and environmental interests as well as groups that are traditionally marginalized in forest policy debates. FSC is unique in the market place in its decision-making and in the standards development processes, its balanced membership representation and in the integrity of its standards and certificates. FSC prevails as the ‘gold standard’ for independent, private, voluntary forest management certification.

FSC has earned the endorsement of mainstream environmental organisations, including WWF, GreenPeace, World Resources Institute and the Natural Resources Defence Council. Since its foundation in 1993, market leaders around the world, such as Home Depot, B&Q, Ikea, Obi and Carrefour have publicly expressed preference for wood and wood products originating in FSC certified well managed forest. Also international forest products companies, such as Assi Doman, Norske Skog and Tembec have decided to certify their forests under the FSC system.
WHAT IS FOREST CERTIFICATION?

Forest certification is the process by which the performance of on-the-ground forestry operations are assessed against a negotiated set of international and national or regional standards.

The FSC Principles and Criteria serve as the global foundation for the development of region specific forest management standards. Independent certification bodies, accredited by FSC in the application of these standards, conduct impartial, detailed assessment of forest operations at the request of landowners. If the forest operations are found to be in conformance with the FSC standards, a certificate is issued, enabling the landowner to bring the standing timber to the market as ‘certified wood’ and to use the FSC logo. In the process of production of the wood to a timber product, every person who takes legal or physical possession of the timber or the timber product, must demonstrate to an FSC accredited certifiers satisfaction that it can accurately track the flow of certified wood. This is chain of custody certification. The end result of this process is an FSC labelled product on the shelves of retailers. Thus the consumer is provided with an independent assurance of the origin of the product from a well managed forest.

BENEFITS OF CERTIFICATION

Generally spoken, FSC specifies three fields of benefits of certification: social benefits, environmental benefits and economic benefits. Although the emphasis of this paper is on economic benefits, few words can be spend on social and environmental benefits.

Social benefits

FSC calls for participation of a diverse set of stakeholders in standard setting for forest management certification. These social stakeholders are through this process empowered with access, knowledge and voice in the debate on their livelihoods and work places. FSC is the only forest certification system that has developed a Social Strategy, to support the social component in forest management. FSC is for this reason often considered by governmental Aid Agencies as an instrument for empowerment of indigenous peoples and local communities. Governmental organisations like DGIS in The Netherlands, DANIDA in Denmark, SIDA in Sweden and GTZ in Germany actively support FSC processes worldwide.

Environmental benefits

FSC’s membership is committed to the conservation, protection and restoration of the world’s forests and what they have to offer. FSC promotes forest management that conserves biological diversity in for example water resources, soils, fragile eco-systems and unique landscapes. FSC criteria protect threatened and endangered species and their habitats and maintains the ecological integrity and functionality of the forest.
Economic benefits

FSC considers forest certification as a market instrument. For retailers certification provides their consumer with a credible guarantee that the company is acting responsibly with respect to the environment and the social circumstances of those involved in forests and forestry.

Two market researches may provide an overview of what is considered as the economical benefits of FSC certification.

UK: Impacts of certification

Researchers found in the UK, that the main reasons for certification varied. For commercial enterprises, the market has been the main driver. Some enterprises responded to ‘perceived or anticipated market pressure and were seeking to ‘go ahead of the market’. More recent certifications have responded to requests and preferences from buyers of certified timber’. For enterprises without a commercial imperative, the principle and the demonstration of good forest management has been the driver. Respondents in this study indicated that changes in their forest management were not significant, but certification has improved their management and information systems considerably.

Most respondents were disappointed in the market benefits, and blamed this on the lack of end-user demand for certified products.

The UK Magazine ‘Gardening Which?’ did a consumer survey in April 2001, which showed that 76% of people responsible for a garden agreed that large retailers should only sell timber that comes from properly managed forests, with 50% strongly agreeing. The same research showed that 13% of all those interviewed remembered seeing the FSC logo on wooden products. Of those, 75% knew what the FSC logo stood for.

The UK Ethical Purchasing Index Figure shows that 3.4% of the total timber sales in the UK in 2000 was FSC certified. This represents £629m (of a total of £18,500m).

Netherlands: consumers research

Heliview Marketing service BV undertook in April 2001 research with consumers for WWF in The Netherlands. It shows that about 75% of Dutch consumers expressed that if they had a choice, they would prefer timber from well managed sources. This is however only a preference, and consumers may not put this into practice if they find price differences between certified and uncertified products.

Market research in The Netherlands showed that in 2001 almost 7% of the timber in the Netherlands originates from FSC certified forests.

Internal research of Intergamma, a Do-It-Yourself (DIY) chain in The Netherlands and Belgium, has shown that consumers feel that the retailer is responsible for the environmental quality of the product, not the consumers themselves. Further research by WWF NL in 2002 has backed up this finding.
THE ROLE OF CONSUMERS IN CERTIFICATION

It is often mentioned that end-consumers are not willing to pay the price for a certified product. The customer of B&Q, Carrefour and Intergamma is not likely to ask for a product with an FSC-logo on a large scale. This is not the main reason for retailers to demand certification from their suppliers.

Consumers nowadays ask for companies to be responsible to take the worries away from them. This attitude of consumers to the responsibility expected of the corporate sector has encouraged the ‘Profit, People, Planet’ approach to become an increasingly significant tendency in the business world. Society expects much from a company. It will be judged on its behaviour towards the environment (Planet), but also on its contribution to the social side of our common society (People). In addition to that, companies have to survive on something (Profit). A company performs well in the eyes of Society if it can find a good balance between these three components. These “three Ps” are irreversibly linked with each other. Profit over the long-term is only assured if a company also devotes attention to the effects of its actions on people, society, and the environment. Next to economic goals, any enterprise that follows the PPP-principle will therefore also set social and environmental goals for itself. Socially-responsible business or sustainable business practice serves the interest of the company. It is hardly seen as a luxury; rather, it pays for itself.

Huge retailers are dominating the markets of the Do-It-Yourself sector. In attracting clients, they feel a need for identifying themselves as a trustworthy partner of the customer. They don’t only provide products, they also provide services to their customers, like the sponsoring of DIY-courses on construction on specific jobs in the house, offered through television and in magazines. Certification is for these companies a marketing tool. For example, B&Q timber-buying policy is: ‘To continue to build our customer’s trust that all our wood and paper products come either from proven, well-managed forests or recycled material, thereby continuing to grow sales and build pride for our entire supply chain.’ It is the precautionary principle that drives the retailer, in order to build a long-lasting relationship with his customer.

If responsible retailers are looking for a long lasting relationship with their customers they will benefit from an independent and credible certification of timber. For Intergamma, and other retailers, this has been the primary reason to introduce a long-term policy to supply only FSC labelled timber to their customers.

CONCLUSION

The Forest Stewardship Council provides a marketing instrument for companies that wish to assure their clients of their long-term commitment to socially beneficial, environmentally appropriate and economically viable forest management. FSC labelled
products are considered by many forest owners, trade partners, governments and NGO’s to be an integral part of a free market of socially and environmentally responsible trade. FSC will continue to deliver a credible and independent certification system to support this developing sector

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Forest certification in Romania and the marked perspective

Paper by Mr. Ioan Vasile Abrudan, lecturer, Transilvania University of Brasov, Romania

ABSTRACT

The first discussions about forest certification were initiated in Romania in June 1998 when a workshop co-organised by the National Forest Administration, the World Wide Fund for Nature and the Forest Stewardship Council was attended by more than one hundred representatives of the main forest stakeholders. The dissemination of information about FSC certification increased significantly after the establishment of a working group for forest certification in late 1999.

In 2001 two state forest districts (Varatec and Targu Neamt, included in Vanatori Neamt Forest Park) applied for FSC certification and one year later the certificate was issued by Woodmark Soil Association for the first 31,611 ha of Romanian state forests, with an annual allowable cut of about 140,000 m³. The National Forest Administration intends to increase significantly the certified forest area in the coming years.

After 2000 several foreign and Romanian companies have expressed their interest in buying FSC certified timber and timber products from Romania. In anticipation of the first forest management certificate two foreign investors in wood processing in Romania got the chain of custody (CoC) certificate in December 2001. By the end of 2002 there were four CoC certificates in Romania and other seven companies were pre-assessed by an accredited certifier in view of chain of custody certification. Considering the foreign demand for FSC certified timber and timber products and the availability of certified timber it is expected that the number of companies CoC certified operating in Romania will increase significantly in the next period.

In spite of the ecological and social benefits of forest certification it appears that the main driving engine for forest certification in Romania will be the market benefits.

Key words: forest certification, chain of custody, certified timber, Romania
RÉSUMÉ

Les premières discussions consacrées à la certification des forêts ont eu lieu en Roumanie en juin 1998, à l’occasion d’un atelier organisé conjointement par l’Administration nationale des forêts, le Fonds mondial pour la nature et le Forest Stewardship Council (FSC), qui a réuni plus de 100 participants représentant les principaux intérêts du secteur forestier. La diffusion de l’information concernant la certification établie par le FSC s’est améliorée considérablement après la mise en place d’un groupe de travail de la certification forestière, à la fin de l’année 1999.

En 2001, deux massifs forestiers d’État distincts (Varatec et Targu Neamt, qui font partie du parc forestier de Vanatori Neamt) ont adressé une demande de certification au FSC. Un an plus tard, le certificat a été délivré par Woodmark Soil Association pour les 31 600 premiers hectares de forêts publiques de Roumanie, autorisant une coupe annuelle d’environ 140 000 m³. L’Administration nationale des forêts a l’intention d’accroître sensiblement la superficie des forêts bénéficiant de la certification dans les années qui viennent.

À partir de l’année 2000, plusieurs entreprises roumaines et étrangères se sont déclarées intéressées par l’achat en Roumanie de bois et de produits du bois certifiés par le FSC. Anticipant la délivrance du premier certificat de gestion forestière, deux investisseurs étrangers du secteur de la transformation du bois implantés en Roumanie ont obtenu le certificat de traçabilité en décembre 2001. À la fin 2002, sept autres entreprises (sur plus de 40 qui se sont déclarées intéressées par l’achat de bois certifié) avaient fait l’objet d’une évaluation préliminaire de la part d’un organisme de certification accrédité dans le but d’obtenir un certificat de traçabilité. Compte tenu de la demande étrangère de bois et de produits du bois certifiés selon le système FSC et de l’offre de bois certifiée, le nombre d’entreprises détentrices de certificats de traçabilité opérant en Roumanie devrait augmenter dans des proportions importantes au cours des années à venir.

En dépit des avantages écologiques et sociaux de la certification forestière, le principal moteur de la certification forestière en Roumanie, du moins à court terme, sera vraisemblablement la demande du marché.

Mots clefs: certification forestière, Roumanie, perspectives commerciales, Forest Stewardship Council, gestion forestière durable.
Сертификация лесов в Румынии и перспективы развития рынка

Документ, подготовленный лектором факультета лесного хозяйства и лесного инжениринга Трансилванского университета Брашова, Румыния, г-ном Йоаном Абруданом

РЕЗЮМЕ

Первые дискуссии по вопросам сертификации лесов состоялись в Румынии в июне 1998 года на учебно-практическом семинаре, организованном совместно Национальной лесной администрацией, Международной организацией "Всемирный фонд природы" и Лесным попечительским советом. В работе семинара приняли участие более сотни представителей различных заинтересованных организаций, занимающихся лесоводством. После создания в конце 1999 года Рабочей группы по сертификации лесов значительно увеличился объем распространяемой информации о схеме сертификации ЛПС.

В 2001 году два государственных лесных района (Воротек и Тарго Неамт, входящие в состав лесопарка Ванатори Неамт) обратились в ЛПС с заявками на сертификацию, а спустя год Ассоциации "Вудмарк Сойл" получила сертификацию на первые 31 600 га румынских государственных лесов с учетной годичной лесосекой примерно в 140 000 га. Национальная лесная ассоциация намеревается значительно расширить сертифицированный район лесов в предстоящие годы.

В начале 2000 года несколько иностранных и румынских компаний проявили интерес к приобретению в Румынии сертифицированной по схеме ЛПС древесины и изделий из древесины. В преддверии получения первого сертификата на управление лесами два иностранных инвестора, намеревающихся вложить средства в деревообрабатывающую отрасль в Румынии, в декабре 2001 года получили сертификат контроля за производственно-распределительной цепочкой. К концу 2002 года семь других компаний (из общего числа в 40 компаний, которые проявили интерес к приобретению сертифицированной древесины) прошли предварительную проверку у аккредитованного сертификатора в целях получения сертификата на контроль за производственно-распределительной цепочкой. Учитывая иностранный спрос на сертифицированную по схеме ЛПС древесину и изделия из древесины и наличие сертифицированной древесины, ожидается, что в предстоящий период значительно увеличится число компаний, действующих в Румынии на основании сертификата контроля за производственно-распределительной цепочкой.

Несмотря на экологические и социальные преимущества сертификации лесов, похоже, что в краткосрочной перспективе главной движущей силой в вопросах сертификации лесов в Румынии будет оставаться рыночный спрос.

Ключевые слова: сертификация лесов, Румыния, перспектива развития рынка, Лесной попечительский совет, устойчивое лесопользование.
INTRODUCTION

Forest certification is a tool to verify that forest management meets defined standards and its potential to promote good forest management practices has been recognized internationally. In the last decade there has been an increasingly rapid development of certification connected to markets which differentiate in favour of “environmentally-sound” forest products (Bass and Simula 1999).

The first discussions about forest certification were formally initiated in Romania in 1998. Whilst the dissemination of information as well as the debates regarding forest certification have been relatively intense in the last years, the first forest area was certified only in mid-2002. However, there is a clear commitment to certify in the coming years a large area of state forests, primarily for market reasons. This paper intends to highlight the main aspects regarding forest certification in Romania and its market perspectives.

FOREST CERTIFICATION IN ROMANIA: FROM THE FIRST WORKSHOP TO THE FIRST CERTIFIED FOREST

In June 1998 the first workshop regarding forest certification was co-organised at national level by the National Forest Administration (NFA), the World Wide Fund for Nature (WWF) and the Forest Stewardship Council-FSC (FSC was the only existing certification scheme at that time). It was attended by more than one hundred representatives of the main forest stakeholders: the public authority for forests, the National Forest Administration (national and county levels), logging and processing sectors, research, higher education, non-governmental organisations etc. Due to the relatively limited experience at that time regarding various aspects of forest certification combined with the large number of questions from the audience the conclusion of the workshop was that a phased approach is recommended for the Romanian context. As a result of the workshop an initial working group for forest certification (following FSC procedures) was established and it included representatives of NFA, research, academia and Forest Progress NGO. However, due to some management changes in NFA (which was supposed to coordinate the group) and lack of resources the initial working group had been inactive.

WWF Danube Carpathian Programme supported the establishment of an active working group for forest certification in the second half of 1999. Under the coordination of the Forest Department in the previous Ministry of Waters, Forests and Environmental Protection representatives of the main forest organisations in Romania were invited to be part of the working group and participate at the first meeting, which took place in September 1999. At the respective meeting the participants decided that in a short term the main objectives for the working group are: (i) dissemination of information regarding forest certification to the institutions and organizations from the forestry sector and to the public, (ii) promotion of forest certification among the forest stakeholders, (iii) supporting the activities regarding forest certification in Romania, and (iv) development of the
national standards for forest certification. Whilst the first three objectives have been successfully carried out via information materials (brochures, newsletters, articles published in forest magazines), web page, meetings, seminars and lectures for NFA staff, the development of the national standards have been relatively slow.

Two studies carried out in the period 1999-2000 in Brasov area identified the main corrective actions needed to fulfil the requirements of FSC forest management certification in state forests as well as the major improvements different types/sizes of logging/processing companies should undertake in order to get the chain of custody certificate (Abrudan, 2001).

In the second half of 2000 the discussions about other certification schemes (especially PEFC) intensified, especially in the pages of the main Romanian forestry magazine. However, due to various reasons including the very small proportion of private forest in Romania and the lack of resources within the Association of Private Forest Owners, the PEFC scheme has not been promoted in practice and presently there is no PEFC National Governing Body established and endorsed by PEFC Council.

In 2001 two state forest districts (Varatec and Targu Neamt, included in Vanatori Neamt Forest Park) applied for FSC certification in the frame of the Biodiversity Conservation Management Project (financed by the Global Environmental Facility, the Romanian Government and the National Forest Administration). One year later the certificate was issued by Woodmark Soil Association for the first 31,611 ha of Romanian state forests, with an annual allowable cut of about 140,000 m³.

The FSC certification of the first Romanian state forest highlighted the strengths of the present forest management practices as well as the improvements needed to get the certificate. The minor corrective actions were related to the following issues: the long term use rights and land titles (as the forest restitution process in the area was ongoing at the time of assessment); health and safety conditions (provision of personal protective equipment for forest workers and the monitoring of its use); protection of water resources and minimisation of damage during harvesting operations; inclusion of monitoring in relation to the environmental and social impacts of forest management in the standard management planning process; and provision of public information in relation to monitoring (Jones, 2002).

The National Forest Administration announced the intention to increase significantly the certified forest area in the coming years (1 million hectares). After the approval in December 2002 of the “Governmental Decision 1447/2002 regarding the approval of some measures related to the sustainable forest management”, the NFA has the legal framework which allows it to certify the state forests on its costs, following the public procurement procedures (***, 2002). The Governmental Decision underlines the importance of market benefits of certification, specifying that the option regarding forest certification should consider the market demands. It is known however that certification brings social benefits
(by including and consulting the social stakeholders in the process, more transparency etc.) as well as environmental ones.

In February 2003 Smartwood pre-assessed the first private forest district (managing the forests owned by Zetea community (compossesorate) – an undivided common ownership type) in Romania and another private forest is planned to be certified in the frame of a WWF-IKEA Partnership as a demonstration group certification scheme for private owners in Romania.

The experience gained during the certification of the first Romanian forest (when the FSC generic standards were used by the certifier) highlighted the need to develop national certification standards that would better reflect the local/regional conditions. The development of the national certification standards is expected to be intensified as the working group for forest certification secured most of the funds needed for the process. Part of the support is also provided by the GEF - Biodiversity Conservation Management Project.

**FOREST CERTIFICATION AND THE MARKET PERSPECTIVE**

After 2000 several foreign and Romanian companies have expressed their interest in buying FSC certified timber and timber products from Romania. More than fifty companies have contacted the working group or the National Forest Administration in order to identify Romanian sources for certified timber or timber products. Most of the companies are located in western Europe (Austria, Belgium, France, Germany, Italy, Netherlands, Sweden and the United Kingdom) and the demand is both for broadleaves and conifer species.

In anticipation of the first forest management certificate two foreign investors in wood processing in Romania got the chain of custody (CoC) certificate in December 2001. By the end of 2002 there were four CoC certificates and other seven companies were pre-assessed by the accredited certifiers in view of chain of custody certification. Presently, the CoC certificates cover a relatively limited spectrum of wood products (roundwood, raw and coated MDF boards, kiln dried and profiled wooden elements of various species, garden furniture, joinery products etc.) but it is expected that their number will increase significantly in the near future.

Considering the fact that Romania is a net exporter of wood and wood products to western European countries, the growing foreign demand for FSC certified timber and timber products, and the increasing availability of certified timber from the country’s forests it is expected that the number of CoC certified companies operating in Romania will grow rapidly. However, for many Romanian companies the CoC certification is seen as a customer “need” that should be satisfied if they want to keep the existing market or to gain access to new markets. There is still a long way for the majority of them to realize that certification provides their customers with a credible guarantee that the company is acting
responsibly with respect to the environmental and social issues of those involved in forest and forestry.

CONCLUSION
In the last years forest certification has evolved in a stepwise manner in Romania: it began with the introduction of the concept to the main stakeholders, continued with the dissemination of information about the process and the certification of a pilot area. Recently, the FSC certification has got the right momentum for a rapid development both in state and private forests. In spite of the ecological and social benefits it appears that on a short term the main driving engine for forest certification in Romania will be the market.

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Illegal logging in the context of the sound use of wood

Paper by Mrs Laura Bouriaud and Mr. Anssi Niskanen
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ABSTRACT

From legal perspective, illegal cuttings can be understood as logging done with the infringement of criminal law (timber robbery) or of administrative law (harvest regulation). Timber robberies diminish the owner’ propensity for long term investments and increase the costs of forest management, whilst the infringements of harvest regulations signify often non sustainable forest practices (unsustainable cuttings, logging of immature stands and trees, logging in areas reserved for nature protection, etc.). Also, illegally cut wood – being cheaper in the markets – compete on unfair terms with wood from sustainable managed forest, thus resulting to a market failure.

The paper makes a short review on what illegal logging mean by definition and presents some data about the importance of illegal logging in selected CEE countries. The results indicate that the recorded volume of illegally removed timber generally varies from one to six percent from the total volume harvested. The amount of wood illegally harvested but not included in the official statistics was not possible to estimate. However, in the case of private forests, illegal logging may reach up to 10 % of the total harvests. The paper discusses the economic losses due to the illegal logging and how these losses are distributed between the main stakeholders of forest sector.

Using data and examples from selected CEE countries, the paper draws attention under which conditions illegal logging may threat sustainable forest management and forest preservation and how they may affect the efficient utilisation of forest resources.

Key words: Illegal logging, sustainability, economic, sound use of wood

Note: The results and conclusions presented in the paper are only of the authors, based on their research work on the subject in the second half of year 2002.
Abattages illégaux dans le contexte de l’utilisation rationnelle du bois

Document établi par Mme Laura Bouriaud et M. Anssi Niskanen, Institut forestier européen

Résumé
Du point de vue juridique, les abattages illégaux peuvent être constitués par des abattages réalisés en infraction à la législation pénale (vol de bois) ou en infraction à la réglementation administrative (relative à la récolte du bois). Les vols de bois ont pour conséquence d’amoidrir la propension du propriétaire à investir à long terme et d’augmenter le coût de la gestion forestière; les infractions à la réglementation relative à la récolte impliquent souvent des pratiques forestières contraires aux principes de la gestion durable (coupes rases, abattage de sujets immatures, exploitation dans des zones réservées à la protection de la nature, etc.). De plus étant meilleur marché, le bois récolté illégalement entre en concurrence déloyale avec le bois provenant de forêts gérées de façon durable, ce qui fausse le marché.

Les auteurs du document définissent brièvement les abattages illégaux et présentent des données illustrant l’ampleur du phénomène dans quelques pays de la CEE. Les résultats de l’étude montrent que le volume connu de bois récolté illégalement se situe généralement entre 1 % et 5 % du volume récolté total. Dans le cas des forêts privées toutefois, il peut aller jusqu’à 10 %. Les auteurs avancent une estimation des pertes économiques dues aux abattages illégaux et expliquent comment ces pertes se répartissent entre les principaux acteurs du secteur forestier.

En se fondant sur les données et les exemples de divers pays de la CEE les auteurs exposent les circonstances dans lesquelles les abattages illégaux peuvent représenter une menace pour la préservation de la forêt et la façon dont ils peuvent compromettre l’utilisation efficace des ressources forestières.
WHAT IS ILLEGAL LOGGING?

The definitions of illegal logging vary between countries and time (Callister, 1999; Contreras-Hermosilla, 2002; Ahas, 1998; Morozov, 2000; WWF’ Forest Conservation Portal; Transparency Moldova; Global Forest Watch, etc.), and it is difficult to find a single explanation on what logging is illegal. In this paper the category of law encroachment instead of the forms of illegal logging are investigated. The definition to include timber robbery and unauthorised logging on illegal logging is applied (Fig. 1).

From the legal perspective, illegal logging can be understood as logging done with the infringement of criminal law (timber robbery) or of administrative law (e.g. legally binding forest management and harvesting regulations). The definition that what the law says is illegal is illegal might be considered somewhat tautological, but in fact it represents a definition to illegal logging helpful for analytical purposes and endorsing several international initiatives in this field. It is also in line with the outcomes of the European Commission workshop on illegal logging outcome that included a conclusion that legality in logging activities means the respect of the laws of timber-producers countries (FLEGT, 2002: 12).

In CEE countries, as elsewhere, the rules of logging as part of forest management activities are settled out by basic forest laws (Forest Act, Forest Code) and detailed at the stand level by regulations and guidelines for forest management. In this respect, illegal logging can be seen to mean all harvests done in the infringement of forest law and of regulations for forest management. With this definition approach and within the framework of CEE forest legislations, illegal logging may be defined as trees harvested without the owner’s agreement (robbery, or illegal appropriation) or without respecting the constraints imposed by law (unauthorized harvests).

It should be noticed that illegal logging is only a part of illegal activities in forest sector, which can also include illegal timber processing and illegal trade of wood and wood products. Nevertheless, illegal logging is often classified to include “timber robbery” and “unauthorized logging”, rather than the spectrum of illegal aspects in the whole forest wood chain. In some cases (Lithuania, Czech Republic) the statistics on illegal logging record also the violations against other administrative norms, e.g. environmental, labor protection, tax rules, etc. In these cases the illegality in logging is not, however, forest-specific.

Definitions also exist that all timber produced with illegal methods is illegal, and contributes to create parallel markets difficult to control regardless the nature of rule infringed (Ahas, 2001). The Estonian Green Movement, for example, has identified as illegal logging – measured in percentages of the total volume of felled timber: timber robberies - 5%; violations against felling regulations - 20%; fellings not providing necessary documentation - 20%; fellings where employer’s taxes and/or income tax are not paid- 50%; and fellings where value added tax and other taxes are not paid - 15%.
A special point often connected to illegal logging is corruption. Despite of particular interest on this matter in conjunction with illegal logging (see Callister, 1999; Contreras-Hermosilla, 2002), there is no formal definition for corruption\(^5\). For example, some ten different infractions that are described in Romanian penal law could be put under the “corruption” umbrella, but no record exists on the number of corruption cases\(^6\). In the context of illegal logging, corruption could be narrowly defined as the illegal logging done or facilitated by public officials. Illegal logging represents a wider issue than corruption: some illegal logging may be, indeed, apparent manifestation of corruption, but all illegal logging are not connected to corruption at any way.

Also some lawful management practices could in fact mean to infringe the objectives of the law. For example, sanitary logging may constitute a “grey” area of timber logging (“loophole” in Contreras-Hermosilla’s, 2002, study), if control on their intensity does not exist or is insufficient. The issue of violations against law with legally sound operations has been analyzed, for example, in the case of thinnings and sanitation cuttings of the public forest service in Russia (Morozov, 2000).

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\(^5\) Contreras-Hermosilla (2002) quoted three definitions, coming respectively from Schleifer and Vishney, 1993, Transparency International, 1996, and World Bank, 1997. According to these, corruption involves public officials, who sale or use public or government property for private (personal) gains. Transparency Moldova made known on Internet recently some facts of corruption between forest administration in Moldova, in publishing the official investigation report of the Financial Court (Curtia de Conturi).

\(^6\) The reason is the profession of the person who infringes the law. In “corruption” activities, the person should be a public official, whilst in “illegal” activities the profession of the person \textit{per se} does not matter.
HOW MUCH TIMBER IS ILLEGALLY LOGGED IN CEE COUNTRIES?

Table 1 illustrates the available data on the volume of timber illegally logged (stolen and unauthorized cuttings) and its relative share in comparison to the total volume of annual timber harvests in selected CEE countries. It should be noted that the figures from official statistics may be unreliable and rather underestimates than overestimates the real amount of wood illegally cut.

Table 1. The volume of timber illegally logged in selected CEE countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Stolen 1000 m³</th>
<th>Unauth. 1000 m³</th>
<th>Illegal log. total 1000 m³</th>
<th>Vol. total harvested 1000 m³</th>
<th>Illegal log from total vol.</th>
<th>Source</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>1997</td>
<td>na</td>
<td>na</td>
<td>565</td>
<td>706</td>
<td>80.1%</td>
<td></td>
<td>Pettenella, 1999</td>
</tr>
<tr>
<td></td>
<td>1998</td>
<td>na</td>
<td>na</td>
<td>124</td>
<td>298</td>
<td>41.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>1997</td>
<td>112</td>
<td>25</td>
<td>137</td>
<td>14500</td>
<td>0.9%</td>
<td></td>
<td>RNP, Internal sources</td>
</tr>
<tr>
<td></td>
<td>1998</td>
<td>120</td>
<td>28</td>
<td>148</td>
<td>12600</td>
<td>1.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>122</td>
<td>26</td>
<td>148</td>
<td>14200</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>1999</td>
<td>na*</td>
<td>129</td>
<td>129</td>
<td>2985</td>
<td>4.3%</td>
<td></td>
<td>Yearbook of forests, 2001</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>na*</td>
<td>172</td>
<td>172</td>
<td>2923</td>
<td>5.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1998</td>
<td>na</td>
<td>111</td>
<td>111</td>
<td>14990</td>
<td>0.7%</td>
<td></td>
<td>Ministry of Agriculture, different years</td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>na</td>
<td>152</td>
<td>152</td>
<td>14200</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>na</td>
<td>148</td>
<td>148</td>
<td>14400</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>1998</td>
<td>na</td>
<td>na</td>
<td>122</td>
<td>2500</td>
<td>4.8%</td>
<td></td>
<td>Statistical yearbooks of Slovenia</td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>na</td>
<td>na</td>
<td>95</td>
<td>2400</td>
<td>3.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>na</td>
<td>na</td>
<td>91</td>
<td>2600</td>
<td>3.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>1999</td>
<td>1.4</td>
<td>15</td>
<td>16.4</td>
<td>4900</td>
<td>0.3%</td>
<td></td>
<td>Lithuanian forest statistics</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>1.4</td>
<td>25</td>
<td>26.4</td>
<td>5300</td>
<td>0.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

na - not available

For Estonia, the records of illegal logging include the number of cases and the total value of economic loss, but not the volume of illegally logged timber. The relative share of illegal logging presented in this table for Estonia is less than the estimated volume of illegal logging by the Estonian Green Movement (in Ahas, 2001).
In the system of records of illegal logging, large differences exist between countries. In some records illegal logging consists of both timber robbery and unauthorized logging, in other records illegal logging includes only unauthorized logging. In some cases, (for example, Yearbook of Forests, Estonia, 2001: 85), the records make reference to the number of cases of illegal logging and to the total value of loss, but not to the volume of wood. Thus, the figures presented in Table 1 should be seen as indicative and at best giving an overview of how much is officially recorded as illegal logged timber. In practice, the figures in the Table 1 represent the low estimates of the volume of timber illegally logged.

The figures in Table 1 indicate that, except in Albania, the recorded volume of illegally removed timber generally varies from one to six percent of the total volume harvested. How reliable these figures are, was not possible to estimate. In comparing the differences between the volumes of illegal logging, one should keep in mind that they have been obtained from official records and that they are therefore dependent on a specific institutional context. Accordingly, the relatively high level of illegal logging recorded in Slovenia does not necessarily mean particularly high share of illegal logging in the country in comparison to other CEE countries. It may rather be a result of functioning organization on the control of law compliance in forestry. In Slovenia the strong assistance of private forestry by the state forest service representatives (FAO, 1997) may make it easier to monitoring illicit activities in forestry.

Illegal logging may be higher in private than State owned forests. For example, in Lithuania, the volume and number of illegal logging recorded in private forests doubled between 1999 and 2000, whereas the number of cases recorded in State forests remained approximately at the same level. Also in Romania, according to the forest authorities, timber robberies tend to be located now more in private forests than earlier. The example from the Suceava County in Romania illustrates the significant differences on the intensity of illegal logging according to the holder of forestland (Table 2).

Table 2. The volume and intensity of illegal logging in different ownership categories in Suceava County, Romania.

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume of illegal logging, cubic meters</th>
<th>Intensity of illegal logging cubic meters /100 ha of forests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in State forests</td>
<td>in private forests</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>17379</td>
<td>8867</td>
</tr>
<tr>
<td></td>
<td>1949</td>
<td>10603</td>
</tr>
<tr>
<td></td>
<td>3376</td>
<td>1453</td>
</tr>
<tr>
<td></td>
<td>4,1</td>
<td>2,2</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>48,2</td>
<td>21</td>
</tr>
</tbody>
</table>

Source: Directia Silvica Suceava, different years
In principle, the average volume of timber stolen per case could be an indicator of the final destination of timber and of the amplitude of the phenomenon. The higher the average volume per case, the more likely the final destination of timber stolen is in wood processing. On the other hand, low volumes of timber robberies may indicate the household use of wood. According to the recorded cases, the average volume of stolen timber per case in 1999 was 3 cubic meters in Romania and 12 cubic meters in Lithuania, whilst the data available for Estonia for 1998 show an average volume of illegal felling (unauthorized logging) of 64 cubic meters.

DO ILLEGAL LOGGING MATTER IN THE CONTEXT OF SOUND USE OF FORESTS?

Timber robberies diminish the owners’ benefits from his/her forests, whilst the infringements of harvest regulations means often non sustainable forest practices (unsustainable cuttings, logging of immature trees, logging in area reserved for nature protection, etc.). In both cases, the cost of forest management increase and the value of future forest revenues decrease. In the following, the consequences of illegal logging upon the sound use of forest resources are discussed from the sustainability and economical viewpoints.

Violation against sustainability

Sustainability has been commonly accepted as the leading principle for forest management in new forest laws adopted in CEE countries during the last decade. The traditional criteria for sustainability that was mainly concerned on sustainable forest yield has been updated with objectives on multifunctional forest management and biodiversity protection. A common judgement to remark that illegal activities are unsustainable is because they break the “rules” of sustainability fixed on the forest laws. The question of illegal logging violating sustainability includes not only the share of illegally harvested timber, but also the role of illegal logging in deforestation, diminishing the value of preserved forests and decreasing the quality of forest stands.

At a first sight, the amount of illegally logged timber appears a small threat for sustainable forest yield (assuming that officially recorded volumes are reliable). Even in taking into account the volume of illegal logging, the total harvested volume often still remains lower than the annual allowable cut would be, for example, in Romania, Lithuania or Estonia. However, when the amount of illegal logging are considered in some specific areas like in private forests, or the potential overharvests in sanitary cuttings or the likely violations against the sustainable forestry after its broader definition, the impact of illegal logging clearly becomes a matter of concern. If looking the Romanian example more closely, the authorised volume to be harvested that is marked\(^7\) by the forest authorities in private stands

\(^7\) The marking of trees, used in Romania, Lithuania and Slovenia in private or public forests while harvest is planned, consists in putting a mark with the help of an official hammer on each tree sold, at the level of the
was about 4.9 million cubic meters during the last decade (1989-1999). Only 70%, or 3.4 million cubic meters of this volume has been actually harvested. If one, however, adds to this figure the volume of timber from illegal cuttings in private forests, that is approximately 6.6 million cubic meters (MAPPM-RNP-ICAS, 1999; Bouriaud, 2001), the overall result would be that the harvests from private forests increased up to 10 million cubic meters. This is 40 % higher than the allowable cut for the same period in private forests. In this Romanian example, an obvious consequence from illegal logging in private forests has been deforestation as definitive change of land use, resulting partially to the loss of 30 thousand ha of forests during last decade (Anuarul statistic al Romaniei, insee.ro). Another obvious consequence has been the increase in an area of damaged stands, because of extensive uncontrolled thinnings.

Costs of illegal logging

Illegal logging create conditions for an inefficient use of timber and may lead to a vicious circle of resource waste (FLEGT, 2002). Illegal activities lower the propensity to invest in long term options, depress market value of forest products, misallocate investments in forest management and reduce governments income (Contreras-Hermosilla, 2002). From an economical viewpoint, illegal logging represents socially negative phenomenon for two reasons: illegal loggings increase forest management and transaction costs; and secondly, illegal logging leads to market failures.

The utilisation of forest resource is more costly in the case of presence of illegal logging than without them. Different categories of costs that are affected by illegal logging include:

- Direct costs. Because the economical and/or ecological value of the forest asset is reduced due to illegal logging, e.g. also the lost tax revenues. Theoretically, the value of illegal logging and the value of growth loss could be compensated through penalties, which might also include a premium for environmental damage. Nevertheless, the compensation remains theoretical unless the authorities can discover the actors behind the illegal logging and unless the criminal process results to a penalty through actual financial payment. As it is very obvious that most of the actors of illegal logging will never be identified, as is in 70% of cases in Romania, illegal logging represents a real economic cost for the forest owner and to a great extent also to the society. It is likely that the direct costs of illegal logging are higher than the direct benefits from the use of illegally cut timber.

- Opportunity costs. These costs appear because the resources used to prevent illegal logging would result to economic gains if used for other purposes.

- Transaction costs. The transactions costs are related to the reinforcements and the measurement of property rights (North, 1990). The higher is the value of timber, the higher are the costs of specification of harvesting rights, and the more costly it is to monitor the stump and at the level of the log. The idea is to cut only selected trees (sylvicultural objective), but also to control the removal of timber. The forest warden and/or the forest owner are responsible if stumps are found without the mark of the official hammer.
compliance to the rules. Also, the higher is the value of an asset, the greater are the efforts and costs of individuals to prevent its unwanted use (Barzel, 1997).

Forest guarding represents an example of a direct cost related to the reinforcement of property rights. Guarding aims to ensure the exclusivity of owner’s property rights against timber robbers. Other measures aim to ensure the legality of timber harvests: the marking of trees (Romania, Lithuania, Slovenia), the administrative harvest permits (in all CEE countries), the control of timber transportation (an official document is required in the case of timber transportation for example in Lithuania, Romania, Hungary and Estonia). The costs of property rights reinforcement and the costs of legality control are sometimes in the charge of forest owner, sometimes they are shared between the State and the forest owner. An example of the latter is a situation where the marking of trees is compulsary, and the owner has to partially pay an official forest representative to do it. In some cases the costs of property rights reinforcement and the costs of legality control are exclusively in the charge of the State, like in the case of timber transportation control.

The market failure appears also when the illegally cut wood, being cheaper in the markets, competes on unfair terms with wood from sustainable managed forest. The marginal rent of agents operating illegal logging is represented by the stumpage prices that they do not pay. In the Albanian case that is 20% of the final price of timber sold (Pettenella, 1999). In reality, the rent is lower than 20%, because illegal trade involves transaction costs higher than in the case of legal trade. In the CEE countries, a supplementary rent appears because of comparative lower prices of wood in international trade. Thus the incentives to do illegal logging are very high: for example, a cubic meter of ash costs one dollar if stolen in Russian forests, and it could be sold in 600 dollars to Japan (Contreras-Hermosilla, 2002).

On the other hand, the illegal harvested volume of timber leads to an increased supply of wood into the markets and to a lower price of timber. This may significantly impact on the financial return to the forest owner and also the state forest service via reduced tax revenues.

As a part of forest management activities, the state forest service has to perform forest guarding due to a risk of timber robberies. It has to also organise the marking of trees, establish forest management plans for private forest owners, organise the control of timber transportation, etc. which all cause additional costs for state forest service. Moreover, the state forest management may be affected indirectly by the illegal logging: if illegal quantities of timber become available at lower prices from other forest owners, the State will obtain lower price on wood also.
DISCUSSION

Illegal logging will inevitably shape in the long run the characteristics of forests in those countries where it is a severe problem. Due to the clear violation against the principles of sustainability, illegal logging is a threat not only for forest management and forest environment, but also to the system of forest and related policies aiming to support sustainable development.

The major problem in assessing the magnitude of illegal logging is the availability of data. The data presented in this paper was based on official records and statistics, but it is unlikely to represent the magnitude of illegal logging correctly. Most obviously illegal logging is higher than recorded officially. This may be due to restricted resources and possibilities to find and report all illegally cut wood.

How severe threat to sustainability illegal logging represents, is a complicated issue where at least the following points should be made:

- The significance of illegal logging to sustainability differ if the sustainability is considered over large areas or reported to some particular categories of forests (private versus public; remote forested area versus forests near to villages or towns; woody regions versus woodless regions).

- Illegal logging do not necessarily significantly contribute to resource depletion; for example, in all other countries studied except Albania, illegal logging did not overreach the annual allowable cut when calculated at the national level, irrespective to the category of forests or to the location of forests. Nevertheless, illegal logging may represent a clear risk, if they are added to other felling of illegal nature (as part of sanitation cuttings may be), or if more strict than timber yield criteria for sustainability are applied.

- Illegal logging may results to severe ecological consequences. Besides the diminishing stand timber quality (often, illegal logging represent the harvest of the most valuable trees of the stand), and the location of illegal logging (illegal logging affect often protected forests and forest reserves), the stability of the stands may also be negatively affected. Illegal logging may, for example, decrease the stability of stands against storms and other natural hazards.

- Illegal logging are often much higher in private forests than in public forests (up to two or three times in Estonia and Romania), whereas the average age of stands, the production class and stand density are often lower. While the forest legislation in CEE countries hardly accepts discrimination between rules of management in private estate and in public estate (see Cirelli, 1999), these differences could probably not be explained totally by physical characteristics of soil and site production characteristics. Rather, the difference may be due to different forest management practises but also higher share of illegal logging in private forests.

For the future, especially the questions of scale and the timing are essential issues to be considered for clarifying the relationship between illegal logging and the sound use of
forests. The scale issue requires further analyses on illegal logging, such as: How much wood is illegally cut? Which are the consequences of illegal logging, especially if they concentrate on a certain area? Which characteristics of private forests are influenced because of illegal logging, and how this affects on sustainability? How illegal logging affect the potential of forests to regenerate? How illegal logging could be taken into account when making the annual allowable cut decisions?

The question of timing forwards the emphasis of illegal logging issue to the field of politics. The political will to cope with illegal logging represent an expression to equally prefer the welfare of future generations as that of present generation. Illegal logging benefit the welfare of present generation at the cost of future generations.

Means to restrict illegal cuttings are largely debated. Should they be based on better law enforcement, what is the role of international agreements and public pressure to lead for a better control on illegal logging, how different actors in forest wood chain could influence on illegal logging and would forest certification provide tools to help decrease illegal logging? These are some of the questions for future research in this field.

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TOPIC 5.2: SUPPLY CHAIN ISSUES: CHAIN OF CUSTODY, PROCUREMENT, ETC.
Sound use of wood: new markets or new obstacles to trade?

Paper by Mr. Serguei Kouzmine,
Secretary to the UNECE Working Party on Technical Harmonization and Standardization Policies, UNECE, Geneva

ABSTRACT

The development of international trade at present is strongly influenced, among other factors, by environmental issues. The growing public awareness of environmental matters plays an increasing role in purchasing decisions of consumers thus making business operators to take seriously into account an environmental impact and performance of their corporations.

As a result of such “green product” demand a new generation of international standards, a family of generic environmental management standards (ISO 1400 series), has been elaborated and a significant number of national and regional sectoral environment-related standards, guidelines and certification schemes appeared on various markets.

The purpose of numerous “eco” certification schemes including forest certification is to reward producers who meet the consumer demand for environmentally friendly products by allowing them to increase sales or even creating new market/niches, or charging a price premium on such products.

At the same time traders, in particular from developing countries, are getting increasingly worried about market access and trade distortions effects of such schemes that could be used as a means of discriminating imported against products and foreign suppliers.

In the area of forest certification there are significant variations in the demand for “sustainably produced” wood from sustainably managed forests on particular markets. Final importer/retailer requirements and definitions on “what is and what is not sustainably produced wood” also vary. Hence exporters wonder about the cost of adjustments to different markets, about expenses of testing and inspection depending on final destinations of their exports.

There is also a growing understanding among environmentally cautious producers and traders that proliferation of eco schemes leads to confusion not only among exporters but, more important, among consumers thus undermining credibility of existing schemes and could have a negative effect on international trade in organic goods including not sustainably produced wood.

The objectives of this session should be to discuss and share experiences on how to reconcile trade and environmental matters in the forest sector, namely:

- To promote the positive image of forest certification among consumers and producers,
- To avoid proliferation and competition between certification schemes;
- To ensure the real voluntary nature of forest certification so that it does not become a trade barrier to market entry;
- To identify issues of concern to main players for further analysis and debate.
Utilisation rationnelle du bois: nouveaux marchés ou nouveaux obstacles pour le commerce?

Document établi par M. Serguei Kouzmine,
Secrétaire du Groupe de travail des politiques d’harmonisation technique et de normalisation de la CEE-ONU, CEE-ONU, Genève

RÉSUMÉ

À l’heure actuelle, le développement du commerce international est fortement influencé par les questions d’environnement, entre autres facteurs. La meilleure connaissance des problèmes environnementaux joue un rôle de plus en plus déterminant dans les achats des consommateurs, ce qui pousse les industriels à prendre sérieusement en considération l’impact de leurs activités sur l’environnement et à prendre des mesures à cet égard.

En raison de cette demande de «produits verts», une nouvelle génération de normes internationales — la famille des normes générales de management environnemental (série ISO 14000) — a dû être mise au point et un très grand nombre de normes, de directives et de procédures de certification sectorielles, nationales et régionales, relatives à l’environnement ont fait leur apparition sur plusieurs marchés.

Les nombreux systèmes de certification «éco», comme la certification des forêts, visent à récompenser les producteurs qui satisfont à la demande de produits écologiques des consommateurs en leur permettant d’augmenter leurs ventes, ou même de créer de nouveaux débouchés ou de majorer les prix de ces produits.

Parallèlement, les négociants, en particulier ceux des pays en développement, s’inquiètent de plus en plus de l’altération de l’accès aux marchés et des échanges causée par ces systèmes qui pourraient être utilisés pour exercer une discrimination contre les produits importés et les fournisseurs étrangers.

En ce qui concerne la certification des forêts, la demande de bois «produit selon des méthodes rationnelles» et provenant de forêts gérées dans un souci de durabilité varie considérablement selon les marchés. Les importateurs/détaillants finals ont également des idées différentes sur ce que doit être le «bois produit selon des méthodes rationnelles». Les exportateurs s’interrogent sur le coût de l’adaptation des produits aux différents marchés et sur les dépenses à engager pour la mise à l’essai et la vérification en fonction des destinations finales de leurs exportations.

De plus en plus, les producteurs et les négociants soucieux de l’environnement comprennent que la prolifération de labels «éco» est source de confusion non seulement parmi les exportateurs mais aussi, fait plus grave, parmi les consommateurs, ce qui porte atteinte à la crédibilité des labels existants et risque de nuire aux échanges internationaux de produits biologiques, notamment de bois produit selon des méthodes rationnelles.

Cette séance devrait être consacrée à des débats et à des échanges d’expériences sur la manière de concilier commerce et environnement dans le secteur forestier, grâce aux mesures ci-après:

- Promouvoir l’image positive de la certification des forêts auprès des consommateurs et des producteurs;
- Éviter la multiplication des systèmes de certification et la concurrence entre les systèmes existants;
- Veiller à ce que la certification des forêts soit véritablement volontaire et ne devienne pas un obstacle à l’accès aux marchés;
- Définir les sujets de préoccupation des principaux intéressés en vue d’analyses et de débats ultérieurs.
Рациональное использование древесины: новые рынки или новые препятствия на пути развития торговли?

Документ, подготовленный секретарем Рабочей группы ЕЭК ООН по техническому согласованию и политике в области стандартизации, ЕЭК ООН, Женева, г-ном Сергеем Кузьминым

РЕЗЮМЕ
Развитие международной торговли в настоящее время находится под сильным влиянием, в том числе со стороны экологических проблем. Растущая осведомленность общественности в вопросах охраны природы играет все более важную роль в покупательских решениях потребителей, что заставляет предпринимателей серьезно относиться к вопросу о том, какое воздействие оказывает деятельность их корпораций на окружающую среду.

В связи с ростом спроса на "зеленую продукцию" возникло новое поколение международных стандартов - целый свод универсальных норм, регулирующих вопросы управления окружающей средой (ИСО серии 1400), а на различных рынках мира появилось значительное число национальных и региональных норм, руководящих принципов и планов сертификации, относящихся к вопросам охраны природы.

Цель многочисленных "эко" сертификационных схем, включая сертификацию лесов, состоит в том, чтобы стимулировать производителей, которые учитывают требования потребителей в отношении производства экологически благоприятных продуктов, разрешая им увеличивать объемы продаж и даже создавая новые рынки/ниши, или устанавливая надбавки к цене на такие продукты.

При этом, однако, коммерсанты, в особенности из развивающихся стран, испытывают все большее беспокойство по поводу доступа к рынку и в отношении последствий использования сертификационных схем, которые, по их мнению, могут приводить к перекосам в торговле и которые могут быть обращены против импортируемых продуктов и против иностранных поставщиков.

В области сертификации лесов на различных рынках наблюдаются значительные колебания в спросе на древесину, полученную "устойчивыми методами" с применением устойчивого лесопользования. Имеют место также существенные различия между конечными потребностями импортера/продавца и определениями того, что "является древесиной, полученной с помощью устойчивых методов". Таким образом, экспортеры нередко пребывают в неведении относительно того, во сколько им могут обойтись корректировки на тех или иных рынках и сколько будут стоить проверки и инспекции в зависимости от конечных пунктов назначения их экспортной продукции.

Среди бережно относящихся к природе производителей и коммерсантов при этом растет понимание того, что распространение экосхем входит в заблуждение не только экспортеров, но, что самое главное, и потребителей, тем самым подрываая веру в уже существующие схемы. Это может иметь негативные последствия для международной торговли органическими товарами, включая древесину, полученную с использованием неустойчивых методов.

Задача данного заседания должна состоять в том, чтобы обсудить, каким образом можно увязать торговлю с охраной природы в лесном секторе, и обменяться опытом работы, а также, чтобы:

- содействовать формированию позитивного образа сертификации лесов у потребителей и производителей;
- избегать распространения различных систем сертификации и соперничества между ними;
- обеспечить поистине добровольный характер сертификации лесов с тем, чтобы она не стала торговым барьером на пути выхода на рынок;
- выявить для целей проведения дальнейшего анализа и обсуждений те проблемы, которые вызывают наибольшую озабоченность у основных участников рынка.
Sourcing timber from responsibly managed sources

Paper by Ms. Margaret Rainey, Deputy Director/Director Europe
Global Forest and Trade Network, WWF International, Sweden

ABSTRACT

WWF is one of the world’s largest non-governmental, non-profit conservation organisations. WWF recognises the increasingly important role that business, financial institutions and governments have in shaping and implementing sustainability policies through their purchasing and investment power. When establishing a purchasing policy a step-wise approach can be used to gradually achieve a long-term goal of sourcing wood products from responsible sources. The steps can include entry thresholds (known origin, legal sources, not from high conservation value forests (HCVFs) or protected areas unless certified), a transition level and a final level of sourcing from well-managed, credibly certified sources. Companies such as The Home Depot and IKEA have created purchasing policies to address their wood sourcing. Public procurement policies to promote responsible forestry, guarantee legality, and/or favour certification have been made by the Governments of the UK, Germany and Denmark and by numerous local authorities in Europe. Producer Groups, organised by WWF Global Forest and Trade Network, offer a modular, verifiable approach for achieving certification (Modular Implementation and Verification, MIV). GFTN’s demand-oriented Networks influence purchasing policies to give preference to products from credibly certified forests or from forests tracked for certification in the Producer Group programme.

Key words: WWF, responsible forest management, purchasing policies, High Conservation Value Forests (HCVFs), credible forest certification, public procurement, Global Forest and Trade Network (GFTN), Producer Groups

INTRODUCTION

World Wide Fund for Nature (WWF) is one of the world’s largest non-governmental, non-profit conservation organisations. It has nearly 5 million supporters and a global network in nearly 100 countries. WWF forestry staff of 150 runs projects in 70 countries and provides the largest amount of non-governmental funding for forestry work in the world. WWF’s mission is to stop the degradation of the planet’s natural environment and to build a future in which humans live in harmony with nature. WWF works to protect forests and promotes responsible forest management and the restoration of degraded forest landscapes. WWF
Strategies for the sound use of wood, March 2003, Romania
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has set a target to achieve 100 million hectares of certified forests by 2005, distributed in a balanced manner among regions, forest types and land tenure regimes.

WWF recognises the increasingly important role that business, financial institutions and governments have in shaping and implementing sustainability policies through their purchasing and investment power. WWF has established a web of global partnerships on forest issues that show that the interests of economy and ecology are not in opposition but can work together to promote responsible forestry and responsible wood sourcing. WWF’s partnerships with the global home furnishing retailer, IKEA, the Swedish state-owned forest company, Sveaskog, and the World Bank demonstrate that social and environmental issues are intricately linked to business concerns.

**ESTABLISHING PURCHASING POLICIES FOR RESPONSIBLE WOOD PURCHASING**

According to the World Bank, the definition of illegal logging includes harvesting without permission and over-harvesting, but also activities where there is contravention of national laws including avoidance or taxes. Illegal logging accounts for 15% of all commercially logged timber globally and has resulted in the loss of about 3% of the world’s forest land during the 1990’s. This represents an annual revenue loss to timber producer countries of some US $10-15 billion, which is more than the total aid that the world gives for health and education. There is an emerging recognition that a focus on procurement is a powerful tool to address illegal logging.

When establishing a purchasing policy a step-wise approach can be used to gradually achieve the long-term goal of sourcing wood products from responsible sources. The first step is to identify entry threshold requirements. One such threshold is to require third-party verification of the origin and legal status of the products purchased. It is also important to independently verify that the wood products sourced do not come from protected areas or High Conservation Value Forests (HCVFs) that are not certified. Within the framework of the WWF/IKEA cooperation on forest projects and in consultation with a wide range of stakeholders, WWF is developing a toolkit for the identification and management of HCVFs. This Toolkit is now available in draft form. The HCVF concept goes far beyond the debate about which forests should be managed and which should not. It focuses on the critical biological, environmental or social values that make a forest important in its particular context. Examples of such values are the habitat of endangered mountain gorillas or sacred burial grounds of indigenous people. WWF’s hope is that the HCVF concept and Toolkit will become widely available in the practical reality of achieving responsible forestry.

Once the entry-level threshold requirements are fulfilled suppliers can enter a transition phase, where verification of continuous improvement is a key part. Here, the Modular Implementation and Verification (MIV) process (see section on Producer Groups below) can prove very useful. Through establishing an action plan where all of the key elements of fulfilling a responsible forestry standard are set out on a time line and independently
verified suppliers can show progress towards responsible forestry. Producer Group membership can provide the framework for this.

The final level of the stepwise approach: sourcing from well-managed responsible sources can be achieved when wood products are certified according to a credible system. Certification systems can be assessed based the World Bank/WWF Alliance’s criteria for certification schemes (see Annex I). Guidelines are now being developed to help apply these criteria. Through a criteria-based analysis, focusing on credibility, rigour and transparency, robust certification schemes and standards can be identified. At present the Forest Stewardship Council (FSC) best meets WWF’s conservation agenda.

Standardisation of reporting on wood consumption as a part of a company’s general Corporate Social Responsibility reporting would make understanding of the current status of sourcing and communication of progress easier and more transparent. Together with its partners, GFTN is investigating ways of globally standardising corporate reporting of this kind.

Many companies have created purchasing policies to address their wood sourcing. Two examples are IKEA and The Home Depot. The world’s largest do-it-yourself retail chain, The Home Depot is committed to giving preference to the purchase of wood and wood products originating from certified, well-managed forests wherever feasible. The Home Depot committed to eliminating the purchase of wood and wood products from endangered regions around the world by year-end 2002. The Home Depot has also stated that it expects its vendors and their suppliers of wood and wood products to maintain compliance with laws and regulations pertaining to their operations and the products they manufacture.

IKEA’s long term goal is to source all wood from verified, well-managed sources. By using a four-level staircase model they are gradually placing higher demands on solid wood. Levels one and two of the staircase include criteria such as known origin, legal compliance and no wood from intact natural forests or HCVFs unless certified according to a standard recognised by IKEA; i.e., FSC or equivalent. Also, no wood from protected areas or from plantations established after November 1994 by replacing intact natural forests is accepted. High value tropical tree species, such as teak must be FSC-certified and labelled. Level three of the staircase is a transition phase towards step four which is sourcing from verified, well managed forests according to a standard accepted by IKEA. The standard must include established performance levels co-operatively developed by a balanced group of environmental, economic and social stakeholders and verified by an independent third party. Currently, the FSC is the only level four standard recognised by IKEA.

**PUBLIC PURCHASING: GOVERNMENTS AND LOCAL AUTHORITIES**

It is estimated that government procurement, at both central and local government levels accounts for about 20% of the timber demand. Public procurement policies to promote
responsible forestry, guarantee legality, and/or favour certification have been made by the Governments of the UK, Germany and Denmark.

In July 2000, the UK Government made a binding commitment to "actively seek to buy timber and timber products from sustainable and legal sources". The GFTN WWF 95+ Group in the UK is working with the central Government to help them implement their policy, providing guidance and sourcing advice for credibly certified timber. In June 2001, the Danish parliament passed a law declaring that all tropical wood used by official institutions must come from legal and sustainable sources. FSC was mentioned as an example of a credible guarantee. In 2002, the German Government agreed to apply for FSC certification of all federal public forests and declared that all tropical timber procured for public purposes must be FSC certified.

Local authorities in Belgium, The Netherlands, Spain, United Kingdom and Sweden have all successfully used FSC-certified wood for public projects. In the Netherlands, Amsterdam, Rotterdam and many other cities have policies for procurement of FSC timber. In Belgium more than 200 local authorities in Flanders have committed to prescribing and using certified timber for public construction projects by signing a contract with the Regional Government of Flanders. Recently, several hundred local authorities in Germany answered a questionnaire sent out by WWF, requesting more information about forest certification and how to set up responsible purchasing policies forest products.

**WWF Global Forest and Trade Network (GFTN) – Partnership to Promote Responsible Forestry**

WWF Global Forest and Trade Network (GFTN) promotes partnership between non-governmental organisations and companies to improve the quality of forest management worldwide. The GFTN consists of 18 local demand- or Producer Group Forest and Trade Networks (FTNs) active nearly 30 countries, mainly in Europe and North America. There are also networks in Japan and East Asia - a network open to members in Hong Kong, China and South Korea. There are 12 FTNs in Europe: 11 demand-oriented and one Producer Group in Russia.

The overarching goal of the GFTN is to support WWF’s work to protect, manage and restore the world’s forests with a focus on eliminating illegal logging and improving the quality of forest management forest. Hundreds of companies are members of the GFTN, representing a wide range of actors including forest owners, timber processors, construction companies, retailers, investment agencies and local authorities. Members are committed to gradually producing, trading and/or sourcing independently and credibly certified forest products.
The main activities of the GFTN and the individual FTNs are to:

- support buyers, both private and public, in developing and implementing responsible purchasing policies for forest products
- promote trade between responsible buyers and producers of forest products
- support producers in developing, implementing and communicating responsible management
- help get credibly certified forest products into supply chains
- integrate forest product purchasing into Corporate Social Responsibility (CSR) policies.

WWF believes that wood purchasing should be integrated into the spectrum of issues that fall within CSR. The GFTN works in cooperation with and provides support to other WWF programmes such as Toxics and Climate. Together these programmes present a comprehensive set of solutions for corporate partners.

The market-demand oriented Forest and Trade Networks function as drivers for creating certification through Producer Groups and for areas already under credible certification. By focussing on market links GFTN will drive demand for products from Producer Groups where market incentives are lacking to sustain certified operations. Activities include linking interested buyers in key markets with responsible producers through reciprocal trade visits, participation in trade fairs and commissioning of sector-wise studies.

**PRODUCER GROUPS – IMPROVING FORESTRY ON THE GROUND**

Producer Groups are FTNs that promote improved forest management and credible certification through offering services to forest managers and primary processors. The first Producer Group has been established in Russia. Additional producer groups are currently under development in Latin America, Central and West Africa, South East Asia and Eastern Europe.

The members of Producer Groups are primarily forest managers who need assistance to improve their forest management, understand certification requirements and achieve forest certification. They can also be processors, who seek to source certified wood raw material for their manufacturing processes. A third category of members is certified forest managers or processors who need links to markets for their certified forest products. In some regions Producer Groups will provide special assistance to small and community forest owners who need help developing their forest management, group certification or marketing activities. One of the key services is to provide information and training on credible forest certification standards and their implementation as well as the on implementation of chain-of-custody certification.
Non-certified members of Producer Groups are required to sign a contract under which they make a commitment to certification over a specified period of time. The progress towards this goal will be regularly monitored by an independent auditor. Members prepare action plans with targets for achieving responsible forest management and ensuring that all forest products are legally sourced from areas under secure tenure. Members submit regular reports of progress with implementation of the action plan and undergo audits as required. One of the main services of Producer Groups will be to manage forest organisations which commit to, and are improving their forest management practices through a modular implementation and verification (MIV) approach.

MIV is a tool for the application of a phased approach to meeting forest management standards and certification. It has been designed primarily as a practical tool to help forest managers improve the quality of their forest management to the level required in responsible forestry standards. The basic principle is very simple. Forest standards are broken up into a number of predefined modules, each of which contains a number of requirements from the standard. All the modules together contain all the requirements of the original forestry standard. Each module and the requirements it contains can be addressed individually. Forest managers can undertake a phased approach to full compliance by implementing the modules in a stepwise fashion until all the modules are completed. Verification of progress is based on assessment of whether each module has been completed, making the improvement process easy to monitor.

Producer Group Managers can provide buyers with information of the management status of the members. Buyers can choose to purchase from forest producers that can demonstrate clear forest management improvements and thus secure the exclusion of illegally harvested timber and timber from HCVFs. It is important for members of Producer Groups to have their efforts to move towards responsible forest management recognised both nationally and internationally.

A draft Producer Group Toolkit has been developed by WWF within the framework of the WWF/IKEA cooperation on forest projects. This describes the current thinking on methodology, including the MIV process and membership requirements.

**CONCLUSION**

In conclusion, the gradual improvement of forestry practices towards responsible forestry can be supported through stepwise procurement policies that give preference to products from credibly certified sources or from forest companies tracked for certification in a GFTN Producer Group programme. Several multi-stakholder based documents have recently become available that create consensus around some key concepts crucial for sourcing from responsible sources. These are, among others, the draft High Conservation Value Toolkit, the draft Producer Group Toolkit, including Modular Implementation and Verification (MIV) and the World Bank-WWF Alliance’s Principles and Criteria for Defining Acceptable Independent Certification Systems. WWF GFTN will continue to
work with and influence market demand to support credibly certified forests and certification efforts by Producer Groups.

REFERENCES


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Annex

The World Bank-WWF Alliance’s Principles and Criteria for Defining Acceptable Independent Certification Systems

Update February 2003

The following is an extract from the World Bank-WWF Alliance Guidance Note for Improved Forest Management & Certification Target: Achieving the Independent Certification of 200 Million Hectares of Well Managed Production Forests by the year 2005.

A revised version of the guidance on acceptable certification schemes is currently under development by the Alliance.

Goal and Purpose:

The goal of the alliance is to promote improved forest management through the adoption of best practices that are internationally recognized, and the verification of their application based upon performance reviews conducted by independent parties. The purpose of independent certification is to identify, recognize, communicate and promote the broader adoption of these best practices. For the purposes of the alliance, independent certification is achieved when the following conditions have been met:

1. the participation of all major stakeholders in the process of defining a standard for forest management that is broadly accepted;
2. the compatibility between the standard and globally applicable principles that balance economic, ecological and equity dimensions of forest management;
3. the establishment of an independent and credible mechanism for verifying the achievement of these standards and communicating the results to all major stakeholders.
**Principles:**

The alliance believes that a common set of principles that should underscore any standard for improving forest management. These include the following:

1. **Compliance with all relevant laws:** Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory.

2. **Tenure and Use Rights:** Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented, and legally established.

3. **Indigenous People’s Rights:** The legal and customary rights of indigenous peoples to own, use, and manage their lands, territories and resources shall be recognized and respected.

4. **Community Relations & Workers Rights:** Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and communities.

5. **Benefits from the Forest:** Forest management operations shall encourage the efficient use of the forests multiple products and services to ensure economic viability and a wide range of environmental and social services.

6. **Environmental Impact:** Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and by so doing, maintain the ecological functions and integrity of the forest.

7. **Management Plan:** A management plan -- appropriate to the scale and intensity of the operations -- shall be written, implemented and kept up to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.

8. **Monitoring and Assessment:** Monitoring shall be conducted -- appropriate to the scale and intensity of forest management -- to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

9. **Maintenance of Natural Forests:** Primary forests, well developed secondary forests, and sites of major environmental, social or cultural significance shall be conserved. Such areas shall not be replaced by tree plantations or other land uses.

10. **Plantations:** Plantations shall be designed and managed consistent with Principles a) through i). Such plantations shall complement overall ecosystem health, provide community benefits, and provide a valuable contribution to the world’s need for forest products.
Criteria for Determining Acceptable Certification Systems:

The Alliance believes that credible certification systems must be built upon the following foundation:

1. institutionally and politically adapted to local conditions;
2. goal-oriented and effective in reaching objectives;
3. acceptable to all involved parties;
4. based on performance standards defined at the national level that are compatible with generally accepted principles of sustainable forest management;
5. based on objective and measurable criteria;
6. based on reliable and independent assessment;
7. credible to major stakeholder groups (including consumers, producers, conservation NGOs, etc.);
8. certification decisions free of conflicts of interest from parties with vested interests;
9. cost-effective
10. transparent
11. equitable access to all countries
FSC certification and strengthening legal compliance in the forest products trade

Paper by Ms. Sofia Ryder, FSC Policy and Standards Officer and Mr. Liviu Amariei, Head of the FSC Accreditation Business Unit, Forest Stewardship Council, Mexico

ABSTRACT

Since its founding in 1993, the Forest Stewardship Council has set up an international system for forest and certification standards development, for the tracking of forest products, and also for the continuous independent monitoring of performance by forest managers, forest product manufacturers and certification bodies. The FSC system is based on hard-won consensus between business, environmental and social groups as to what constitutes responsible forestry. It encompasses independent auditing to ensure that the standard is met.

Today, in the international arena, there is a high level of interest in the issue of legal compliance in the forestry sector including trade in forest products, by G8, ASEAN and APEC governments, businesses and NGOs. It is now widely recognized that identification and independent verification of “legal” forest products, is one practical method that can be employed to help tackle the illegal forest products trade. This implies a direct link between certification and the verification of legal compliance.

The link can be represented at two levels: the level of forest management, and the tracking of forest products to markets.

At the level of forest management, FSC requires, through its forest management certification, legal compliance by certificate holders. The specifications for this are included under FSC Principle 1. However, there are also other elements of the FSC Principles of Criteria, that address the issue of “legality.” These include Principle 2 (Tenure and Use Rights and Responsibilities), Principle 3 (Indigenous Peoples Rights) and Principle 4 (Community Relations and Worker Rights). The FSC Principles and Criteria offer the broad framework for the definition of national or regional forest stewardship standards through participatory processes at national or regional level.

Certified suppliers have to demonstrate that their products originate from certified forests. FSC’s chain of custody system is used to track and trace such materials through the supply chain. Certified suppliers’ production systems are designed and implemented in a way that allows tracing and tracking of forest products back to the certified forest. They include mechanisms such as physical or temporal separation of wood or wood products, or the use of tracer paints and bar coding. Through chain of custody certification, independent certification bodies verify the adequacy of these production systems and their implementation against a chain of custody standard. For business-to-business commercial relations, invoices for certified products and bills of lading carry a chain of custody registration code. This confirms the status of the products as “certified.” Additionally, certified products are labelled with the FSC trademarks.

Developing systems for the verification of legal compliance requires the development of a clear and practical definition and protocol for evaluating “legal compliance” that meets the
requirements of governments, businesses and NGOs, and takes account of international agreements such as CITES, the ILO Conventions or the Universal Declaration of Human Rights, as well as the elaboration of specific guidance for certification bodies for evaluating compliance with the protocol at the forest management and processing unit level.

Based on existing systems and know-how resulting from almost a decade of forest management and chain of custody certification worldwide, FSC is working to forge the links between forest certification and verification of legal compliance. In this way FSC will contribute its expertise to the development of tools and systems for identifying and tracing independently certified legal forest products. The development and uptake of credible and appropriate systems for assuring legal compliance in the forest sector could lead to significant improvement in the way forests are managed as well as in the “legality” of timber trade.

Key words: Certification, forest stewardship standards, legal compliance, tracking and tracing of forest products, chain of custody, FSC Principles & Criteria.
(Relations avec la collectivité et droits des travailleurs). Les Principes et critères de bonne gestion constituent le cadre général d’une définition des normes de surveillance des forêts au plan national ou régional, par la mise en place de mécanismes participatifs également au niveau national ou régional.

Les producteurs bénéficiant de la certification doivent démontrer que leurs produits proviennent de forêts certifiées. Le système de chaîne de responsabilité établi par le FSC sert à vérifier tous les produits en remontant la chaîne d’approvisionnement. Les systèmes de production certifiée sont conçus et mis en œuvre de façon à permettre la traçabilité des produits forestiers jusqu’à la forêt certifiée. Ils prévoient des mécanismes tels que la séparation matérielle ou virtuelle du bois ou des produits du bois ou l’utilisation d’encre de marquage et de codes à barre. Dans le cadre de la certification de tous les maillons de la chaîne de production et de transformation, des organes indépendants de certification vérifient la conformité aux normes des systèmes de production et de leur mise en œuvre. Pour les relations commerciales entre entreprises, les factures de produits certifiés et les connaissances comportent un code d’enregistrement du certificat de traçabilité qui confirme la qualité de «produit certifié». Les produits certifiés portent également une marque commerciale «label FSC».

Pour élaborer des systèmes de vérification du respect des dispositions réglementaires, il faut arrêter une définition claire et aisée à mettre en pratique ainsi qu’un protocole pour l’appréciation de la «conformité», tenant compte des prescriptions des gouvernements, des industriels et des ONG ainsi que des instruments internationaux comme les conventions de l’OIT ou la Déclaration universelle des droits de l’homme; il faut aussi mettre au point des orientations spécifiques pour aider les organes de certification à apprécier la conformité avec le protocole, au stade de l’aménagement forestier et au stade de la transformation.

Le FSC s’emploie à créer des liens entre la certification des forêts et la vérification du respect des normes et apporte ses compétences quand il s’agit de concevoir des instruments et des systèmes pour identifier de façon indépendante les produits forestiers certifiés et remonter toute la chaîne d’approvisionnement. La mise au point et l’adoption de systèmes crédibles et efficaces pour garantir la conformité légale dans le secteur forestier pourraient entraîner une amélioration notable de la gestion forestière ainsi que du respect de la «légalité» dans le commerce du bois.

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Сертификация ЛПС и укрепление режима соблюдения правовых норм в торговле лесными товарами

Документ, подготовленный сотрудником по вопросам политики и стандартов ЛПС г-жой Софией Райдер и руководителем Отдела ЛПС по аккредитации бизнеса, секретариат ЛПС, Мексика, г-ном Ливию Амареем

Резюме

Со дня своего создания в 1993 году Лесной попечительский совет разрабатывает и совершенствует международную систему лесных и сертификационных стандартов, предназначенную отслеживать движение лесных продуктов, а также обеспечивать непрерывный независимый мониторинг деятельности управляющих лесными хозяйствами, производителей лесных продуктов и сертифицирующих организаций. Система ЛПС основывается на выработанном в течение долгого времени консенсусе между представителями деловых кругов, экологических и социальных групп о том, что является...
ответственным лесоводством. Система включает в себя независимый аудит, обеспечивающий соблюдение разработанных стандартов.

Сегодня в мире отмечается растущий интерес к вопросу соблюдения правовых норм в секторе лесоводства, включая торговлю лесными товарами, со стороны правительств государств - членов Группы 8, АСЕАН и АТЭС, представителей деловых кругов и НПО. Повсеместно признается тот факт, что идентификация и независимая проверка "легитимных" лесных товаров является тем практическим методом, который может быть использован для борьбы с проблемой торговли неэтичным и неэтичными лесными товарами. Это подразумевает установление прямых связей между сертификацией и проверкой соблюдения законов.

Такая связь может устанавливаться на двух уровнях: уровне лесопользования и уровне контроля за прохождением лесных продуктов на рынке сбыта. На уровне лесопользования ЛПС требует от обладателей сертификатов соблюдения законов с помощью его системы сертификации лесопользования. Соответствующие спецификации включены в принцип 1 ЛПС. Вместе с тем вопрос "легитимности" продукции рассматривается и в других элементах Принципов и критериев ЛПС, в том числе в принципе 2 (Правовладение и использование прав и обязанностей), в принципе 3 (Права коренных народов) и в принципе 4 (Отношения с общинами и права рабочих). Принципы и критерии ЛПС создают широкую основу для выработки национальных и региональных стандартов лесопользования путем привлечения к этой деятельности большого числа участников на национальном или региональном уровнях.

Сертифицированные поставщики должны продемонстрировать, что их продукция получена из сертифицированных лесов. Система "производственно-распределительной цепочки" ЛПС используется для отслеживания и обнаружения таких материалов на пути их следования. Сертифицированные производственные системы поставщиков построены таким образом, что в ходе их практического применения создаются возможности для отслеживания и обнаружения лесных продуктов начиная с источника их происхождения - сертифицированного леса. Они включают в себя такие механизмы, как физическое или временные разделение древесины или продуктов из древесины, или использование красителей-меток и штриховых кодов. С помощью системы сертификации "производственно-распределительной" цепочки независимые сертификационные органы проверяют соответствие систем производства стандартам производственно-распределительной цепи. Для целей осуществления коммерческих контактов по типу "бизнес-бизнес" товарные накладные для сертифицированных продуктов и консоменты имеют регистрационный код производственно-распределительной цепи, подтверждающие их статус "сертифицированных" продуктов. Помимо этого сертифицированные продукты имеют также торговые марки ЛПС.

Совершенствование систем проверки соблюдения законов требует разработки четкого и практических определения и протокола для оценки "соблюдения законности", которые отвечали бы требованиям правительств, предприимателей и НПО и учитывали международные соглашения, такие, как конвенции МОТ или Всеобщая декларация прав человека, и содержали конкретные указания для сертификационных органов в отношении проведения оценки соблюдения протокола на уровнях лесопользования и лесообработки. ЛПС ведет неустанныю работу по укреплению связей между сертификацией лесов и сертификацией соблюдения законов и вносит свой вклад в дело развития средств и систем, необходимых для идентификации и независимого обнаружения сертифицированных, законно полученных лесных продуктов. Разработка и совершенствование надежных и надежных систем обеспечения соблюдения законов в секторе лесопользования могут значительно улучшить порядок лесопользования и обеспечить "легитимность" торговли лесными товарами.
INTRODUCTION

There is considerable concern at international level about legality in the international forest products trade. This has implications for the economies of producer countries, the profitability of the trade and is causing social and environmental concerns in the international community and among governments and civil society organizations. These concerns implicate both buyers (often in high-income countries) and producers (often in low-income countries), and have a negative impact on the sector as a whole.

There are two direct links between FSC certification and the need to strengthen legal compliance in the forest products sector:

1. FSC certified products are compliant with relevant national and international laws
2. There is a demand for systems and tools for identifying, verifying and tracing legal forest products through the supply chain to markets

2. LINK 1: FSC CERTIFIED PRODUCTS ARE LEGAL

Through FSC certification, legality is ensured at the forest management level as well as through chain of custody. At the forest management level, FSC requires, through its forest management certification, legal compliance by certificate holders. The specifications for this are included under Principle 1 (compliance with laws and FSC principles). However there are also other FSC Principles and Criteria that address legality, such as Principle 2 (Tenure and Use Rights and Responsibilities); Principle 3 (Indigenous Peoples Rights); Principle 4 (Community Relations and Workers Rights).

FSC’s chain of custody system is used to track and trace certified materials through the supply chain. This means that certified suppliers can demonstrate that their products originate from certified forests.
2.1 Forest Management certification and legal compliance

Box 1

**Principle 1: Compliance with laws and FSC principles**

Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

1.1 Forest management shall respect all national and local laws and administrative requirements.

1.2 All applicable and legally prescribed fees, royalties, taxes and other charges shall be paid.

1.3 In signatory countries, the provisions of all binding international agreements such as CITES, ILO Conventions, ITTA, and Convention on Biological Diversity, shall be respected.

1.4 Conflicts between laws, regulations and the FSC Principles and Criteria shall be evaluated for the purposes of certification, on a case-by-case basis, by the certifiers and the involved or affected parties.

1.5 Forest management areas should be protected from illegal harvesting, settlement and other unauthorized activities.

1.6 Forest managers shall demonstrate a long-term commitment to adhere to the FSC Principles and Criteria.

FSC’s principles and criteria provide a framework for standards developed by local stakeholders. FSC national or regional standards are developed for a country or for a region and include indicators and verifiers that interpret and elaborate the FSC Principles and Criteria. During a certification assessment, auditors look for objective evidence that the requirements of the standard are being met.

Where national and regional standards exist, certification bodies assess compliance with that standard. Where no national or regional standards exist certification bodies adapt their own generic standards that are also based on the FSC Principles and Criteria, for the purpose of certification. To date FSC has accredited 15 national or regional standards. FSC Contact Persons in 19 countries and FSC Working Groups in 12 countries are working to define how FSC’s Principles and Criteria for forest management, including those dealing with legality, should be applied at a national/regional level.
The result of this work is that stakeholders (in particular producers and suppliers but also NGOs and others) are engaged in identifying relevant laws and other key elements of sound forest management at the national level and developing protocols for verifying this as part of the forest management standard setting process.

### Box 2

**Extract from German national standard**

**Principle 1: Compliance with laws and FSC principles**

1.1. *The forest owner respects the federal and state laws, decrees and communal regulations*

1.1.1. Applicable state and federal laws, state and federal orders, and communal regulations are available

1.1.2. The highest responsible agencies (agency sub divisions in forestry, environmental protection, hunting or water) attest that there are no previous or outstanding violations

1.1.3. Insofar as charges involving alleged legal violations are pending, these charges can be invalidated

1.2. *The forest owner pays all applicable and legally prescribed fees, royalties and taxes.*

1.2.1 The enterprise demonstrates that it is in good standing with the responsible fiscal authorities or proves exemption from taxes

1.2.2 Invoices from timber sales correctly state value added taxes and contributions to the Timber Sales Promotion Fund

1.2.3 Pay slips correctly state social welfare for all employees

[…etc…]

### 2.2 Chain of custody and legal compliance

Certified suppliers have to demonstrate that their products originated at certified forests. Their production systems are designed and implemented in a way that allows tracing and tracking of forest products back to the certified forest. These may employ mechanisms such as physical or temporal separation of wood or wood products or the use of tracer paints or bar codes.

Through chain of custody certification, independent certification bodies verify the adequacy of these production systems and their implementation against a chain of custody standard.
For business-to-business commercial relations, invoices for certified products and bills of lading carry a chain of custody registration code. This confirms the status of the products as “certified.” Additionally, certified products are labelled with the FSC trademarks.

### Box 3

**Extract from the FSC Chain of Custody standard**

1. **Documented control system**
   - The company must have a clearly documented control system which addresses all the principles of chain of custody control

2. **Confirmation of inputs**
   - The company must operate a system for assuring that inputs are themselves certified

3. **Separation and/or demarcation of certified and non-certified inputs**
   - The company must operate a system for ensuring that when certified inputs are received they be clearly marked or otherwise identified as certified

4. **Secure product labelling**
   - The company must operate a secure system for the production and application of product labels

5. **Identification of certified outputs**
   - Certified products must be labelled or otherwise be identifiable in a manner that labels do not become detached during storage, handling or transport

6. **Record keeping**
   - The company maintains appropriate records of all inputs, processing and outputs of certified products

### 2.3 Working with small and community enterprises as well as large suppliers with multiple operations

The FSC system has been adapted to cater to the needs of small and community enterprises as well as large suppliers with multiple operations. FSC’s systems ensure that small operations operate legally, have access to certification and are protected in case new international trade regimes in the future require the implementation of mechanisms for verification of legal compliance.

FSC’s Group chain of custody certification assists smaller enterprises wishing to achieve FSC chain of custody certification. These may include artisans woodworkers / craftsmen, portable sawmill operators, small sawmills, carpenters, joiners and small hauling companies. Specifications are aimed at benefiting those groups of small enterprises
that already have a legal organization or the support of an external support organization, such as a trade association or cooperative.

FSC’s ‘multi-site’ specifications are designed for single companies with multiple sites in which fundamentally the same functions, methods or procedures are carried out at a set of participating sites. Such sites may include manufacturers, sawmills and assembly plants.

A more recent example of efforts to adapt systems to cater for the needs of small and community enterprises are those aimed at finding and implement solutions to access to certification for small and low intensity operations. Such forests many include small woodlots, trees on farms, small family forests, small forest enterprises and community forestry operations.

2.4 Non-certified wood fibre in FSC labelled products is legal

FSC’s chain of custody and labelling rules put the onus on chain of custody certified businesses to ensure that any non-certified timber they use in a FSC labelled product is not illegally sourced. In some cases, these specifications have caused suppliers to change their purchasing policies and practices.

According to a recent survey to assess the impacts of FSC’s chain of custody and labelling rules, 20% of the manufacturers who responded reported that they had stopped sourcing from suppliers who could not demonstrate that their sources complied with the FSC requirements relating to controversial sources.

The report stated, “Some processors and retailers had changed their suppliers or had required their suppliers to change their sources as a result of the policy on controversial sources. The causes of this were products from illegally harvested areas; from areas with disputes over stakeholder rights or uncertified high conservation value forests”.

2.5 Certification facilitating trade

FSC has emerged as a response to demand from certain markets for products that come with an environmental and social guarantee. Additionally certified products enhance legality in the international timber trade and demand for such products is increasing.

The FSC system provides a global network of (currently close to 3000) suppliers (i.e. certificate holders) operating according to the same global standard but with locally adapted systems and technologies. This system encourages trade by facilitating exchange between those suppliers in the network.

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8 FSC Policy on Percentage Based Claims. 15 May, 2000 Section 3.2 and 3.2.1 Controversial sources including wood that has been illegally harvested. This provision applies to the legality of harvesting methods and sources, and the fulfillment of national regulations covering fees and other rules.

9 Report on the questionnaire to assess the impacts of the FSC percentage based claims policy, February 2002
3. LINK 2: THE NEED FOR TOOLS TO VERIFY LEGAL COMPLIANCE

The high interest in the issue of legal compliance in the forestry sector has led to a widespread consensus that effective action must be taken by exporting and importing countries alike. One widely recommended action is the development and implementation of procurement policies in both the private and public sectors in order to avoid the purchase of illegally sourced forest products\(^\text{10}\).

A number of countries, municipalities and companies are developing or have developed such procurement commitments to avoid the use of illegally sourced forest products. However, reliable implementation requires the development of systems and tools that can be used to identify, verify and trace the legality of forest products in the supply chain. Such tools are still lacking.

![Box 4: Examples of commitments to legal sourcing/trade](#)

**Box 4**

**Examples of commitments to legal sourcing/trade**


3. IKEA Solid Wood Merchandise Staircase Model. Step 2: Acceptable solid wood sources: known origin region within country; compliance with forest legislation; not from protected areas unless certified according to "step 4 standard" (well managed forests verified by compliance with official standard recognised by IKEA) or felled in accordance with management prescriptions; not from plantations established after Nov. 1994 by replacing intact natural forests.

4. ScanCom International Environmental Policy and direct auditing system.

One practical method that can be employed to help tackle the illegal forest products trade is the independent verification of “legal” forest products. This implies a direct link between certification and the verification of legal compliance.

This situation presents a number of opportunities and challenges.

Opportunities include, strengthened markets for legal and sustainable forest products; improved implementation of producer country national forest laws; and the possibility of stepwise approaches towards improved forest stewardship for companies for whom forest management certification may be to big a step.

\(^{10}\) E.g. “Controlling the international trade in illegally logged timber and wood products” D. Brack et al.
Challenges include how to define legality at the forest level; what tools can be used to verify this; how to ensure credibility and international applicability of any legal verification systems; how to deal with laws which are vague or contradictory; how to avoid excessive costs, how to ensure that such systems can be applicable to the needs of small or low intensity operations as well as large enterprises with multiple operations; how to build on existing certification and chain of custody systems as well as those employed to implement CITES.

3.1 FSC’s perspective

Based on existing experience and expertise, tools could be made available which are necessary for a greater number of producers and suppliers to identify and ensure compliance with relevant laws, or other steps aimed at improving forest management. This would constitute a considerable improvement in the way forests are managed, and, by putting in place systems for compliance with legal requirements (or other important steps), may encourage progress towards full certification. FSC is currently exploring options that would allow a phased approach to certification. Verification systems of legal compliance could be the first of a series of such phases, that could culminate with full certification once all phases are completed.

Many forest and trade businesses which currently feel that forest management certification is too big a step would have accredited certification bodies on their premises performing legality audits or audits related to other aspects of forest management. Full forest management certification might subsequently be a smaller step to achieve in the future.

Industry could benefit from incentives to move towards an improved forest management provided by their participation in buyers and producer groups. In FSC’s case, members of the Global Forest and Trade Network (GFTN) commit to gradually producing, trading and/ or sourcing products coming from independently certified well managed forests. Local networks strive to raise consumer and corporate awareness, as well as influence wood and paper procurement policies, both for the public and private sectors.

Verification of legal compliance should not be confusable with forest management certification. This can be achieved by ensuring that certification bodies are issuing ‘Internationally applicable, credible and recognisable’ certificates of legal verification and ensure that no label or public claims are associated with these. Incentives must not be based on messages to consumers, but may be based on business-to-business incentives (e.g. through procurement specifications) or government incentives (e.g. export tax incentives, export credit guarantees or grant support).

11 Other steps could be based on social aspects (managing community relations; ILO compliance), or ensuring that High Conservation Values have been identified and are being managed appropriately.

12 The GFTN currently consists of 19 local Forest and Trade Networks active in nearly 30 countries. More than 800 companies are members of local GFTN networks. For lists of national GFTN contacts http://www.fscoax.org/html/5-3-6.html.
4. CONCLUSIONS

OPPORTUNITIES FOR ACKNOWLEDGING AND IMPROVING EXISTING SYSTEMS TO STRENGTHEN LEGAL COMPLIANCE IN THE FOREST PRODUCTS TRADE

FSC certified products are legal. This means that today, using its current systems, FSC can offer a guarantee that purchasing certified products means at the same time purchasing wood and fibre products that are legal.

Additionally, synergies between FSC certification and legal compliance in the forest product trade present a number of opportunities to learn from experience, improve existing systems and collaborate with new partners to develop the tools that would be required to strengthen legal compliance in the forest product sector.

In September 2002, FSC adopted a new policy aimed at strengthening and extending FSC’s requirements over the controls of the non-certified portion of wood in FSC labelled products. This has created an urgent need for credible systems for identification and monitoring of legally sourced material.

Existing FSC systems provide to a great extent the know-how needed to develop specific tools aimed at strengthening legal compliance in the forestry sector and timber trade. FSC will further develop and strengthen its existing systems and use the experience, expertise and credibility gained during close to a decade of forest management and chain of custody certification to provide a practical, and widely supported system to enable governments, companies and others to implement procurement commitments and policies which avoid the use of illegally sourced forest products.

Once developed, such systems will provide a tool that can be used not only by companies seeking FSC certification, but also by the many stakeholders- businesses and governments that are demanding an end to the trade in illegal forest products.

FSC is working to forge the links between forest certification and verification of legal compliance and contribute its expertise to the development of tools and systems for identifying and tracing independently certified legal forest products. The development and uptake of credible and appropriate systems for assuring legal compliance in the forest sector could lead to significant improvement in the way forests are managed as well as in the “legality” of timber trade.
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Available from www.worldbank.org


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POSTER SESSION
The FAO-ECE Forest Communicators Network

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ABSTRACT

In support of the overall goal of creating a positive image of the forest sector (including all phases of forest resource management and forest industry), the FAO-ECE Forest Communicators Network (FCN), formerly called the Team of Public Relations Specialists in the Forest and Forest Industries Sector, was established by the UNECE Timber Committee and the FAO European Forestry Commission with a mandate until 2004 to:

- Promote networking among member states for capacity building and exchange of information in public relations and communication;
- Identify key common concepts and promote their incorporation in forest sector communications and public relations activities in the member countries;
- Identify key needs for improvement of forest sector public relations and communication and communicate them to the TC and the EFC;
- Assist the TC and the EFC to improve public relations and information related to their work;
- Promote the development of national capacity in forest sector public relations and communication, particularly in countries in transition;
- Stimulate and promote the sound use of wood and other forest products as environmentally friendly and renewable resources.

Participation is open to all, sharing these common objectives. Currently the contact database of the network contains over 120 persons from 30 countries out of the UNECE region (Europe and North America) representing both, governmental and private sector organisations. The team meets annually and has a number of accomplishments and ongoing projects of relevance for wood promotion.

The 2003 meeting is held from May 5 – 8 in Edinburgh/UK.

More information is available on [http://www.unece.org/trade/timber/pr/pr.htm](http://www.unece.org/trade/timber/pr/pr.htm).

Key words: strategic communications, public relations, wood production, sustainable forest management, forestry.
Le réseau FAO/CEE de spécialistes de la communication dans le secteur forestier

Affiche de M. Ingwald Gschwandtl, Directeur de la Division des forêts,
Ministère fédéral de l’agriculture, des forêts, de l’environnement et des eaux, Autriche

RÉSUMÉ

À l’appui de l’objectif général consistant à donner une bonne image du secteur forestier (c’est-à-dire toutes les phases de la gestion des ressources forestières et l’industrie forestière), le Comité du bois (CB) de la CEE et la Commission européenne des forêts (CEF) de la FAO ont créé le réseau FAO/CEE de spécialistes de la communication dans le secteur forestier, appelé auparavant «Équipe de spécialistes des relations publiques dans le secteur des forêts et des industries forestières»; ils lui ont confié jusqu’à 2004 le mandat suivant:

- Promouvoir l’établissement de réseaux entre les États membres en vue du renforcement des capacités et de l’échange d’informations dans le domaine des relations publiques et de la communication;
- Mettre en évidence les concepts essentiels communs et veiller à ce qu’ils soient pris en compte dans les activités de communication et de relations publiques des pays membres concernant le secteur forestier;
- Recenser les améliorations essentielles qu’il faudrait apporter aux relations publiques et à la communication dans le secteur forestier et en faire part au CB et à la CEF;
- Aider le CB et la CEF à améliorer leurs relations publiques et l’information sur leurs travaux;
- Promouvoir le renforcement des capacités nationales en matière de relations publiques et de communication dans le secteur des forêts, en particulier dans les pays en transition;
- Stimuler et promouvoir l’utilisation rationnelle du bois et d’autres produits forestiers en tant que matériaux ne portant pas atteinte à l’environnement et renouvelables.

La participation est ouverte à tous ceux qui partagent ces objectifs communs. Actuellement, la base de données du réseau contient les coordonnées de plus de 120 personnes de 30 pays de la région de la CEE (Europe et Amérique du Nord) qui représentent des organismes publics et des organismes du secteur privé. L’équipe se réunit tous les ans. Elle a à son actif un certain nombre de réalisations et des projets en cours qui sont en rapport avec la promotion du bois.

En 2003, la réunion se tiendra du 5 au 8 mai à Édimbourg (Royaume-Uni).


Mots clés: communications stratégiques, relations publiques, production du bois, gestion durable des forêts, sylviculture.
Сеть коммуникаторов лесного сектора ФАО-ЕЭК

Плакат, созданный директором департамента лесного хозяйства федерального министерства сельского хозяйства, лесного хозяйства и окружающей среды и водных ресурсов Австрии г-ном Ингвальдом Гишвандлем

РЕЗЮМЕ

В целях создания позитивных представлений о лесном секторе (включая все фазы управления лесными ресурсами и лесную промышленность) Комитет по лесоматериалам ЕЭК ООН и Европейская лесная комиссия ФАО учредили сеть коммуникаторов лесного сектора ФАО-ЕЭК, известную в прошлом под названием Группа специалистов по связям с общественностью в секторе лесного хозяйства и лесной промышленности. Мандат сети коммуникаторов лесного хозяйства, действующий до 2004 года, состоит в том, чтобы:

• развивать взаимосвязи между государствами-членами в процессах формирования потенциала и обмена информацией в области связей с общественностью и коммуникации;
• определять ключевые концепции и способствовать их включению в работу в секторе лесоводства и в мероприятия по развитию связей с общественностью;
• выявлять основные потребности в деле улучшения связей с общественностью и коммуникации в лесном секторе и доводить их до сведения КЛ и ЕЛС;
• оказывать помощь КЛ и ЕЛС в вопросах улучшения связей с общественностью и повышения качества информации, относящейся к их работе;
• содействовать развитию национального потенциала в вопросах связей с общественностью и коммуникации в лесном секторе, в особенности в странах, находящихся на переходном этапе;
• стимулировать и развивать рациональное использование древесины и других лесопродуктов в качестве благоприятных для окружающей среды и возобновляемых ресурсов.

Участие в сети открыто для всех, кто разделяет эти общие цели. В настоящее время контактная база данных сети содержит свыше 120 имен лиц из 30 стран региона ЕЭК ООН (Европа и Северная Америка), которые представляют как правительственные организации, так и организации частного сектора. Группа проводит свои заседания ежегодно. Она уже добилась определенных успехов в своей работе и в настоящее время осуществляет проекты, относящиеся к вопросам пропаганды древесины.

Заседание группы в 2003 году состоится 5-8 мая в Эдинбурге, Соединенное Королевство.

Дополнительная информация имеется на сайте: http://www.unece.org/trade/timber/pr/pr.htm

Ключевые слова: стратегическая коммуникация, связи с общественностью, производство древесины, устойчивое лесопользование, лесное хозяйство.
The reservation price for auction – the first step towards a sound use of wood

Poster by Ms. Simona Dragoi,
Senior Researcher, Forest Research and Management Institute, Romania

ABSTRACT

Basically, the paper presents the three main principles invoked for assessing the timber value, regardless what type of timber is sold: stumpage or logs at the road side. The transaction analysis, full cost principle and residual value principle are described in the second part of the article along with their advantages and disadvantages. Regarding the transaction analysis approach, three forms widely referred to in literature are presented in the first part, namely: average bid premium, average winning price and hedonic price method (a pure statistic technique). A special concern is given to the implementation issue of the three methods, as the existing data bases of the information system of the National Forest Administration can be employed further in improving the pricing system of timber.

The second section deals with some particularities of timber market such as oligopsone and biased timber demand structure (low demand for thin logs provided by thinnings). Mixed methods such as full cost and transaction analysis or hedonic price combined with average bid premium are more suitable in such circumstances than pure form methods. Actually, the average bid premium can be accepted as an adequate technique to assess the outliers within hedonic price technique. It is also highlighted that a market cannot be improved by transaction analysis pricing system, and a profound analysis of managerial alternatives can be more useful where the market is slack.

Transaction analysis, widely debated in literature, is a time demanding technique, and a reliable result depends to a great extent on the analyzer’s experience in econometrics. The main difficulties in implementing it in Romanian forest economics are summarized in the paper. As both secondary and main yields are mainly sold as wood by stem and many new logging companies have a little experience in timber appraisal, the accuracy of predicting the winning price is poor in many cases. A rough procedure, also oriented towards the market signals is the bidding premium method, which takes into account mainly the average difference between the starting price and the winning price. Combined with the traditional full cost method, this procedure can be used to direct the logger towards commercial thinnings.

Finally, a scheme addressing the problem of compatibility between the market characteristics and the advantages and disadvantages of the presented methods is drafted.

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A better use of growing stock and remaining trees by means of market-oriented instruments

Poster by Mr. Marian Dragoi Faculty of Forestry – University of Suceava

ABSTRACT

Multiple purpose forest management is an untenable theoretical concept, but increases the risk of failure because anyone who must harvest trees has just a few logging options to contemplate, each of them being a potential threat either for the future generation of trees or for the remaining stand. When harvesting old trees, with large crowns, the logger has to use heavy equipment and serious impacts occur. This risk is not negligible in European boreal forests, where winters are warmer and warmer and it is almost impossible to skid all logs on frozen soil, as a common rule of thumb recommends, wherever uneven stands are needed.

A new and genuine tradable permits system is being described in details, highlighting the advantages that may be generated over time from the ecological and economic perspective. The paper has been published in Journal of Forest Science, in Czech Republic, the first attempt to design this new tool being published in Sylvanet (North Carolina State University).
PAPERS OF SPEAKERS CANCELLING THEIR PARTICIPATION IN THE SEMINAR
Realizing market possibilities for increased use of wood in Norway – A national strategy including: promotion, research, competence and investments

Paper by Mr. Aasm. Bunkholt, Wood Focus Norway, Norway

INTRODUCTION
This short article covers the theme: Realizing market possibilities for increased use of wood in Norway through a national strategy. It will give some moments on the background for the effort, what kind of changes that are needed, establishing common goals and strategies and shortly describing actions.

BACKGROUND
The overall background for the Norwegian effort is the matter of fact that there has been a lack of growth or total output from the sector. This was pinpointed very clearly when the government in Norway worked with renewal of their forest policy 1997-1999. This work engaged the wood trade, wood industry, forestry and several research institutions. One found that there was a lack of development in general and that the rentability in the companies where rather low. Furthermore one experienced that existing potentials are not utilized. This led to a common action. Government and the forest sector worked together in establishing a developing forest policy and a national development program for the forest sector.

If one want the forest sector to develop there are several changes needed to come through. This can be described as defined actions within and among the different actors in the chain of custody. In the trade its needed to move from storage-sale to shop-sale. In the industry its needed to move from products in bulk to total responsibility for the product delivered. In the forestry its needed to move from a 100-year perspective to a 20-year perspective. Its more important to develop products and markets than planting more forests. For the chain of custody in general its a need for changing attitudes and making new decisions and actions.

There is also a need of getting growth impulses into the forest sector to make development happen. Products must be more attractive and to a larger extent be a ”first choice” among users. In this respect its needed to develop a new image for the forest sector and the products. It is of special importance that the sector more actively utilizes the
"environmental strengths" in the sector and the "environmental profile" of the products in marketing, lobbying and promotion.

VISION, GOALS AND STRATEGIES

During the common work and efforts the government and forest sector decided to establish a common vision for the forest sector together with some common goals, strategies and actions. These are briefly commented below.

The common vision for the norwegian forest sector is that:

"Norway shall become a leading nation in production and new utilization of wood"

The common goals for the forest sector is:

- Increase the use of wood
- Increase the profitability in the companies
- Increase the output from the sector in total

To reach the goals its needed to develop strategies on the following important areas:

- Promotion and information
- Research and development
- Competence and education
- Finance and investments

OTHER IMPORTANT AREAS

In addition to this common actions are needed on other important areas. One has to find, evaluate and develop so-called growth areas. There is also necessary to develop a national infrastructure that can act as support or starter for certain processes. When the developing processes are on their way, it has to be tool-boxes both for professional users and consumers available. They shall make it easier for the user to choose and use wood as material. In an macro-perspective it is also important that a developing sector has a “supporting and developing” forest sector policy.

AREAS OF GROWTH AND DEVELOPMENT

Several growth areas are or will be under evaluation and development. This is market or product areas which is considered to have a substantial potential. Among these are:

- Multi-storey housing
- Massive wood elements
Timber bridges
Use of wood in health institutions
Wood in transport and packaging
Use of wood in the sea-food industry
Developing traditional use of wood

NATIONAL INFRASTRUCTURE

Development of a national infrastructure which can be a “supporting force” in projects and for the sector in general, has been or will be developed. Until now this includes the following companies, organisations and structures.

- The National Wood Program
  This has been the starting point for the development in general and has a central position in financing and in development of projects.
- Wood Focus Norway
  This company shall have a national responsibility for promotion and information about wood and wood products towards decision makers and customers in general.
- Wood Centre in Trondheim
  This centre is established and situated in Trondheim at the Norwegian University of Engineering and Architecture. Project initiatives, education programs and student activities are among their activities.
- ”Woody Greenhouse”
  This is an investment and financing company which are under planning and evaluation. The purpose is that this company shall be a development partner for wood trade and industry in product and market development.
- National educational programs
  There are established two major educational programs in connection to two of the most central universities for the forest sector.
- Sector development programs on important areas
  There are established and will be established and run research projects and programs on areas of vital and common interest for the trade, industry and forestry.

CONCLUSIONS

If the forest sector shall be succesful with their efforts several actions have to be taken and development processes must be realized. This can lead to a total reneveal of a traditional
sector with traditional products. This can be visualized by describing a “future forest sector” with a new image and different appearance. A modernized and developed forest sector will in the future:

- Focus on environmental aspects
- Be an intensive user/provider of competence
- Focus on markets and customers
- Deliver components and system solutions
- To a much larger extent actively be integrating forward
- Use the architects and designers as the forest sector’s front-end

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Bioenergy – traditional fuels traded into new markets

Paper by Mr. Bengt Hillring, Associated professor,
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ABSTRACT

Bioenergy is a strategic resource used in the work to fulfil the Kyoto agreement to replace fossil fuels and to mitigate green house gas emissions and the global climate change. Many countries already use a significant share of biofuels in their energy supply. The Nordic countries are one example of this. Production and use of biofuels have to be done in an environmentally sound way.

Biofuels are usually produced and used locally. In more recent years, this pattern has been changed in northern Europe by industrial and large scale-use of different forms of biofuels. The trade situation has come about as a result of means of control on waste and energy. Sea shipments allow bulk transports of biofuels over long distances at low cost.

Wood-fuel is the dominant biofuel in the European region and markets are established in some of the countries like Sweden, Austria, Finland and Denmark. Other countries like Germany, the Netherlands and the UK are very expensive areas for wood energy utilisation. In central parts of Europe traditional use of wood fuel is still dominant even if new trends with investments in industrial use is coming up.

Since trade has been established it is obvious that the customs statistics do not record trade in such a detail that the international trade of different biomass types could be identified. Today, solid biofuels like wood residues, pellets and wood chips are already traded in Europe and have reached in 1999 a level of almost 50 PJ/a. In some countries, there is a growing interest in the international trade, because the trade can provide biofuels at lower prices, larger quantities and better quality than domestic alternatives.

The first signs of an European biofuel prices is shown. For the future both the use and the trade of wood-fuel is expected to increase in Europe.

Key words: Biofuel, green house gas mitigation, trade, biomass resources, economic aspects, wood-fuel markets.
Bioénergie − combustibles traditionnels commercialisés sur des marchés nouveaux

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Résumé

La bioénergie est une ressource stratégique dans toute l’action engagée pour donner effet aux dispositions du Protocole de Kyoto afin de remplacer les combustibles fossiles, de réduire les émissions de gaz à effet de serre et de freiner le changement climatique mondial. Dans de nombreux pays déjà, une part importante de l’approvisionnement en énergie est représentée par des biocombustibles. Les pays nordiques en sont un exemple. Les biocombustibles doivent être produits et utilisés selon des méthodes écologiques.

Les biocombustibles sont traditionnellement utilisés dans la région géographique où ils sont produits, mais ces dernières années, les choses ont changé en Europe du Nord et différentes formes de biomasse ont été utilisées par le secteur industriel et à grande échelle pour le chauffage urbain, utilisant de grands volumes de bois recyclé et de déchets forestiers. L’utilisation commerciale a été rendue possible par la mise au point de moyens de maîtriser les déchets et l’énergie. Le transport maritime permet le transport en vrac de biocombustibles sur de longues distances et à faible coût.

Le bois qui est le biocombustible prépondérant en Europe et il existe des marchés dans certains pays, comme la Suède, l’Autriche, la Finlande et le Danemark. D’autres pays, comme l’Allemagne, les Pays-Bas et le Royaume-Uni, représentent des débouchés très étendus pour l’énergie provenant du bois. Dans certaines régions centrales d’Europe, l’utilisation traditionnelle du bois combustible est toujours dominante, encore que commence à se dessiner une tendance à l’investissement dans l’utilisation industrielle.

Un commerce international s’est instauré dans plusieurs parties d’Europe. Dans la plupart des pays, les statistiques douanières n’enregistrent pas le commerce de façon assez détaillée pour que les échanges internationaux des différents types de biomasse puissent être identifiés. Aujourd’hui, les biocombustibles solides, comme les déchets de bois, les granulés et les plaquettes de bois font déjà l’objet d’un commerce en Europe et ont atteint un niveau de près de 50 petajoules par an. Dans certains pays, le commerce international suscite un intérêt croissant, parce qu’il peut assurer l’approvisionnement en biocombustibles à plus faible coût, en plus grandes quantités et de meilleure qualité que les marchés nationaux.

Les échanges les plus importants de biocombustibles se font des pays Baltes (Estonie, Lettonie et Lituanie) vers les pays nordiques (tout spécialement la Suède et le Danemark, mais aussi la Finlande). Des biocombustibles font également l’objet d’un commerce entre la Finlande et les autres pays nordiques et entre pays voisins d’Europe centrale, en particulier les Pays-Bas, l’Allemagne, l’Autriche, la Slovénie et l’Italie. Il s’agit le plus souvent de bois transformé (granulés et briquettes) et de déchets industriels (copeaux, plaquettes) et, en Europe centrale, aussi de déchets de bois. À l’avenir, l’utilisation comme les échanges de bois combustible devraient augmenter en Europe.

Mots-clés: Biocombustible, réduction des émissions de gaz à effet de serre, commerce, ressources en biomasse, aspects économiques, marchés du bois combustible.
Биоэнергия - традиционные виды топлива, поступающие на новые рынки

Документ, подготовленный доцентом Шведского института сельскохозяйственных наук, Швеция, г-ном Бенгтом Хиллругом,

РЕЗЮМЕ

Биоэнергия - это стратегический ресурс, используемый в целях осуществления Кютского соглашения для замены ископаемого топлива и смежения проблем выбросов в атмосферу парникового газа и изменений в глобальном климате. Многие страны уже используют в целях энергосбережения значительную долю биотоплива, например северные страны. Производство и применение биотоплива должно осуществляться методами, благоприятствующими делу охраны природы.

Традиционно биотопливо используется в том же самом географическом регионе, где оно и производится. В последние годы эта тенденция претерпела изменения в Северной Европе в связи с применением промышленных и крупномасштабных форм производства биомассы для целей зонального отопления с использованием огромных объемов переработанных древесных и лесных отходов. Сложившаяся ситуация на рынках явилась результатом введения мер контроля за использованием отходов и мер по экономии энергии. Морские перевозки позволяют транспортировать значительные объемы биотоплива на большие расстояния при низких затратах.

Древесное топливо является основным биотопливом в европейском регионе и поступает на рынки, созданные в ряде таких стран, как Швеция, Австрия, Финляндия и Дания. В других странах, например в Германии, Нидерландах и Соединенном Королевстве, использование древесного сырья для целей получения энергии остается весьма дорогостоящим. В центральных районах Европы традиционное использование древесного топлива носит повсеместный характер, несмотря на появление новых тенденций в сфере капиталовложений в промышленные сферы применения.

В различных частях Европы развивается торговля биомассой. Во многих странах статистические данные прохождения товаров через таможни не регистрируют торговые потоки настолько подробно, чтобы можно было бы идентифицировать направления международной торговли различными видами биомассы. Сегодня твердые виды биотоплива, такие, как древесные отходы, топливные окатыши и щепа, продаются на рынках Европы и уже достигли уровня, составляющего почти 50 Пдж/год. В ряде стран растет интерес к международной торговле биомассой, поскольку на международных рынках биомассу можно приобрести за более низкие цены, в больших количествах и лучшего качества, чем на внутренних рынках.

Крупные объемы биотоплива поступают на рынки северных стран (в особенности Швеции, Дании и Финляндии) из стран Балтии (Эстония, Латвия и Литва). Финляндия также продает биотопливо другим северным странам; ведется торговля биотопливом между соседними странами в Центральной Европе, в особенности Нидерландами, Германией, Австрией, Словенией и Италией. Продаваемое биотопливо - это чаще всего рафинированное древесное топливо (спрессованные опилки и брикеты) и промышленные отходы (древесные опилки и стружка; в Центральной Европе продаются также древесные отходы. Ожидается, что в будущем масштабы использования древесного топлива и торговли им в Европе будут увеличиваться.

Ключевые слова: Биотопливо, смягчение последствий выброса в атмосферу парникового газа, торговля, ресурсы биомассы, экономические аспекты, рынки древесного топлива.
INTRODUCTION

The use of bioenergy is a strategic resource used in the work to fulfil the Kyoto agreement to replace fossil fuels at a large scale. Bioenergy and biomass in general could be used to mitigate green house gas emissions and the global climate change. In some countries the use of biofuels already hold a significant share of the energy supply to industrial processes, heat production and in some cases also electricity production. The Nordic countries are examples of this. A large scale production and use of biofuels have to be done in an environmentally sound way. New technology and system solutions gives the biofuels possibilities to compete in new markets.

Traditionally, biofuels are used in the same geographical region, in which they are produced [1]. In more recent years, this pattern has been changed in northern Europe by industrial and large scale-use of different forms of biomass for district heating like a vast supply of recycled wood and forest residues. The trade situation has come about as a result of means of control on waste and energy. Sea shipments allow bulk transports of biofuels over long distances at low cost.

The Scandinavian countries and Austria have been the pioneering countries in the modern use of bioenergy. The White Paper of the European Union “Energy for the future: renewable energy sources” recommends a use of biomass three times today’s level in the member countries. The goals set also by the Kyoto agreement calls for a significant use of biomass in countries like Germany, the UK, the Netherlands and Spain. The prediction for the short term and medium term is an increase in trade in Europe.

SWEDISH EXPERIENCES

Sweden is one of the leading European countries in utilisation of biomass based mainly on the large forest resources. Biofuels are used in the forest products industry, the district heating sector and for traditional heating mainly of houses on the country side. Industrial use is 184 PJ [3] mainly wood fuel and black liquor most of this in internal use. The residential sector use 38 PJ also mainly internal use on farms or self supply among house owners.

Swedish experience of a commercial biofuel market is based on the development of the district heating sector over a period of at least 20 years, from a low level in the 1970s to a substantial market reaching 96 PJ in 2000 [3]. Wood-fuel counts for 55% of the biofuel supplied to the district heating sector, reaching 54 PJ in 2000. The average growth rate of supplied wood-fuel between 1990-2000 is around 10% per year. Wood-fuels compete on

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13 With "biofuel" means biomass which through one or more conversion steps (mechanical, chemical and/or biological) are used for energy purposes. "Wood-fuel" is fuel originating from biofuel, the origin of which was trees or parts of trees. "Forest fuel" is "wood fuel which has not been used previously" [2]. The term "bioenergy" is super ordinate to the terms "biofuel" and "wood-fuel".
the market with other untaxed biofuels. The highly taxed fossil fuels are not competitively priced for heat production.

Prices for biofuel peat etc. are reported by the Swedish National Energy Administration [4].

In the early 1990’s import of biofuels was established in the Swedish market [5]. Many different assortments and qualities of biofuels were traded still at rather low levels. Different projects were carried out to adapt fuels to existing technology. In some areas co-firing between different biofuels and biofuel and coal is established [6].

Later results from the import indicates a large activity [7] and import figures reaching as much as one third of the supply of biofuel to the district heating sector. No reliable figures are available later than 1997 but the estimated imports today is a stabilisation on the levels from the mid 1990s. One reason for that is the weaker Swedish currency which have made it more expensive to buy from other countries. An example of this is the strong US dollar which made it to expensive to continue with the import of wood pellets from North America.

For the nearest future Swedish currency is stronger and prices has increased due to a larger market. This gives ground conditions for an increased import.

Table 1: Imports of untaxed fuels (biofuels) to Sweden 1992, 1995 & 1997, PJ [5], [7]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Biofuels</td>
<td>2-4</td>
<td>11-15</td>
<td>29-36</td>
</tr>
<tr>
<td>Approximate share of wood-fuels</td>
<td>0.2 (estimated figure)</td>
<td>0.33-0.45</td>
<td>0.5-0.62</td>
</tr>
</tbody>
</table>

The imported fuels shows a spectrum of different assortments and qualities. Sometimes imports are double counting which gives a range of the import.
Table 2: Imports to Sweden of untaxed fuels in 1997. Combined results from telephone survey to fuel users and fuel dealers [7]

<table>
<thead>
<tr>
<th>Assortment (Quality)</th>
<th>PJ</th>
<th>Share provided by importers, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tall oil</td>
<td>8.73</td>
<td>59</td>
</tr>
<tr>
<td>Wood pellets</td>
<td>4.35</td>
<td>74</td>
</tr>
<tr>
<td>Recovered wood chips</td>
<td>3.65</td>
<td>80</td>
</tr>
<tr>
<td>Green wood chips</td>
<td>2.70</td>
<td>58</td>
</tr>
<tr>
<td>Peat</td>
<td>1.48</td>
<td>0</td>
</tr>
<tr>
<td>Rubber and tyres</td>
<td>1.29</td>
<td>48</td>
</tr>
<tr>
<td>Railway sleepers</td>
<td>0.58</td>
<td>100</td>
</tr>
<tr>
<td>Round wood</td>
<td>0.21</td>
<td>100</td>
</tr>
<tr>
<td>Bark</td>
<td>0.19</td>
<td>100</td>
</tr>
<tr>
<td>Waste wood</td>
<td>0.17</td>
<td>100</td>
</tr>
<tr>
<td>Recycled paper</td>
<td>0.14</td>
<td>0</td>
</tr>
<tr>
<td>Saw dust</td>
<td>0.07</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total a</strong></td>
<td>23.56</td>
<td>(no double counting)</td>
</tr>
<tr>
<td><strong>Total b</strong></td>
<td>14.70</td>
<td>(only importers, i.e. maximum double counting)</td>
</tr>
</tbody>
</table>

Note: Figures in the survey did not represent the total population of possible users and importers. To get an estimation of the total import figures above was multiplied with 1.36 [7].

Exports

In recent years the acceptance of the Kyoto protocol have started activities in many European countries as mentioned earlier. Interest in exporting projects has started due to the fact that Sweden and other Nordic countries have large forest resources. Importing countries in this future scenario are the densely populated European countries and some of the Mediterranean countries. No regular trade is carried out yet but there has been projects in this field.
EUROPEAN EXPERIENCES

Trade between countries has been established in different parts of Europe. In most countries, the customs statistics do not record trade in such a detail that the international trade of different biomass types could be identified. Today, solid biofuels like wood residues, pellets and wood chips are already traded in Europe. In some countries, there is a growing interest in the international trade, because the trade can provide biofuels at lower prices, larger quantities and better quality than domestic alternatives.

European trade

Solid biofuels like wood residues, pellets and wood chips are today traded in Europe and reached a level of almost 50 PJ/a [1] in 1999. Trade between European countries is a growing interest in biofuel trade, because the international trade can provide fuels at lower prices. In several cases, the national biomass market is not yet developed well enough for organised international trade. On the other hand projects may benefit in countries with unexploited biomass resources when fuels are available on an international market. Although there may be (even notable) cross-border trade of e.g. domestic firewood between neighbouring countries, this trade is more or less occasional and beyond official statistics [8].

In Fig. 1, known and estimated international biomass flows are presented. In some countries (e.g. Portugal), the statistics revealed the traded biomass amounts, but as the source/destination countries were not known, these flows cannot be included in the figure. On the other hand, in some cases the trading countries were known, but the traded biomass type was not [8].

The largest volumes of biofuel are traded from the Baltic countries (Estonia, Latvia, Lithuania) to the Nordic countries (especially Sweden and Denmark, but also Finland). Some volumes are also traded from Finland to other Nordic countries, and between neighbouring countries in Central Europe, especially the Netherlands, Germany, Austria, Slovenia and Italy. The traded biofuels include most often refined wood fuels (pellets and briquettes) and industrial by-products (sawdust, chips), in Central Europe also wood waste. The annual production of wood pellets in Europe is estimated to be about 1.2–1.3 million tonnes.

Some biofuels are also traded intercontinental. Sweden have imported biofuels from Canada, and Italy imports firewood from Northern Africa. In addition, Germany exports some firewood to the Middle and Far East [8].

Scandinavian biofuel markets have increased and national energy policies have contributed strongly to this trend. Taxes on energy with a clear environmental profile were introduced during the early 1990s in Scandinavian countries. Fossil fuels are heavily taxed in heat production, while biofuels are untaxed. In electricity production, all fuels are untaxed,

while the consumers pay a tax. In Finland and Sweden, the investment supports called forth a growth in the capacities and also contributed to the demand of biofuels.

Figure 1. Import and export of solid biofuels in Europe, 1999 [8, 9].

Fuel prices
In a survey made in a AFB-net project prices of different fuels was collected in 1999. Since then oil prices have risen significantly which also might have influenced the prices for other fuels.
Table 3: Minimum, maximum and average fuel prices (including taxes) in the 18 selected European countries, 1999 [8, 9]

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Minimum, €/GJ Country</th>
<th>Maximum, €/GJ Country</th>
<th>Average, €/GJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest residues</td>
<td>1.02, Germany</td>
<td>8.33, Italy</td>
<td>3.42</td>
</tr>
<tr>
<td>By-products, forest</td>
<td>0.58, Romania</td>
<td>9.07, Poland</td>
<td>2.38</td>
</tr>
<tr>
<td>products industry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firewood</td>
<td>1.01, Slovakia</td>
<td>14.00, UK</td>
<td>5.26</td>
</tr>
<tr>
<td>Wood waste</td>
<td>-4.00, Ireland</td>
<td>3.31, Poland</td>
<td>0.97</td>
</tr>
<tr>
<td>Refined wood fuels</td>
<td>3.24, Latvia</td>
<td>18.22, Germany</td>
<td>8.37</td>
</tr>
<tr>
<td>Other biomass</td>
<td>0.83, Slovakia</td>
<td>12.00, Poland</td>
<td>4.68</td>
</tr>
<tr>
<td>Peat</td>
<td>2.10, Finland</td>
<td>3.75, Ireland</td>
<td>2.83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&amp;</td>
<td></td>
</tr>
<tr>
<td>Heavy fuel oil</td>
<td>1.40, Slovakia</td>
<td>12.00, Ireland</td>
<td>6.74</td>
</tr>
<tr>
<td>Light Fuel oil</td>
<td>3.10, Slovakia</td>
<td>14.30, Denmark</td>
<td>6.74</td>
</tr>
<tr>
<td>Natural gas</td>
<td>1.10, Slovakia</td>
<td>16.21, Italy</td>
<td>5.80</td>
</tr>
<tr>
<td>Coal</td>
<td>1.19, Poland</td>
<td>12.78, Germany</td>
<td>4.53</td>
</tr>
</tbody>
</table>

European price level

The increase in trade between European countries have established international prices on wood fuels. In table 4 examples of prices are given. There is of course a range of prices set by the market situation, production cost and cost of competing fuels. By-products was traded around 3-4 €/GJ, wood chips around 3.5-4.5 €/GJ and wood pellets around 5-6 €/GJ.

Table 4 European prices of wood fuels for combustion plants in the size of 1–5 MWth in 1999 (€/GJ including energy taxes, excl. VAT). [4 ,8, 10]

<table>
<thead>
<tr>
<th>Country</th>
<th>Bark, sawdust, chips</th>
<th>Wood chips</th>
<th>Wood pellets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>4.2</td>
<td>4.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Finland</td>
<td>1.6</td>
<td>3.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Germany</td>
<td>3.1</td>
<td>3.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>2.9</td>
<td>3.4</td>
<td>4.8</td>
</tr>
<tr>
<td>France</td>
<td>1.1</td>
<td>4.0</td>
<td>10.6</td>
</tr>
<tr>
<td>Latvia</td>
<td>0.8</td>
<td>1.6</td>
<td>3.3</td>
</tr>
</tbody>
</table>
CONCLUSION

The largest volumes of biofuels are traded from the Baltic countries (Estonia, Latvia, and Lithuania) to the Nordic countries (especially Sweden and Denmark, but also Finland). Some volumes are also traded from Finland to other Nordic countries, and between neighbouring countries in Central Europe, especially the Netherlands, Germany, Austria, Slovenia and Italy. The traded biofuel is most often of refined wood fuels (pellets and briquettes) and industrial by-products (sawdust, chips), in Central Europe also wood waste.

There are international market prices established in Europe, however volumes are still limited. For the future both the use and the trade of wood-fuel is expected to increase in Europe.

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Use of wood and wood products in the light of the climate change discussion

Paper by Ms. Hillevi Eriksson, The National Board of Forestry, Sweden

ABSTRACT

Fossil-fuel combustion accounts for a major part of net carbon dioxide emissions to the atmosphere. The Kyoto Protocol includes quantified commitments to reduce net greenhouse gas emissions for most developed countries. To reach the committed levels, many countries must thus start to reduce the fossil-fuel use. Wood-based biofuels will therefore have an important role to play by replacing fossil fuels in various applications.

In relation to the threat of climate change, sound climate-change-related arguments for promoting increased market shares for manufactured wood-based products are:

- An increased production of manufactured products from forest industry results in larger market supply of low-cost biofuel by-products, both from the forest and the industries. The increased supply of low-cost biofuels will reduce the cost of a sustainable energy system that use less fossil fuels.
- Wood-based products become low-cost biofuels after use.
- Wood requires little energy for its production and use.

Key words: biofuels, climate change, forest, HWP, industry, mitigation, wood products.
Utilisation du bois et des produits du bois dans le contexte du débat sur les changements climatiques

Document établi par Mme Hillevi M. Eriksson, spécialiste des changements climatiques, Conseil national des forêts, Suède

RÉSUMÉ

En signant le Protocole de Kyoto, les pays industrialisés ont pris des engagements préalables chiffrés en vue de réduire les émissions nettes de gaz à effet de serre. Pour la plupart des pays la première chose à faire est de réduire l’utilisation des fossiles combustibles, qui sont en effet responsables de la majeure partie des émissions nettes de dioxyde de carbone. Le biocombustible bois peut donc avoir un rôle important à jouer. Le Protocole de Kyoto prévoit également la possibilité d’obtenir des crédits pour augmenter les réservoirs de carbone constitués par les forêts et les sols. La première période d’engagement 2008-2012 ne comprend pas les réserves constituées par les produits du bois une fois récoltés.

L’utilisation de produits dérivés du bois (sauf les biocombustibles) pourrait avoir une incidence sur le bilan carbone au niveau mondial, de plusieurs manières, dont la plus souvent évoquée est la possibilité d’augmenter le stock de produits du bois récoltés.

Une autre option est qu’une demande accrue de produits de scierie entraînerait l’allongement des durées de rotation plus longues et de ce fait une augmentation des réserves de carbone en forêt. Cependant, pour s’attaquer sérieusement au problème des changements climatiques, il existe d’autres incitations beaucoup plus importantes: a) les faibles coûts en énergie de la production du bois par rapport à d’autres matériaux de construction (métal ou béton) et b) la production élevée de sous-produits, utilisables comme biocombustibles, dans l’industrie forestière traditionnelle (déchets de récolte, écorce, sciure, lignine, bois résiduels, etc.).

Les moyens employés pour stimuler l’augmentation des réserves de carbone en général pourraient avoir deux grands effets négatifs: 1) Si l’augmentation des réserves de carbone peut revenir à court terme meilleur marché qu’une diminution des fossiles combustibles, à long terme leur entretien pourrait revenir cher. 2) Dans certains cas, une augmentation des stocks peut entraîner une baisse du potentiel de production de biocombustibles à faible coût.

Étant donné que le potentiel mondial est très limité, le système de crédit qui pourrait être prévu dans un nouveau protocole en vue d’augmenter les réserves de produits pourrait entraîner des coûts élevés pour une atténuation faible. Encourager l’augmentation de la teneur en bois des constructions pourrait également avoir une incidence négative sur la consommation d’énergie. La production de chaleur à partir de combustibles fossiles nécessaire pour un logement individuel en Suède entraîne l’émission, par an, d’à peu près la même quantité de carbone que la teneur en carbone totale du logement. Donc l’efficacité énergétique du logement (par habitant) et le choix d’une source d’énergie pour le chauffage et l’électricité sont bien plus importants que la teneur en carbone du logement pour le bilan carbone à long terme de la terre.

Plusieurs arguments militent pour la promotion de l’augmentation des parts de marché des produits du bois:

1) La production et l’utilisation du bois nécessitent peu d’énergie.
2) Après leur utilisation les produits dérivés du bois deviennent des biocombustibles à faible coût.
3) La plus forte consommation de produits à base de pâte et de produits du bois entraîne une plus grande offre de biocombustibles et réduit donc le coût d’un système d’énergie acceptable.

Mots clés: biocombustible, changement climatique, forêts, produits du bois récoltés, industrie, atténuation, produits du bois.
Использование древесины и продуктов из древесины
в свете дискуссии по вопросам изменения климата

Документ, подготовленный экспертом по вопросам изменения климата Национального совета лесоводства Швеции г-жой Хиллеви М. Эриксон

РЕЗЮМЕ

Киотский протокол содержит начальные количественные обязательства промышленно развитых стран по сокращению чистого объема выбросов парниковых газов в атмосферу. Для того чтобы достичь установленных уровней, большинству стран предстоит приступить к сокращению масштабов использования ископаемого топлива. Сжигание ископаемого топлива составляет основную часть чистого объема выбросов диоксида углерода в атмосферу. Различные виды древесного биотоплива, таким образом, могут сыграть в этом вопросе важную роль. Киотский протокол предусматривает также различные варианты кредитов на увеличение объемов депонирования углерода в лесах и в почвах. Объемы заготовленной лесной продукции не включены в первый период выполнения обязательств (2008-2012 годы).

Использование продуктов из древесины (за исключением различных видов биотоплива) может по-разному отразиться на глобальном балансе углерода. Наиболее часто рассматриваемый вариант - это увеличение запасов заготавливаемой продукции. Согласно другому варианту рост спроса на пиломатериалы приведет к более длительным периодам оборота рубки и к увеличению запасов углерода в лесах. Вместе с тем гораздо более важным элементом серьезных попыток борьбы с изменением климата являются: а) более низкие энергетические потребности, необходимые для производства древесины, по сравнению с другими строительными материалами (металл, бетон) и б) большие объёмы производства побочных продуктов, которые могли бы использоваться в качестве биотоплива на традиционных предприятиях лесной промышленности (отходы лесозаготовок, кора, опилки, древесные отходы и т.п.).

Стимулирование увеличения запасов углерода в целом может иметь два существенных негативных последствия: I) хотя увеличение запасов углерода в ближайшей перспективе не сопряжено с большими затратами (по сравнению с сокращением использования ископаемого топлива), издержки на поддержание растущих запасов могут в конечном итоге оказаться довольно дорогостоящими; II) в отдельных случаях увеличение запасов углерода может привести к сокращению производственного потенциала недорогого биотоплива.

Учитывая весьма ограниченный глобальный потенциал, система кредитования увеличения объемов продукции, предусматриваемая в разрабатываемом протоколе, может привести к значительным издержкам ущерба при незначительной отдаче в плане изменения климата. Стимулы, направленные на увеличение доли древесины в строительстве зданий, могут также иметь нежелаемые последствия для потребления энергии. При отоплении одноосемейного дома в Швеции с использованием ископаемого топлива выбрасывается примерно столько же углерода в год, сколько его содержится во всем доме. Таким образом, тепловая энергоэффективность дома (на человека) и выбор источника энергии для отопления и освещения здания являются более важными, чем содержание углерода в здании, для поддержания долгосрочного баланса углерода на земле.

Среди убедительных аргументов в пользу увеличения рыночной доли продуктов из древесины следует назвать следующие:

1. Древесина не требует больших объемов энергии для ее производства и потребления.
2. Продукты из древесины становятся после их использования недорогим биотопливом.
3. Высокие темпы потребления продуктов древесной массы и продуктов из древесины приводят к росту предложений на недорогостоящее биотопливо, тем самым сокращая издержки приемлемой энергосистемы.

Ключевые слова: биотопливо, изменение климата, лес, заготавливаемые продукты из древесины, отрасса, смягчение изменения климата, изделия из древесины.
INTRODUCTION

During the 80’s, the awareness increased among scientists about the climate implications of increasing greenhouse gas (GHG) concentrations in the atmosphere. The United Nations’ Intergovernmental Panel of Climate Change (IPCC) concluded that the increase in greenhouse gas concentrations must be strongly limited compared to the business-as-usual scenario over the coming decades. Otherwise, the climate changes are expected to threaten human food maintenance in several regions of the world as well as the occurrence of many natural ecosystems (IPCC 2001a). Intergovernmental negotiations resulted in a frame convention about climate change (UNFCCC) that was accepted in Rio de Janeiro in 1992. The objective with the convention is to stabilise GHG emissions at levels that do not cause climate changes with adverse effects on natural ecosystems and humankind.

Fossil-fuel combustion accounts for a major part of net carbon dioxide emissions. The UNFCCC states that the largest share of historical and current emissions has originated in developed countries and that per-capita emissions in developing countries are still relatively low (Anon., 1998a).

Over the last decade, the scientific community has been able to confirm that the average of the global temperature has increased in a pace that correspond to climate modelling projections, and that hardly can be explained by natural variation (IPCC 2001b).

After the ratification of the UNFCCC started the negotiations on the Kyoto Protocol. It was largely agreed in 2001, and ratified by most countries with written commitments during 2002. At present (Feb 2003), we are awaiting the ratification by Russia that would make the Protocol legally binding. In the protocol, we find quantified commitments by industrialised countries to reduce net greenhouse gas emissions. To reach the committed levels, most countries must start to reduce their use of fossil fuels. However, the sum of commitments within the protocol is far from enough to fulfil the objective of the UNFCCC (compare Anon. 1998 b and IPCC 2001c).

The Kyoto protocol also includes options to receive credits for increasing carbon (C) pools in wood and in forest soils. Maximum credit values are set for each country concerned. The possibility to include changes in pools of harvested wood products in a credit system has been discussed. It was agreed not to include any such option, at least not for the first commitment period (i.e. 2008-2012).
DISCUSSION ON POTENTIAL IMPACT ON GHG EMISSIONS FROM USING WOOD-BASED PRODUCTS

Problems of sink options

The use of wood-based products (excluding biofuels) could affect the global C budget in several ways. Often considered is apparently the possibility to increase the pool of harvested wood products in the society, and thereby binding C from the atmosphere in the building and product pool. This would create a temporary so-called sink of C. Another suggested option is that an increased demand for sawmill products would result a higher demand for large trees. This would then result in longer rotation periods and thus increased C stocks of the forests. However, as the space for further storage is limited, both of these options only result in temporary benefit for the C balance of the world. Moreover, major adverse effects could follow if a potential increase in these C pools is valued so highly that an economic incentive (e.g. a credit system) is invented to increase the stocks of various organic C pools:

I. The C stock of a biomass or soil pool is a function of the applied land use. If an economic incentive is needed to increase a certain C stock in such a pool, further economic incentives will be needed to maintain the new stock, also when the new steady-state stock level is reached. In case maintenance ceases, the extra C fixed will return to atmosphere. Thus, although increasing the C stock could be cheap compared to decreasing fossil-fuel use in the near-term perspective, the maintenance of the increased stock could continue to increase option costs (per g C) for all future.

II. In certain cases, a stock increase may lower the production potential of low-cost biofuels. In such a case, a focus on the stock could result in a land use that is suboptimal in a longer time perspective

III. If the global potential for increasing the stock is rather limited, such as for the wood product pool, a credit system for increasing the stock in a coming protocol could create high administrative costs for little mitigation value.

To replace fossil fuels is viable in the long-term perspective

Fossil-fuel combustion accounts for a major part of net carbon dioxide emissions. To reach the committed levels, most countries must start to reduce their use of fossil fuels. In many countries, wood-based biofuels may therefore have an important role to play by replacing fossil fuels in various applications (e.g. Richardson et al. 2002; Gustavsson et al. 1995). A carbon dioxide tax on fossil fuels for heat production and transporting was introduced in Sweden in 1991. Subsequently, biofuels in form of by-products from clear-felling and the forest industry have replaced fossil fuels to an extent that roughly correspond to between 5 and 10 % of the total Swedish energy consumption.

Fossil-based production of heat for a single-family wooden house in Sweden emits roughly the same amount of C, annually, that is stored in the house, including furniture and paper
products (c. 2-3 ton C). This fact illustrates that options affecting the choice of energy source for heat and electricity production are potentially far more important than any option that aim to increase the C pool in houses.

Consequently, all options are important that contribute to the development of sustainable non-fossil energy systems, and thus to a long-term viable solution of the climate change problem. In this respect, there are three major contributions that may follow from increasing the consumption of products from the forest industry (i.e. products other than primary biofuels):

a) The high production of by-products that can be used as biofuels that normally occur in the traditional forestry and forest industries (harvest residues, bark, sawdust, lignin, residue wood, etc). These biofuels are generally cheap, and increased production contribute to lower the cost for replacing fossil fuels.

b) Most wood-based products may become biofuels after use (and reuse). In case they can be used, these biofuels are even cheaper since it is normally a cost connected to waste depositing.

c) Wood-based products may replace products with higher life-cycle energy requirements.

CONCLUSIONS

In relation to the climate change problem, sound arguments for promoting increased market shares for manufactured wood-based products are:

An increased production of manufactured products from forest industry results in larger market supply of low-cost biofuel by-products, both from the forest and the industries. The increased supply of low-cost biofuels will reduce the cost of a sustainable energy system that use less fossil fuels.

Wood-based products become low-cost biofuels after use.

Wood requires little energy for its production and use.
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Working on strategies for the sound use of wood in Hungary

Paper by Dr. Zsolt Kovacs, professor of wood science, Dr. Sandor Molnar, professor of wood science, Dean, University of Western Hungary, and Dr. Erno Fuhrer, director of the Forest Research Institute, Budapest, Hungary

ABSTRACT

One of the strategic tasks of the Hungarian economy in the new century is to find a solution for increased timber use within the conditions of sustainable forest management. The “Forest & Wood” project under the umbrella of National Research and Development Programmes has recently been launched in Hungary with the aim of a sustainability- and quality-focused improvement of the national forest assets and the forwarding of the sound use of wood.

A nation-wide consortium, lead by the Faculty of Wood Sciences of the University of West Hungary, the Forest Research Institute and the Energetic, Environmental and Wood Processing Service Ltd. is working on the project objectives. The consortium also includes a number of state forestry enterprises, major wood-processing companies and machinery manufacturers.

In this project, forest management and timber utilisation are dealt with in an integrated manner. The overall objective of the project is to contribute to the prevention of the ecological hazards and to the meeting of the demands for high value wood products.

Components of the project are as follows:
- A quality-driven enhancement of the national forest assets;
- A firm foundation of the new forestation programme due with the accession to the EU;
- Survey on the quantity and quality of the domestic timber supply;
- Forwarding of the energetic utilisation of dendro-mass;
- Development of new methods for processing short roundwood;
- Modernisation of the processing of quality roundwood;
- Development of new, competitive wood products;
- Integration of the development of forestry and wood industry into regional development.

As an outcome of the project, it is anticipated that a multi-party undertaking comprising the whole process of timber utilisation from afforestation and forest renewal to the manufacture of final wood products and reuse of timber will be implemented.

Achievements to date include an analysis of criteria for an ecological sound and viable afforestation programme, development of new nursery machinery, study of the competitive situation of wood-based products, building elements and systems in Hungary, development of new engineered wood-based products based on domestic raw material.

Fulfilment of all the objectives will largely contribute to the promotion and sound use of wood in Hungary.

Key words: ecology, sustainability, wood processing, value added
Élaboration de stratégies pour l’utilisation rationnelle du bois en Hongrie

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RÉSUMÉ

En Hongrie, les stratégies relatives à une utilisation rationnelle du bois s’inscrivent dans un projet intitulé «Programme d’amélioration de la qualité du patrimoine forestier national et pour la modernisation de l’utilisation du bois» qui fait partie des programmes nationaux de recherche-développement financés par le Gouvernement dans le cadre du Plan Széchenyi.

Un large consortium, dirigé par la faculté des sciences du bois de l’Université de Sopron (Hongrie occidentale), l’Institut scientifique de foresterie et le Service de l’énergie, de l’environnement et de la transformation du bois, travaille sur les objectifs du projet; en font également partie un certain nombre d’entreprises publiques de foresterie, de grandes sociétés de transformation du bois et des fabricants de machines.

Le projet traite la question de la gestion des forêts et de l’utilisation du bois de manière intégrée. L’objectif global est de contribuer à la prévention des risques écologiques et de répondre à la demande de produits du bois de grande valeur.

Les principaux objectifs du projet sont les suivants:

- Améliorer la qualité du patrimoine forestier national;
- Jeter les bases du nouveau programme de boisement prévu en corrélation avec l’adhésion à l’Union européenne;
- Évaluer la quantité et la qualité de l’offre interne de bois;
- Développer l’utilisation à des fins énergétiques de la masse dendrologique;
- Mettre au point de nouvelles méthodes de transformation des bois ronds courts;
- Moderniser la transformation des bois ronds de qualité;
- Mettre au point des produits du bois nouveaux et compétitifs;
- Intégrer le développement de la foresterie et de l’industrie du bois aux programmes de développement régional.

Les résultats attendus découleront de la mise en œuvre d’un projet couvrant l’ensemble du cycle d’utilisation du bois, depuis le boisement et la régénération des forêts jusqu’à la fabrication de produits du bois finis et la réutilisation du bois.

Parmi les résultats obtenus à ce jour, on retiendra notamment l’analyse des critères relatifs à un programme de boisement écolonomiquement rationnel et viable, la mise au point de nouvelles machines pour les travaux en pépinière, l’étude de la compétitivité des produits du bois et des éléments et systèmes de construction dérivés du bois en Hongrie, et la mise au point de nouveaux produits du bois transformés, fabriqués à partir de matières premières locales.

La réalisation de tous les objectifs fixés contribuera largement à la promotion et à l’utilisation rationnelle du bois en Hongrie.
Разработка стратегий рационального использования древесины в Венгрии

Документ, подготовленный профессором кафедры лесоведения Западновенгерского университета, Венгрия, г-ном Жльтом Ковацем

РЕЗЮМЕ

Стратегии рационального использования древесины в Венгрии входят составной частью в проект, осуществляемый под эгидой национальных программ исследований и разработок при поддержке правительства через Схему Сцечени. Проект известен под названием "Программа качественного улучшения лесных активов и совершенствования использования древесины".

Представительный консорциум разрабатывает основные направления проекта под руководством кафедры лесоведения Западновенгерского университета, научного института лесоводства и службы "Энергетика, охрана окружающей среды и обработка древесины". В состав консорциума также входят ряд государственных лесоводческих предприятий, несколько крупных деревообрабатывающих компаний и производители оборудования.

В проекте вопросы управления лесами и использования древесины рассматриваются комплексно. Главная цель проекта состоит в том, чтобы содействовать делу предотвращения экологических катастроф и удовлетворения спроса на высококачественные изделия из древесины.

Среди основных задач проекта следует назвать:

- качественное повышение активов национальных лесов;
- создание прочного фундамента новой программы лесоразведения в связи с присоединением к ЕС;
- проведение обзора количества и качества внутренних поставок древесины;
- развитие энергетического использования дендромассы;
- внедрение новых методов обработки короткомерного "кругляка";
- модернизация процессов обработки качественного "кругляка";
- разработка новых конкурентоспособных изделий из древесины;
- интеграция процессов развития лесоводства и лесной промышленности в процесс регионального развития.

Ожидаемые результаты проекта зависят от итогов осуществления мероприятий, охватывающих весь процесс использования древесины от лесонасаждения и лесовозобновления до производства конечных изделий из древесины и повторного использования древесины.

Полученные на сегодняшний день достижения включают проведение анализа критериев для экологически благоприятной и жизнеспособной программы лесонасаждений, разработку новых видов оборудования для лесопосадок, изучение конкурентной ситуации для изделий из древесины, создание отдельных элементов и систем лесоводства в Венгрии, разработку новых видов изделий из древесины на базе имеющихся в стране сырьевых материалов.

Достижение указанных целей во многом будет способствовать успеху в деле пропаганды и рационального использования древесины в Венгрии.
INTRODUCTION

Currently, the forested area amounts to 1 798 thousand hectares in Hungary. The growing stock is of 331 million cubic meters, with an annual growth of over 9.3 million cubic meters. The actual gross removal is around 7 million m³ a year, not more than just over 70 per cent of the potential, corresponding to a net amount of roughly 6 million m³. Out of this amount, wood fuel represents 2.45 million m³ while logs and pulpwood not more than 1.45 m³ and 0.62 m³ respectively.

One of the strategic tasks of the Hungarian economy in the new century is to find a solution for increased timber use within the conditions of sustainable forest management. The “Forest &Wood” project sponsored under the umbrella of National Research and Development Programmes has recently been launched in Hungary with the aim of a sustainability- and quality-focused improvement of the national forest assets and the forwarding of the sound use of wood.

A nation-wide consortium, lead by the Faculty of Wood Sciences of the University of West Hungary, the Scientific Institution of Forestry and the Energetic, Environmental and Wood Processing Service Ltd. is working on the project objectives The consortium also includes a number of state forestry enterprises, major wood-processing companies and machinery manufacturers.

In this project, forest management and timber utilisation are dealt with in an integrated manner. The overall objective of the project is to contribute to the prevention of the ecological hazards and to the meeting of the demands for high value wood products.

The resources required for the fulfilment of project tasks include, beyond the leading organisation, contribution to experimental work of 17 companies, 8 of which are the major forestry companies in Hungary.
**ECONOMIC FOUNDATION AND SCIENTIFIC CONTENT OF THE PROJECT TASKS**

1. **Sustainable forest management and quality-driven enhancement of the national forest assets**

Although the condition of Hungarian forests is not worse than the average of the European region, growing stock volumes are still estimated to be 20 to 30% behind the potentials. Quality–driven enhancement primarily means a better, sustainable use of the ecological endowments of the country, and the improvement of production and preservation practices. However, economisation of wood production will stay dominant since the improvement of profitability remains a key objective in the 21st century as well. Accordingly, this chapter of the project starts with a survey of the historical development of Hungarian forests and the description of the current conditions. Areas of development that arise from the above analysis are the better use of the ecological potentials, the transformation of biologically and economically improper stands, the improvement of the propagating materials.

**Survey of the historical development of the national forest assets and evaluation of the present conditions**

This survey consists of

- the ecological description of forestry sub-regions and regions and their grouping by administrative regions, and
- the description of species of potential industrial use by forestry sub-regions regarding area and yield.

Semi-natural beech forests and black locust stands are the most important from the forest management point of view. Other important species include pedunculate oak, sessile oak, Turkey oak, hornbeam, poplars Scots pine, Austrian pine and spruce.

**The possibilities of quality enhancement, fulfilling the requirements of the semi-natural forest management**

Elements of this survey are

- the survey of stands not suited to their site of growing, with recommendations for their transformation based on ecological and economical criteria,
- the survey of stands of improper biological and economical structure, with recommendations for their transformation,
- the satisfactory use of high quality propagating material, and
- the ecological and economic evaluation of sylvicultural practices.
Establishment of ecologically sound sylvicultural guidelines of the forest management planning for a full exploitation of beech and black locust stands.

- yield and stand structure survey and analysis of beech and black locust stands order to determine the annual growth,
- development of afforestation guidelines,
- development of sylvicultural treatment guidelines.

As a result, the elaboration of detailed sylvicultural guidelines is underway for our most endangered indigenous species and also for the most widespread exotic one, namely black locust.

2. Enlargement of the national forest assets through the afforestation of areas not used by agriculture

Boundary conditions:

About 700 to 800 thousand hectares of new forest plantations can be established during the next 50 years. Afforestation of some 174 thousand hectares is planned between 2001 and 2001.

Ecological factors must be dominant in the choice of species. Autochthonal trees have priority; however planting of exotic species (poplars, conifers, black locust) may also be reasonable for alternative land use and regional development.

Afforestation should be based on national investment for public interest.

Funds available for EU Member States have to be acquired through the fulfilment of the relevant criteria.

The majority of the afforestation is likely to take place on privately–owned lands.

Preparatory measures for the afforestation of 15 to 18 thousand hectares each year have to be taken.

This huge task can only be executed on the condition of the necessary propagating material and the mechanisation background.

The propagating material can be grown with open-air cultivation methods. Safe and economical implementation can be guaranteed by a powerful nursery machinery system that supports the key operations of afforestation (fertilisation, soil preparation, sowing, planting, irrigation, care, removal).

Afforestation programme meeting the criteria of ecology, environment, economy and regional development

Survey of the ecological potential available for afforestation.
Decision of the size of afforestation based on grading according to the forestry site-class system of the area that cannot be economically utilised by agriculture.

The selection of the species by site.

Development of afforestation technologies and the setting of technological guidelines.

Prediction of the timber yield of the sites recommended for afforestation.

Development of new nursery machinery systems.

3. Assessment of the quantities and the quality of the domestic timber supply for an up-to-date industrial use.

The manufacturing of high-quality wood products requires an in-depth knowledge of the properties of wood grown in the different sites in Hungary. These properties affect the quality and economy of processing as well as the final product’s performance in use. They are satisfactorily clarified in the case of a few commonly utilised species only.

Experience shows that about 20% of the harvested industrial wood is lost due to improper storage and other handling errors in the wood-processing chain. Another typical problem is that the majority of the chemicals used for wood preservation seriously harm the environment. Therefore it is of utmost importance to develop environmentally friendly methods of an integrated forest protection extended to the timber harvested.

Specific tasks are as follows.

**Survey of timber resources by species and assortment with regard to the end use of value-added products**

Prediction of harvesting data by assortments based on the existing national forest assets within the rotation age.

Prediction of harvesting data by assortments based on the improved national forest assets in the next 30 years.

Prediction of harvesting data by assortments based on the enlarged national forest assets within the rotation age.

Assessment and forecast of the costs of harvesting and wood transport, with regard to the different technologies and requirements of semi-natural and plantation forest management.

**Study of the quality of domestic wood.**

Identification and evaluation of growth characteristics (e.g. log size and shape, false heartwood, interlocked grain, etc.) from the utilisation point of view.

Physical properties and their variability due to growing conditions.

Other properties affecting the use (colour, texture, durability etc.).

Establishment of assortment criteria by use, based on the quality of raw material.
New methods for the environmentally friendly protection of wood after harvesting and during processing

Environmentally optimal wood protection at the felling sites.

Methods of roundwood protection at storage

New methods for the preservative treatment of semi-finished and finished wood products.

4. Forwarding of the energetic utilisation of dendro-mass

Wood is the most important renewable energy source. The share of wood from the total energy consumption is between 7 and 23 per cent in the EU Member States. In Hungary, this figure is about 3 per cent only.

Government Resolution 11 7/99 concerning the “Kyoto Protocol” intends to increase the current 28 PJ per year renewable energy use to 53 PJ per year by 2010.

The specific tasks are as follows:

- Study of the environmental impact of wood energetics.
- The conditions of the establishment of energetic plantations, energy forests, and their eco-energetic analysis.

5. New methods for processing short and low-diameter roundwood

Most part of the wood fuel removed in Hungary could be categorised as pulpwood or other industrial wood. Broad-leaved hardwoods are prevailing in Hungary and in the case of wood in the rough other then logs utilisation is not yet solved.

The annual growth of small-size hardwood is some 4.2 million cubic meters, as opposed to the 1.8 million cubic meters of soft broad-leaved and coniferous pulpwood and wood fuel. Utilisation of this latter as industrial wood has no real obstacles.

Strategies for a more value-added use include hardboard and MDF product development based on domestic hardwoods, as well as the development of engineered wood composites. The specific tasks are as follows:

- The development of gypsum-bonded fibreboard of medium and high density.
- The manufacturing of engineered, oriented-structure composites (OSD, LSL etc.) based on domestic species.
6. Modernisation of the processing of quality roundwood

Currently over 9 million cubic meters of wood per year could be removed in Hungary. Of this amount, logs represent 25 per cent. Removal however attains some 70 per cent of the potential, due to the last decade’s changes in the ownership structure and in the demand by domestic wood-processing industry.

The strategic problems to be solved regarding the use of logs are:

- Roundwood should be processed in Hungary instead of being exported.
- Novel hardwood-based products have to be introduced to the domestic and EU markets.
- Supply of sawn and veneer-based products has to be enhanced on the domestic market based on the competitiveness of the domestic wood-processing industry, in order to reduce the import of wood and wood products.

In the course of the last 10 to 15 years, as a result of the privatisation process, development in the Hungarian sawmill industry mostly lacked behind, except for a few cases. Veneer and plywood plants have not modernised much either. These facts determine the viability of domestically produced wood products to a large extent.

In order to alleviate the problem, technical solutions requiring R&D input are necessary as below:

- Construction of a model for the technological and economic analysis of sawmills processing domestic hardwoods in order to be able to improve their efficiency through the manufacture of competitive products and a better utilisation of wastes.
- Application of novel technologies for the processing of logs of reduced size.
- Development of novel veneer-based composites (LVL, PSL etc.).
- The improvement of the row-materials’ processing characteristics via special treatments.
- Improvement of conversion ratio, product quality and tool life through debarking in saw-mills.
- Elaboration of the logistics of traceability for roundwood processing in the chain-of-custody of wood.

7. Development of new, competitive wood products

Hungary is one of the richest countries in Europe in terms of the number of broad-leaved wood species grown. At the same time, when products of high added value (such as pieces of furniture and alike) are to be manufactured, a number of adverse material features show up. For example, in the case of beech and poplar, false heartwood corrupting the aesthetics of the final product is a fundamental problem, since it affects some 60 to 70 per cent of the
wood harvested. With other species, colour variations and structural inhomogeneities due to different growing sites pose problems.

Broad-leaved species offer a wide scale of opportunities for the favourable modification of wood.

Other high added value area may be building elements, where the knowledge on the mechanical behaviour of less used species is of utmost significance.

Attaining the desired surface quality of solid wood parts in final products at reasonable effort is crucial in the competiveness of wood products. Development of machine tools therefore becomes necessary.

Ecological and environmental issues have to be duly considered in the development of wood processing. Models have to be worked out for the ecological balance of wood products to be manufactured. This may give the opportunity for promoting a wider use of wood.

Possible health-damaging effect of a few wood-dusts cannot be neglected either. In addition, emission of harmful substances in the manufacturing and finishing process may spoil the competiveness of wood-based products when not managed in a proper way.

From the above, R&D tasks as follow have been formulated:

- Design and manufacturing of new competitive furniture made of domestically grown solid wood. Possible new areas: outdoor furniture.
- The development of indoor wood products (parquet, furniture) made of an extended source of domestic hardwoods.
- The development of elements of wooden building structures based on locally available solid wood.
- Development of a planing tool and machine for high surface machining quality.
- Study on the occurrence, management and utilisation of wood wastes of primary and secondary processing.
- Modelling of the ecological balance of wood products and structures for the assessment of environmental impacts in the course of the whole life cycle, with special regard to wood-dust issues; development of more efficient exhaust systems.

8. Integration of the development of forestry and wood industry into the regional development

With Hungary’s accession to the European Union, the forest and wood sector will become an even more important part of the regional development. Delegation of the tasks of national forest management into regional and sub-regional programmes will be the guarantee for the implementation of the national forest strategy.
Social objectives of forest management are far beyond the direct economic interest of forest owners and managers, and it is reasonable to provide state budget support for the maintenance and development of non-wood goods and services.

Afforestation and wood use should appear in the development of the local economies in several ways:

- being an indicator of the quality of environment,
- generating income,
- providing employment,
- generating added value,
- being an important element of diversifying income generation.

The actual tasks are as follows:

- The improvement of the land use forms of the regions.
- Building of models for wood production and wood use by target stands.

**ACHIEVEMENTS AND FURTHER EXPECTED OUTCOMES OF THE PROJECT**

Through the implementation of the project, the participating companies will contribute to the definition of the conditions of a new approach of sustainable forest management in Hungary. It is expected to attain a better use of the ecological potential of the forests managed by the individual companies, and consequently the yield of the forests can be increased. In addition, the wood removed will be used at higher value added, thus the processing companies’ profitability can improve.

The development of new board products offering a modern outlet for lower-value industrial wood will actually be a firm foundation of the planned investment of a major manufacturing consortium.

The main benefit of the anticipated integrated results of the project will be the models for wood production and wood use by target stands, the first users of which will be the members of the project consortium.

It is anticipated that the implementation of “Forest&Wood” programme will contribute to putting Hungary in the right place as regards the prevention of global environmental damages through the sound use of wood according to the demand of the new millennium.

It is expected that the in-depth elaboration of the conditions of ecologically sound sustainable forest management will be suited both to the requirements of the EU and the Hungarian society. The survey of the relationships and processes in natural forest associations and plantations serves the observance of the international convention on biodiversity and climate; at the same time, it makes environmental protection and economic exploitation of the ecological potential simultaneously possible. Results may be
incorporated into the professional guidelines used by public administration of forestry and forest managers.

The resulting novel wood uses, new technologies, machinery and products will form the professional background of a qualitative change that makes the use of the domestic wood resources more intensive, processing the same into value added products domestically.

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