



United Nations
Economic Commission
for Europe



Food and Agriculture
Organization
of the United Nations

Forest Products

Annual Market Review



UNITED NATIONS

United Nations Economic Commission for Europe/
Food and Agriculture Organization of the United Nations

ECE/TIM/SP/23

UNECE



Timber Section, Geneva, Switzerland

Geneva Timber and Forest Study Paper 23

FOREST PRODUCTS ANNUAL MARKET REVIEW 2007-2008



UNITED NATIONS
New York and Geneva, 2008

NOTE

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The Timber Bulletin series was discontinued in 2005. The present publication was issued under the Geneva Timber and Forest Study Paper series, which started in 2006.

ABSTRACT

The UNECE/FAO *Forest Products Annual Market Review, 2007-2008* provides general and statistical information on forest products markets and related policies in the United Nations Economic Commission for Europe region (Europe, North America and the Commonwealth of Independent States). The *Review* begins with an overview chapter, followed by a description of Government and industry policies affecting forest products markets. After a description of the economic situation and construction-related demand in the region, five chapters based on annual country-supplied statistics, describe: wood raw materials, sawn softwood, sawn hardwood, wood-based panels, and paper, paperboard and woodpulp. Additional chapters discuss markets for wood energy, certified forest products, value-added wood products and tropical timber. In each chapter, production, trade and consumption are analysed and relevant material on specific markets is included. Tables and graphs provided throughout the text present summary information. Supplementary statistical tables may be found on the Market Information Service website within the UNECE Timber Committee and FAO European Forestry Commission website at www.unece.org/trade/timber.

KEYWORDS

Forest products markets, wood markets, market analysis, forest policy, consumption, production, imports, exports, forest industry, forest products, forestry statistics, Europe, North America, Commonwealth of Independent States, climate change, housing market, construction, timber, wood industry, pulp and paper industry, wood fuels, certification, wood products, tropical timber, forestry trade, sustainable forestry, sawnwood, sawn softwood, hardwood, lumber, wood-based panels, particle board, fiberboard, fibreboard, OSB, MDF, plywood, paperboard, cardboard, woodpulp, pulpwood, sawlogs, pulplogs, roundwood, industrial roundwood, value-added, wood energy, fuelwood, certified forest products.

ECE/TIM/SP/23

UNITED NATIONS PUBLICATIONS

Sales No.XX.XX.XX.XX

ISBN XX-XXXXXX-X

ISSN XXXX-XXXX

FOREWORD

The United Nations Economic Commission for Europe (UNECE) strives to foster sustainable economic development among its 56 member countries. To this end, it provides analysis, policy advice and assistance to Governments. It also gives focus to the United Nations global mandates in the economic field, in cooperation with other global players and key stakeholders, notably the business community. The UNECE region is diverse, not only in terms of populations and cultures, and not only in terms of forest cover and forest products markets, but also in terms of economic development. While different stages of development present a challenge for the UNECE, they also provide an opportunity to share information between countries on topical issues, for example forest products markets.

The *Forest Products Annual Market Review, 2007-2008* implements the UNECE mandate by providing an up-to-date analysis of markets and policies which is crucial for sustainable development in the forest sector. The *Review* was singled out by Governments and stakeholders as essential for sharing information between countries during the recent Strategic Review of the Integrated Programme of Work on Timber and Forestry of the UNECE Timber Committee and the FAO European Forestry Commission.

The *Review* analyses forest products market and policy developments. The interactions of market and policy developments are addressed for the forest sector, as well as in a cross-sectoral manner, especially for energy and environment. For example, a new issue covered in the *Review* is the link between food security and the production of biofuels, both wood and non-wood, to meet Government energy targets.

Linked to food security is the major issue of climate change. The influence of climate change on the forest sector, and the sector's response is a subject that is woven throughout the *Review*. Climate change is blamed for the annual storms that have affected European forests over the past four years. Regular forest fires and attacks by insects are linked in part to climate changes. These volumes of felled, burned and infested timber not only affect the market, but also have disastrous effects for local residents and ecosystems.

However, the forest sector is well positioned to mitigate climate change when forests are managed sustainably with maximum vigour. The sector provides wood-based energy, as well as the raw material for wood and paper industries; and both on a "carbon neutral" basis. However, when setting targets for wood energy, a holistic approach is needed to ensure that the wood will be available for all needs. While the UNECE region's forests continue to produce far more wood than is harvested, there are constraints in mobilizing the wood; and these must be considered in policymaking.

This *Review* is a one of the main inputs for the annual Timber Committee Market Discussions. The Timber Committee will hold its discussions jointly with the European Forestry Commission on 21-22 October 2008 as part of the Rome-based events of the European Forest Week. The Committee will again work with a major trade group, the International Softwood Conference, to provide forecasts for markets in 2008 and 2009, which are another basis for these important discussions. The annual market discussions' interaction between industry, Government and international organizations leads to better understandings about the market and policy developments.

I take this occasion to express my sincere appreciation to our partner in FAO. I thank the 150 experts, partners, information suppliers and secretariat who have worked to produce this *Review*.

The *Review* is prepared for Government policymakers, industry analysts and marketing specialists in the sector, as well as in other sectors. I hope it will achieve its objectives of providing a factual, recent and neutral analysis of market and policy developments and providing a stimulus for meaningful policy discussion in international forums.



Marek Belka

Executive Secretary

United Nations Economic Commission for Europe

PREFACE

By the leader of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing

The UNECE/FAO Team of Specialists on Forest Products Markets and Marketing advises the UNECE Timber Committee and the FAO European Forestry Commission on forest products markets structures, policies and opportunities in the UNECE region. Our role, scope and mission support capacity-building and training across a number of areas related to forest products markets and marketing in the region. For example, areas of work include social, economic and environmental influences related to forest sector development. The members of the Team are authors, contributors and reviewers of the *Forest Products Annual Market Review, 2007-2008*.

The global forest-based environment continues to be very dynamic. For example, in the past year, there have been disruptions in housing and mortgage lending markets in the United States that are having impacts in other countries. Sustainable harvesting, changing wood product supply chains, global trade patterns and end-use demand are also examples of dynamic and significant issues we examine. In this *Review*, we discuss this changing global landscape, and effects on wood and paper product markets in the UNECE.

The *Review* analysis of market and policy developments is based on “first-available” statistics supplied by official country correspondents and is the first comprehensive analysis available each year for the UNECE region. It covers all primary wood-processing and value-added wood-products sectors.

In addition to providing information to participants at the Timber Committee market discussions, the *Review* is a valuable resource for Government policymakers, industry participants, academicians and other forest-sector stakeholders. The *Review* supports UNECE and FAO priorities by providing an objective analysis of market and policy developments.

The *Review* highlights market developments for the following sectors:

- Wood raw materials
- Wood energy
- Sawn softwood
- Sawn hardwood
- Panels
- Paper, paperboard, and woodpulp
- Certified forest products
- Value-added wood products
- Tropical timber

It also highlights emerging policy developments:

- Energy and the forest sector
- Climate change and forest products markets
- Food security versus the biofuels issue
- The green building movement
- Corporate responsibility
- Russian forest sector reform
- Research and development policies

I wish to express my appreciation to the Team members, the secretariat production team and to all the other persons who contributed information and statistics to make the *Forest Products Annual Market Review* a unique and valuable resource to the global forest products community.



Dr. Richard Vlosky

Leader of the UNECE/FAO Team of Specialists
on Forest Products Markets and Marketing

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ACKNOWLEDGEMENTS

One of the most pleasurable parts of the production of the *Forest Products Annual Market Review* is acknowledging the tremendous contributions of the Geneva-based Review Team and the extended network of authors, statistical correspondents and contributors. We extend our appreciation to them on behalf of the UNECE Timber Committee and the FAO European Forestry Commission for whom this *Review* is produced. In mentioning people below, our thanks also go to their companies, institutions, organizations and associations that made it possible for contributions of their time and travel. After these acknowledgements, the following pages list contributors of information and support, e.g. loaned expertise.

The *Review's* analysis is based on statistics received from the official country correspondents who are listed separately. Some information in the chapter on certified forest products is thanks to the Timber Committee and European Forestry Commission Network of Officially Nominated Country Correspondents on Certified Forest Products Markets and Certification of Sustainable Forest Management

Chronologically, by chapter, we first acknowledge our external authors and collaborators, many of whom are participating again. Most of the authors are members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

This year's *Review* was produced with direct input by 65 people. Dr. Ed Pepke (UNECE/FAO Timber Section) led the project and wrote the overview chapter (1). The other chapter authors are listed below.

The policy chapter (2) was coordinated and written by Dr. Jim Bowyer, Director of Responsible Materials Program, Dovetail Partners, and Professor Emeritus, Department of Bio-based Products, University of Minnesota, US. The second author was Dr. Helmuth Resch, Emeritus Professor, University of Natural Resources, Austria. Ms. Franziska Hirsch, Policies and Institutions Specialist within the UNECE/FAO Timber Section, Geneva, contributed from her international perspective. The corporate responsibility section was written by Ms. Natalia Vidal, PhD candidate, and Dr. Robert Kozak, Associate Professor, University of British Columbia, Canada, who are specialists in this field. We thank these experts for a thought-provoking chapter.

In chapter 3, Dr. Robert Shelburne, Senior Economic Affairs Officer, UNECE, investigated the economic framework for market developments. Then the construction section was analysed by Dr. Al Schuler, Research Economist, Northeast Forest Experiment Station, USDA Forest Service, and Mr. Craig Adair, Director, Market Research, APA – The Engineered Wood Association, US. We are truly grateful for their continued collaboration.

Chapter 4 on wood raw materials again benefits from the knowledge of Mr. Håkan Ekström, President, Wood Resources International. He draws on his two publications on world fibre markets and prices, specifically *Wood Resource Quarterly* and the *North American Wood Fiber Review*.

Chapter 5 on sawn softwood markets was capably led by Mr. Russell Taylor, President, International Wood Markets Group Inc., Canada. He also wrote the North American analysis. Dr. Nikolai Burdin, Director, OAO NIPIELSProm, Russian Federation, studied the Russian developments. We appreciate their work, as well as that of two new consultants for the European section, Mr. Thorsten Leicht and Mr. Mathias Lundt, both from Pöyry Forest Industry Consulting, Germany.

Chapter 6 on sawn hardwood was again possible thanks to the support of the American Hardwood Export Council, and especially through collaboration with Mr. David Venables, European Director. The analysis was performed by Mr. Rod Wiles, Broadleaf Consulting, UK with input from Mr. Rupert Oliver, Forest Industries Intelligence Limited, UK. We thank them and look forward to continued cooperative efforts.

The panels market chapter (7) was again coordinated by Dr. Ivan Eastin, Director, Center for International Trade in Forest Products, University of Washington, US, who also did the North American analysis. Ms. Bénédicte Hendrickx, Economic Advisor, European Panel Federation, analysed the European panel markets. They had input on the Russian market from Dr. Burdin. We appreciate their valuable insight.

Chapter 8 on paper, paperboard and woodpulp markets was coordinated by Dr. Peter J. Ince, Research Forester, USDA Forest Service, Forest Products Laboratory, who investigated North American developments. Professor Eduard L. Akim, PhD, Head of Department, St. Petersburg State Technological University of Plant Polymers, wrote the Russian section. The western European developments were described by Mr. Bernard Lombard, Trade and Competitiveness Director, Confederation of European Paper Industries (CEPI) with statistical assistance from Mr. Eric Kilby and Ms. Ariane Crevecoeur, CEPI. For eastern Europe, once again Mr. Tomás Parik, Managing Director, Wood and Paper A.S. contributed. We thank them all for their concise analysis.

Chapter 9 on wood energy markets benefited again from financial support from the Swedish Ministry of Industry, Employment and Communications, thanks to Mr. Peter Blombäck, Head, International Division, Swedish Forest Agency. Mr. Blombäck is Vice-Chairman of the FAO European Forestry Commission. The two lead authors returned to analyse the European developments: Dr. Bengt Hillring (Professor) and Mr. Olle Olsson (doctoral student), both

from the Swedish University of Agricultural Sciences (SLU). Also from SLU, Dr. Tatiana Stern, Associate Professor, wrote about Russian developments. Again they were joined by Dr. Christopher Gaston, National Group Leader, FPInnovations-Forintek Division and Dr. Warren Mabee, Research Associate, University of British Columbia, for the Canadian analysis and Dr. Kenneth Skog, Project Leader, and Mr. Henry Spelter, Research Scientist, both USDA Forest Service, Forest Products Laboratory, for the US analysis. Our sincere thanks go to all of them.

Chapter 10 on certified forest products markets was led by Mr. Florian Kraxner, research scholar, International Institute for Applied Systems Analysis, Austria. He was assisted by his co-authors, Dr. Catherine Mater, President, Mater Engineering, Oregon, US and Dr. Toshiaki Owari, Lecturer, University of Tokyo, who provided subregional perspectives. Dr. Ruth Nussbaum, Director, ProForest, reviewed the chapter. Thank you to all.

The first part of the value-added products chapter (11) was written by Mr. Tapani Pahkasalo, Forest Economist, Indufor Oy, Finland. Dr. Schuler and Mr. Adair, mentioned above, wrote the section on engineered wood products markets. We are grateful for their expertise.

A new author, Ms. Francis Maplesden, Statistician, International Tropical Timber Organization analysed tropical timber markets in chapter 12. Mr. Jean-Christophe Claudon, Statistical Assistant supported the chapter production, along with Dr. Steve Johnson, Communications Director, both ITTO. We thank them all.

Once again we express thanks to the University of Helsinki's Department of Forest Economics for sending us two capable market research assistants during the *Review* production: Messrs. Jyri Hietala and Juha-Matti Laitinen. In addition to market research, they produced all the graphics. In doing so they revised our *Graphics Production System* and *Review Production Manual*. They are critical to the quality and timeliness of the publication. These annual internships were facilitated by Dr. Heikki Juslin, Professor, Dr. Anne Toppinen, Professor, and Ms. Pipsa Salolammi, Assistant, at the Department. Our thanks to all of them for this critical support.

For the first time we had an Assistant Project Leader, Mr. Lucio Brotto. Coming from the University of Bangor in Wales, his main task was planning and monitoring the production. He also worked on a number of other tasks, for example in updating the *Review Planning System*. We also thank his major professor, Dr. Roger Cooper, Senior Lecturer in Forest Products, at the University of Bangor.

Mr. Alex McCusker (UNECE/FAO Timber Section) collected, validated and produced the statistics. Mr. Ronald Jansen, United Nations Statistics Division, provided the latest forest products trade statistics from Comtrade and Mr. Bruce Michie, Senior Researcher, European Forest Institute, validated the trade data and produced the database for trade flow graphs and tables. Thanks to them we had the most up-to-date statistical databases possible.

From the UNECE/FAO Timber Section, Mr. Matt Fonseca was mainly responsible for the publication layout, Ms. Karen Taylor performed all administrative duties, and Ms. Sefora Kifle prepared price data and supported authors with documents and journals. Ms. Eve Charles provided the French translation of the *Review's* press release.

Editors were Ms. Tobi Dress, Consultant, Ms. Christina O'Shaughnessy, Editor, Trade and Timber Division, UNECE and Ms. Line Konstad, Associate Information Officer, Transport Division, UNECE. We appreciate their critical work.

The new cover was designed by Mr. Yves Clopt, Graphic Designer, UNECE. Ms. Mariana Darnet, Graphic Designer, UNECE, assisted with some of the graphics.

Initial technical reviews were done in chronological order by Dr. Pepke, Mr. Douglas Clark, Forest Products Marketing Consultant and Mr. Kit Prins, Chief, all UNECE/FAO Timber Section. We appreciate the second reviews from the Forest Products and Industry Division of the FAO Forestry Department by Mr. Arvydas Lebedys, Forestry Officer-Statistics and Mr. Maxim Lobovikov, Chief, Forest Products Service. Other reviewers from the Timber Section included Mr. Sebastian Hetsch and Mr. Florian Steierer.

This manuscript was completed on 28 July 2007. It is an honour to work with such a dedicated Review Team, and the many other contributors. We thank them for their efforts in producing this year's *Forest Products Annual Market Review*.

Ed Pepke
Forest Products Marketing Specialist
UNECE/FAO Timber Section
Trade and Timber Division
United Nations Economic Commission for Europe
Palais des Nations
CH - 1211 Geneva 10, Switzerland
E-mail: info.timber@unece.org

CONTRIBUTORS TO THE PUBLICATION

The secretariat would like to express our sincere appreciation for the information and assistance received from the following people in preparation of the *Forest Products Annual Market Review*. The base data for the *Review* were supplied by country statistical correspondents, who are acknowledged in a separate listing. We regret any omissions.

Martti Aarne, Finnish Forest Research Institute, Finland
Yngve Abrahamsen, Euroconstruct, Swiss Economic Institute, Switzerland
Craig Adair, APA – The Wood Engineered Association, United States
Eduard L. Akim, Saint Petersburg State Technological University of Plant Polymers, Russian Federation
Harry Bagley, Lumber Quality Consulting, United States
Peter Blombäck, Swedish Forest Agency, Sweden
John Bolles, Plum Creek Timber, United States
Florian Borlea, National Forest Administration, Timisoara, Romania
Jim Bowyer, Dovetail Associates, United States
Lucio Brotto, University of Bangor, United Kingdom
Urs Buehlmann, Virginia Tech University, United States
Nikolai Burdin, OAO NIPIEIllesprom, Russia
Jim Bursma, Homestead Timbers, United States
Jean-Christophe Claudon, International Tropical Timber Organization, Japan
Yves Clopt, UNECE
Roger Cooper, University of Wales, United Kingdom
Ariane Crevecoeur, CEPI, Belgium
Mariana Darnet, UNECE
Pierre-Marie Desclos, Forest Products Consultant, Italy
Ivan Eastin, Center for International Trade in Forest Products, University of Washington, United States
Håkan Ekström, Wood Resources International, United States
Chris Gaston, FPInnovations – Forintek Division, Canada
Carl-Éric Guertin, Quebec Wood Export Bureau, Canada
Ben Gunneberg, Pan European Forest Certification Council, Switzerland
Jane Guo, International Wood Markets Group, China
Tuomas Hallenberg, UPM-Kymmene Plywood, Finland
Riitta Hänninen, Finnish Forest Research Institute, Finland
Eric Hansen, Oregon State University, United States
Bénédicte Hendrickx, European Panel Federation, Belgium
Sebastian Hetsch, Consultant, Germany
Jyri Hietala, University of Helsinki, Finland
Bengt Hillring, Swedish University of Agricultural Sciences, Sweden
Yanijie Hu, Chinese Academy of Forestry, China
Peter Ince, USDA Forest Service, United States
Filip de Jaeger, CEI-Bois, Belgium
Hans Jansen, UNECE
Ronald Jansen, UN Statistics Division, United States
Steven Johnson, International Tropical Timber Organization, Japan
Heikki Juslin, University of Helsinki, Finland
Emiko Kato, Japan Wood-Products Information & Research Center, Japan
Eric Kilby, CEPI, Belgium
Line Konstad, UNECE
Antti Koskinen, Pöyry Forest Industry Consulting, Finland
Robert Kozak, University of British Columbia, Canada
Florian Kraxner, International Institute for Applied Systems Analysis, Austria
Sylvain Labbé, Quebec Wood Expert Bureau, Canada
Juha-Matti Laitinen, University of Helsinki, Finland

Arvydas Lebedys, FAO, Italy
Nico Leek, Stichting Bos en Hout, Netherlands
Thorsten Leicht, Pöyry Forest Industry Consulting, Germany
Bernard Lombard, Confederation of the European Paper Industries, Belgium
Maxim Lubovikov, FAO, Italy
Mathaias Lundt, Pöyry Forest Industry Consulting, Germany
William Luppold, USDA Forest Service, United States
Warren Mabee, University of British Columbia, Canada
Elina Maki-Simola, Eurostat, Luxembourg
Frances Maplesden, International Tropical Timber Organization, Japan
Outi Marin, Metsaliitto Group, Finland
Catherine Mater, Mater Engineering, Ltd., United States
Bruce Michie, European Forest Institute, Finland
Cris Mul, Kevl, Netherlands
Magnus Niklasson, Swedish Forest Industries Federation, Sweden
William Nikolakis, University of British Columbia, Canada
Ruth Nussbaum, ProForest, United Kingdom
Rupert Oliver, Forest Industries Intelligence Limited, United Kingdom
Olle Olsson, Swedish University of Agricultural Sciences, Sweden
Toshiaki Owari, University of Tokyo, Japan
Heikki Pajuoja, Metsäteho, Finland
Tapani Pahkasalo, Indufor, Finland
Tomás Parik, Wood and Paper, A.S., Czech Republic
Katherine Raeymaekers, European Organisation of the Sawmill Industry, Belgium
Elisa Ranta, Pöyry Forest Industry Consulting, Finland
Craig Rawlings, Smallwood Utilization Network, United States
Helmuth Resch, University of Natural Resources, Austria
Pipsa Salolammi, University of Helsinki, Finland
Al Schuler, USDA Forest Service, United States
Jarno Seppälä, Pöyry Forest Industry Consulting, United States
Yrjö Sevola, Finnish Forest Research Institute, Finland
Markku Simula, Ardot Oy, Finland
Robert Shelburne, UNECE
Ken Skog, USDA Forest Service, United States
Mike Smith, Forest Information Update, New Zealand
Dennis Sokolov, Wood Industries Confederation of North West Russia
Henry Spelter, USDA Forest Service, United States
Florian Steierer, University of Hamburg, Germany
Tatjana Stern, Swedish University of Agricultural Sciences, Sweden
Kiwami Tamamoto, Japan Wood-Products Information & Research Center, Japan
Xiufeng Tan, Chinese Academy of Forestry, China
Russell Taylor, R.E. Taylor & Associates, Ltd., Canada
Jukka Tissari, Indufor, Finland
Anne Toppinen, University of Helsinki, Finland
Jaroslav Tymrak, Pan European Forest Certification Council, Switzerland
Daria Ukhova, UNECE
David Venables, American Hardwood Export Council, United Kingdom
Rebecca Westby, USDA Forest Service, United States
Roderick Wiles, Forest Industries Intelligence Limited, United Kingdom
Nelson Y. S. Wong, International Forest List, Malaysia

STATISTICAL CORRESPONDENTS

The national statistical correspondents listed below are the key suppliers of data for this publication. We are grateful for their essential contribution and their significant efforts in collecting and preparing the data. Complete contact information for the correspondents is provided in the publication *Forest Products Statistics*.¹

Ashot Ananyan, Chief Industry Division, National Statistical Service, Armenia

Djanbulat Baijumanov, First Deputy Chairman, National Statistical Committee, Kyrgyzstan

Ramazan Bali, Section Director General, Directorate of Forestry, Ministry of Environment and Forestry, Turkey

Sokol Bezhani, Directorate of Forestry and Pastures Policies, Ministry of Environment, Forests and Water Administration, Albania

Anna Margret Björnsdóttir, Statistics Iceland, Iceland

Aija Budreiko, Head of Forest Information Division, Forest Resources Department, Ministry of Agriculture, Latvia

Nikolay Burdin, General Director, Research and Design Institute on Economics and Information for Forest, Pulp and Paper and Woodworking Industries, OAO NIPIELlesprom, Russian Federation

Josefa Carvalho, Direcção de Serviços de Estratégia e Política Florestal, Direcção-Geral dos Recursos Florestais, Portugal

Guillaume Daelmans, Secretary General, Fédération Belge du Commerce d'Importation du Bois, Belgium

Mira Dojcinovska, Department for Dissemination, State Statistical Office of the Republic of Macedonia, The former Yugoslav Republic of Macedonia

Joanne Frappier, Director Forest Information Management Division, Planning, Information and Operations Branch, Canadian Forest Service, Natural Resources Canada

Branko Glavonjic, Professor, Faculty of Forestry, Belgrade State University, Serbia

Hanne Haanaes, Senior Executive Officer, Division for Primary Industry Statistics, Statistics Norway

Johannes Hangler, Deputy Head of Division, Forest Policy and Forest Information, Federal Ministry of Agriculture, Forestry, Environment and Water Management, Austria

James L. Howard, Economist, Forest Products Laboratory, USDA Forest Service, United States

Aristides Ioannou, Director, Department of Forests, Ministry of Agriculture, Natural Resources and Environment, Cyprus

Constanta Istratescu, Scientific Research Secretary, National Institute of Wood, Romania

Surendra Joshi, Analysis Division, Swedish Forest Agency, Sweden

Peter Kottek, Head Statistical Department, State Forest Service, Hungary

Nico A. Leek, Senior Consultant, Probos, Netherlands

Angelo Mariano, Senior Forestry Officer, National Forest Service, Ministry of Agricultural and Forest Policies, Italy

Anthony Mifsud, Director (Agriculture), Agricultural Services and Rural Development, Agricultural Research and Development Centre, Malta

Michel-Paul Morel, Responsable de statistiques forêt, filière bois, utilisation du territoire Service central d'enquêtes et d'études statistiques, Ministère de l'Agriculture et de la Pêche, France

Darko Motik, Assistant Professor, University of Zagreb - Faculty of Forestry, Croatia

Mika Mustonen, Senior Researcher, Forest Statistics Information Service, Finnish Forest Research Institute, Finland

Eoin O'Driscoll, Forestry/Forest Products Market Research, Drima Market Research, Ireland

Birger Rausche, Forest Engineer, Timber Section, Federal Ministry of Food, Agriculture and Consumer Protection, Germany

Jasna Samardzic, Coordinator, International Cooperation, International Relations Department, Agency for Statistics of Bosnia & Herzegovina, Bosnia and Herzegovina

¹ *Forest Products Statistics* is available at: www.unece.org/trade/timber/mis/fp-stats.htm

Václav Stránský, Deputy Director, Conception and Economics of Forest Management Section, Forestry Department, Ministry of Agriculture, Czech Republic, Czech Republic

Wladyslaw Strykowski, General Director, Wood Technology Institute, Poland

Rafael S. Suleymanov, Head of Department, Department of Trade, State Statistical Committee of Azerbaijan Republic, Azerbaijan

Roman Svitok, Senior Researcher, Forest Policy and Economy National Forest Centre, Forest Research Institute (LVU) Zvolen, Slovakia

Irena Tomšič, Statistical Office of the Republic of Slovenia

Mati Valgepea, Head Department of Forestry Statistics, Estonian Center of Forest Protection and Silviculture, Estonia

Roberto Vallejo Bombín, Chief, Nature Databank Directorate-General of Nature Conservation, Ministry of Environment, Spain

Darius Vizlenskias, Head of Department, Department of Forest Statistics and Assessment, State Forest Survey Service (SFSS), Lithuania

Sheila Ward, Secretary, Forestry Commission, United Kingdom

DATA SOURCES

The data on which the *Forest Products Annual Market Review* are based are collected from official national correspondents² through the FAO/UNECE/Eurostat/ITTO Joint Forest Sector Questionnaire, distributed in April 2008. Within the 56-country UNECE region, data for the 29 EU and EFTA countries are collected and validated by Eurostat, and for other UNECE countries by UNECE/FAO Geneva.

The statistics for this *Review* are from the TIMBER database system. As the database is continually being updated, any one publication's analysis is only a snapshot of the database at that particular time. The database and questionnaires are in a state of permanent development. Data quality differs between countries, products and years. Improvement of data quality is a continuing task of the secretariat, paying special attention to the CIS and south-eastern European countries. With our partner organizations and national correspondents, we strongly believe that the quality of the international statistical base for analysis of the forest products sector is steadily improving. Our goal is to have a single, complete, current database, validated by national correspondents, with the same figures available from FAO in Rome, Eurostat in Luxembourg, ITTO in Yokohama and UNECE/FAO in Geneva. We are convinced that the data set used in the *Review* is the best available anywhere as of July 2008. The data appearing here form only a small part of the total data available. *Forest Products Statistics* will include all of the data available for the years 2003-2007. The TIMBER database is available on the website of the joint Timber Committee and European Forestry Commission at <http://www.unece.org/trade/timber/mis/fp-stats.htm#Database>

The secretariat is grateful that correspondents provided actual statistics for 2007 and, in the absence of formal statistics, their best estimates. Therefore all statistics for 2007 are provisional and subject to confirmation next year. The responsibility for national data lies with the national correspondents. The official data supplied by the correspondents account for the great majority of records. In some cases, where no data were supplied, or when data were confidential, the secretariat has estimated figures to keep region and product aggregations comparable and to maintain comparability over time. Estimations are flagged within this publication, but only for products at the lowest level of aggregation.

Despite the best efforts of all concerned, a number of significant problems remain. Chief among these problems are differing definitions, especially when these are not mentioned, and unrecorded removals and production. In certain cases, for example woodfuel removals, the officially reported data can be only 20% of actual figures. Conversions into the standard units used here are also not necessarily done in a consistent manner. Intra-EU trade is less reliable than extra-EU trade.

In addition to the official statistics received in response to the questionnaire, trade association and Government statistics are used to complete the analysis for 2007 and early 2008. Supplementary information came from experts, including national statistical correspondents, trade journals and Internet sites. Most of these sources are cited where they occur in the text, at the end of the chapters, on the list of contributors and in the annex reference list.

² Correspondents are listed with their complete contact details at www.unece.org/trade/timber/mis/fp-stats.htm.

EXPLANATORY NOTES

“Apparent consumption” is calculated by adding a country’s production to imports and subtracting exports. Apparent consumption volumes are not adjusted for levels of stocks. Apparent consumption is synonymous with “demand”.

“Net trade” is the balance of exports and imports and is positive for net exports, i.e. when exports exceed imports, and is negative for net imports, i.e. when imports exceed exports. Trade data for the twenty-seven European Union countries include intra-EU trade, which is often estimated by the countries. Export data usually include re-exports. Subregional trade aggregates in tables include trade occurring between countries of the sub-region.

For a breakdown of the regions, please see the map in the annex. References to EU refer to the 27 countries members of the EU in 2007. The term “CIS” refers to the 12 countries of the Commonwealth of Independent States.

The term “softwood” is used synonymously with “coniferous”. “Hardwood” is used synonymously with “non-coniferous” or “broadleaved”. More definitions appear in the electronic annex.

All references to “ton” or “tons” in this text represent the metric unit of 1,000 kilograms (kg).

Please note that all US and Canadian softwood lumber production and trade are in solid m³, converted from nominal m³. An explanation of this is provided in the *Forest Products Annual Market Review, 2001-2002*, page 84.

The use of the term “oven-dry” in this text is used in relation to the weight of a product in a completely dry state, e.g. an oven-dry metric ton of wood fibre means 1,000 kg of wood fibre containing no moisture.

SYMBOLS AND ABBREVIATIONS USED*

...	not available
€	euro
\$	United States dollar, unless otherwise specified
ATFS	American Tree Farm System
B.C.	British Columbia, Canada
BJC	builders' joinery and carpentry
CAN	Canadian dollar
CFP	certified forest product
CIS	Commonwealth of Independent States
CO ₂	carbon dioxide
CoC	chain-of-custody
CSA	Canadian Standards Association
EFI	European Forest Institute
EFTA	European Free Trade Association
EQ	equivalent of wood in the rough
EU	European Union
EWPs	engineered wood products
FSC	Forest Stewardship Council
FOB	free on board
GDP	gross domestic product
GHG	greenhouse gas
GWh	gigawatt
ha	hectare
IMF	International Monetary Fund
ITTO	International Tropical Timber Organization
kWh	kilowatt-hour
LVL	laminated veneer lumber
m.t.	metric ton
m ²	square metre
m ³	cubic metre
MDF	medium density fibreboard
NGO	non-governmental organization
OSB	oriented strand board
PEFC	Programme for the Endorsement of Forest Certification schemes
PJ	petajoule
PoC	Province of China
SAR	Special Administrative Region of China
SFI	Sustainable Forestry Initiative
SFM	sustainable forest management
STEM	Swedish Energy Agency
VAWPs	value-added wood products

*Infrequently used abbreviations spelled out in the text may not be listed here.

Chapter 1

United States forest products market crash impacts UNECE region: Overview of forest products markets and policies, 2007-2008³

Highlights

- In 2007, United States housing construction continued its sharp decline, having severe impacts on the entire UNECE region's forest products markets, as well as world markets.
- Green building systems are a driver of wood products markets, but also a constraint when they discriminate against some sources of wood.
- UNECE region consumption of wood and paper products fell in 2007 for the first time in six years due to the downturn in North American forest products markets, despite a rise in consumption in European and CIS markets.
- Oil prices soared to over \$145 per barrel in July 2008, further stimulating substitution by wood-based biofuels and policies to mobilize more wood from forests and other sources.
- Certified forest area rose to over 300 million hectares worldwide by mid-2008, with most in the UNECE region, driven by green building systems and public procurement policies.
- Due to the downturn in North American markets, some European market sectors exceeded their North American counterparts for the first time in 2007, with production of sawn softwood and consumption of panels and paper and paperboard greater than that of North America.
- China's trade with countries in the UNECE region continues to increase, with its roundwood imports profiting exporters, but competing for local sawlog processors; its exports of finished and semi-finished products benefit consumers with lower-cost wood products, but compete with manufacturers in the UNECE region.
- In Europe, wood products prices generally rose in 2007, then fell in 2008 as markets weakened, while in North America prices for some wood products, such as sawnwood, dropped to their lowest levels since 1991; globally in mid-2008, prices for roundwood and paper products maintained high levels.
- Russian export taxes on roundwood are disrupting supply for trading partners' sawmills, panel mills and pulpmills, with the effect of changing trade patterns.

³ By Mr. Ed Pepke, UNECE/FAO Timber Section, Switzerland.

1.1 Introduction

The *Forest Products Annual Market Review, 2007-2008* (*Review*) analyses forest products market and policy developments in the UNECE region and its three subregions, Europe, North America and the Commonwealth of Independent States (CIS). This chapter summarizes the entire *Review*, first exploring market developments and then policy developments. However, their interactions – markets affecting policies and policies affecting markets – mean they are inextricably intertwined and woven together throughout the *Review*.

This year the theme of the *Review* is “Green building’s impacts on forest products markets in the UNECE region.” Awareness of climate change has resulted in the realization of the need to maximize energy efficiency in construction and renovation of buildings. These evolving systems may radically change market conditions for forest products, introducing new requirements and new opportunities. However, some constraints exist within this new market driver that have the potential to distort competition between materials if their whole life cycle is not taken into account. This situation is analysed in the following chapters, and is the subject of a one-day workshop, currently entitled, “The roles of wood in green building and green building effects on the forest sector in the UNECE region.” The workshop will be held in Rome on 20 October 2008, the first day of European Forest Week.

The *Review*’s theme is in line with the joint UNECE Timber Committee and FAO European Forestry Commission Market Discussions to be held in Rome on 21 and 22 October, also during European Forest Week. The Market Discussion theme is “Green building’s impact on the forest sector in the UNECE region.” The Market Discussions will also carry forward the daily themes of the European Forest Week, specifically on 21 October, “Forests and climate change”, and on 22 October, “Forests and energy.” A full schedule of the Market Discussions, the green building workshop and the European Forest Week is available from the homepage of the website of the Timber Committee.⁴

This chapter not only summarizes the most important findings of the analyses in the following 11 chapters, but also highlights the liaison between the separate market sectors. Readers are encouraged to find deeper market analyses in those 11 chapters. There is also a brief analysis of the Chinese forest products market, which continues to heavily influence forest products markets in the UNECE region.

The other chapters of the *Review*, covering developments in 2007 and into mid-2008, include:

2. Policies related to forest products markets
3. Economic and construction developments affecting forest products markets
4. Wood raw materials markets
5. Sawn softwood markets
6. Sawn hardwood markets
7. Panel markets
8. Paper, paperboard and woodpulp markets
9. Wood energy markets
10. Certified forest products markets
11. Value-added wood products markets
12. Tropical timber markets.

Considerable statistical information may be found in the *Review*’s electronic annexes of statistical tables available on the *Review*’s website.⁵ The entire TIMBER database, which was updated thanks to timely submissions of statistics from national correspondents in May 2008, is also available on the website. These full statistics are offered to provide a transparent background to the *Review*.

The second chapter of this *Review*, “Policy issues related to forest products markets in 2007-2008”, analyses the following policy areas, which are summarized in this chapter:

- Energy and the forest sector
- Climate change and forest products markets
- Food security versus the biofuels issue
- The green building movement
- Corporate responsibility
- Russian forest sector reform
- Research and development policies.

The secretariat expresses its gratitude to the analysts, contributors and production team that made this *Review* possible. The *Review* is based on the earliest available official statistics for 2007, and when updated by supporting information through mid-2008. It is the first comprehensive market study for the entire UNECE region and a critical background document for participants in the joint Timber Committee Market Discussions.

1.2 Market developments

1.2.1 Regional and subregional developments

For the first time since 2001, forest products markets in the UNECE region as a whole moved lower in 2007, falling from the previous record-high consumption in 2006 by 1.4% (table 1.2.1). However, trends were not

⁴ www.unece.org/trade/timber

⁵ www.unece.org/trade/timber/mis/fpama.htm.

consistent amongst the three subregions, since the market crash in North America brought down the UNECE region as a whole (graph 1.2.1). This, fortunately, was not the scenario in Europe and the CIS. On the contrary, for the year 2007 European consumption rose by 3.5% (3.2% in the EU), with strong gains in sawnwood and panels consumption. In mid-2008, market demand was weaker. Consumption in the CIS is estimated to have increased for sawnwood, especially for panels.

The main reason for the downturn in the UNECE region's forest products markets is the dramatic crash in United States construction (graph 1.2.2). Residential

construction peaked in 2006 at 2.2 million houses, mainly single family, and mostly with wood-based construction. After the peak, it declined by 15% in 2006, then nearly 30% in 2007, and was still falling in mid-2008, at a rate of approximately 40%, to under one million starts per year.

This steep fall in construction was pinned to the sub-prime mortgage crisis. As explained in detail in the economic and construction analysis in chapter 3, the bubble in US construction and housing prices burst in 2006 due to a number of interconnected factors.

TABLE 1.2.1

Apparent consumption of sawnwood^a, wood-based panels^b and paper and paperboard in the UNECE region, 2003-2007

	Thousands	2003	2004	2005	2006	2007	Change 2006 to 2007	
							Volume	%
Europe								
Sawnwood	m ³	110 666	114 572	116 376	121 981	127 602	5 621	4.6
Wood-based panels	m ³	57 906	62 717	65 251	67 417	70 805	3 388	5.0
Paper and paperboard	m.t.	90 971	91 757	94 817	98 097	100 368	2 272	2.3
Total	m ³ EQ ^c	578 106	594 717	612 034	635 584	657 699	22 115	3.5
of which: EU27								
Sawnwood	m ³	98 163	101 423	102 491	104 634	110 026	5 392	5.2
Wood-based panels	m ³	52 464	56 100	57 275	59 399	62 093	2 694	4.5
Paper and paperboard	m.t.	84 503	85 308	86 801	90 137	91 702	1 565	1.7
Total	m ³ EQ ^c	527 470	541 232	549 880	568 019	586 261	18 242	3.2
CIS								
Sawnwood ^d	m ³	9 485	10 623	11 898	13 325	14 924	1 599	12.0
Wood-based panels	m ³	8 212	9 132	10 251	11 720	12 598	878	7.5
Paper and paperboard	m.t.	6 432	6 763	7 450	8 026	8 581	555	6.9
Total	m ³ EQ ^c	50 119	54 533	60 694	67 280	73 125	5 845	8.7
North America								
Sawnwood	m ³	140 129	154 644	157 372	149 677	132 931	-16 746	-11.2
Wood-based panels	m ³	62 580	66 524	69 070	69 004	61 221	-7 783	-11.3
Paper and paperboard	m.t.	96 570	98 614	98 603	98 080	95 639	-2 441	-2.5
Total	m ³ EQ ^c	651 708	688 169	696 571	682 382	634 861	-47 521	-7.0
UNECE region								
Sawnwood	m ³	260 280	279 839	285 646	284 983	275 457	-9 526	-3.3
Wood-based panels	m ³	128 698	138 373	144 572	148 140	144 624	-3 517	-2.4
Paper and paperboard	m.t.	193 972	197 133	200 870	204 203	204 589	386	0.2
Grand total	m ³ EQ ^c	1 279 933	1 337 420	1 369 300	1 385 246	1 365 685	-19 561	-1.4

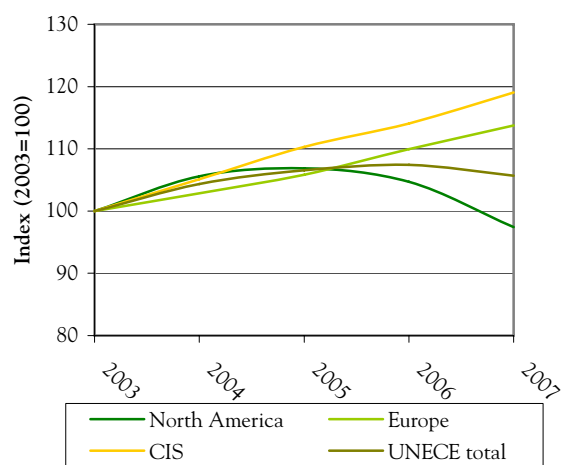
Notes: a. Excluding sleepers. b. Excluding veneer sheets. c. Equivalent of wood in the rough. d. CIS sawnwood consumption is based on secretariat estimates, explained in detail in chapter 5, section 5.3. 1 m³ of sawnwood and wood-based panels = 1.6 m³. 1 m.t. paper and paperboard = 3.39 m³.

Sources: UNECE/FAO TIMBER database and secretariat estimates, 2008.

First, record low interest rates, lax lending standards and a proliferation of sub-prime mortgages were offered to imprudent or unrealistic home buyers. Eventually, prices went far beyond realistically affordable levels, and mortgage rates started increasing in response to US Federal Reserve rate rises in order to quell inflation. This caused mortgage and housing demand to slow dramatically, driving up inventories of both new and existing homes, which in mid-2008 were at a historically high level. Foreclosures on unpaid mortgages has contributed to the market glut, compounding the problem of banks, both national and international, who hold unpaid mortgages and titles to vacant houses. This has caused prices to begin a downward spiral that will probably continue until housing prices are more affordable to a larger share of the home-buying population. As of mid-2008, with supply greatly exceeding demand, the National Association of Home Builders has forecast that a recovery might not begin before 2010

GRAPH 1.2.1

Consumption of forest products in the UNECE region,
2003-2007



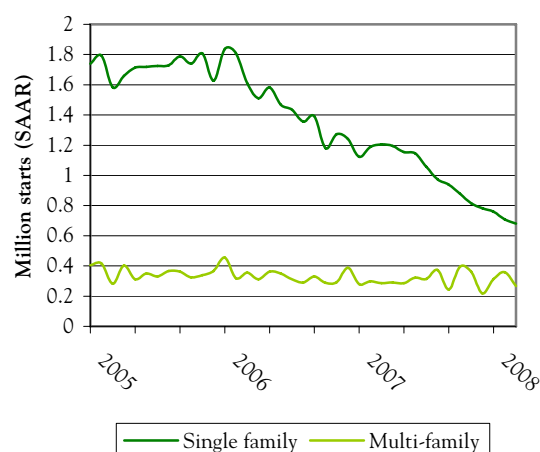
Source: UNECE/FAO TIMBER database, 2008.

The fall in housing construction and the weak US economy have severe consequences not only for the North American forest products industry but also throughout the entire UNECE region and indeed, globally. In addition, since the US is the largest consumer of wood and paper products, its forest sector crisis has extremely negative ramifications for the rest of the UNECE region, and indeed the world. As noted in 2007, and continuing in 2008, Canada's wood products production, most of which is destined for US markets, fell considerably, compounded by reduced harvests in some provinces, the strengthening Canadian dollar, and insect outbreaks. In North America, the compounding problems have resulted in further panel, paper and sawmill closures.

Of those mills remaining in production, many operate at unprofitable levels, periodically below cost, simply to maintain their employees, marketing channels and customers, in hopes of a quick end to the crisis. For localities dependent on the forest industry, the situation is catastrophic. The effects are described sector by sector in the following chapters.

GRAPH 1.2.2

United States housing starts, 2005-2008



Note: SAAR = Seasonally adjusted annual rate.

Source: US Census Bureau, 2008.

Following record wood and paper products consumption in North America of nearly 800 million m³ of roundwood equivalent in 2005, production in 2006 declined by 1.8% as the US market weakened. Then markets fell further, by 7.0% in 2007, shedding over 47 million m³ of consumption. North American consumption has not dropped so dramatically since 1995. Early market statistics in the first quarter of 2008 confirmed a continuing slide.

European consumption moved positively in 2007, in contrast to North America. Driven by positive economic growth, housing construction and other demand drivers in Europe boosted consumption of wood and paper products to reach 657.7 million m³, a 3.5% increase. Sawn softwood production exceeded North American production for the first time. However, European exporters who had benefited from 2005-2006 record home-building in the US, quickly sought other markets when US imports fell, especially with the decline in the value of the dollar. In 2008, Europe suffered from declining residential construction as America's problems spread worldwide and Europe's own housing bubbles burst (e.g. in Ireland, Spain and the United Kingdom). Market indicators in mid-2008 show that 2007 could have been the peak.

In 2007, CIS consumption of paper and paperboard continued to rise by 6.9% over 2006. In Russia, the net trade deficit in paper values continues as high-quality paper grades are imported, while low-quality and low-value paper and paperboard are exported. Panel production and consumption also increased by a slightly higher percentage. Sawnwood is also estimated to have increased, based on record export levels, consumption of sawlogs, and residential construction increases, which averaged 12% per year from 2003-2007.

Wood energy markets accelerated in 2006 and 2007, driven by record-high fossil fuel prices and government policies to achieve energy security and mitigate climate change. The entire forest sector was affected, from forest owners to wood-based energy and wood and paper products producers. Competition for wood raw material resulted in local shortages and higher prices. While advantageous for landowners and by-product producers, panel and paper product manufacturers were negatively affected, especially in Europe.



Source: VAPO, 2008.

Currency-exchange-rate fluctuations, which were dramatic in 2006 and 2007, continued to influence wood and paper products trade in 2008. The US dollar weakened further from a year ago, when it was \$1.40 per euro, and was exchanged at \$1.59 per euro in July 2008. As noted last year, European exporters to the US not only faced a weaker demand than in 2006, but in addition the strong euro made wood and paper products unaffordable – with one notable national exception – Germany.

German sawn softwood exporters maintained market share in the US due to the obligations of long-term contracts, and relatively low sawlog prices as a result of the January 2008 storm, and the desire to maintain customers. Conversely, the weak dollar helped US manufacturers that supply overseas markets to maintain production. The US also increased exports of softwood and hardwood logs, especially to China.

One new market driver is helping wood products manufacturers: this is green building regulations and systems, which aim to reduce the carbon footprint of buildings by encouraging energy efficiency in the construction, use and disposal of buildings. With regard to materials used, some green building systems call for wood from sustainably managed forest (even though there is usually no similar requirement for other materials). This has been especially good for wood products from forests certified for sustainable forest management. However, some green building systems only specify one certification system, sometimes with the consequence of putting wood at a disadvantage compared with non-sustainably produced building materials. Nevertheless, the need to build with sustainably produced materials, and maximizing energy efficiency, has maintained demand for green building in the face of reduced construction of traditional buildings. This trend is influencing most wood product market sectors positively.

Prices of wood and paper products directly influence production, trade and consumption. In North America, the housing crisis reduced demand for wood products, and with excess production capacity, there was a surplus of products and prices fell for construction-rated materials. In Europe, the year 2007 began strong, and prices for sawn softwood and panels rose, but weaker demand mid-year led to falling prices, which extended into 2008. The downward trends of panel and sawnwood prices did not translate into raw material prices, which were influenced by demand for energy. Sawlog and pulplog prices were at record highs. Paper products and pulp, both in North America and Europe, seemed immune to price variations and were close to record levels in mid-2008. Despite a drop in demand, hardwood prices generally moved up in 2007-2008.

In summary, strong consumption in Europe and the CIS was unable to make up for shrinking North American consumption. In the UNECE region as a whole, consumption fell by 19.5 million m³ between 2006 and 2007, with North America recording a decline of 47.5 million m³. The 2007 trends will be reviewed and the 2008 and 2009 forecasts analysed at the October 2008 Market Discussions.

1.2.2 Wood raw material markets

In 2007 the forest products industries' need for roundwood remained strong in Europe and the CIS. Despite the significant downturn in North American demand, total removals of industrial roundwood in the UNECE region rose 4.3%, reaching a new high of 1.2 billion m³. In Europe, roundwood production rose by 8.7% and 41.2 million m³, to reach a record of 512.9 million m³. "Roundwood" includes both industrial roundwood for industry needs and fuelwood. The former gained 11.3%, rising to 410.9 million m³, overtaking the abnormally high year in 2000 that resulted from the massive windthrow in the December 1999 storms. But it was still below the peak of 429.1 million m³ in 2006, again an exceptionally high volume due to winter storms. Winter storms have been a factor influencing harvests during the past three years in Europe and into 2008. Severe storms are linked to climate change, and the entire UNECE region is regularly experiencing forest damage from winds and flooding.

The unusually mild winters of 2006/2007 and 2007/2008 hindered harvests in Europe and Russia. In addition, forest fires occurred in France, Greece, Portugal, Spain, the US and other countries in 2007 and 2008. Nevertheless, in Europe consumption of industrial roundwood rose to 418.0 million m³ in 2007, nearing the 2005 record of 429.0 million m³, as housing construction and related demands for wood products remained strong, especially in the first half of the year. Market indicators in 2008, e.g. residential construction, were down in 2008, indicating that demand for roundwood could be below the 2005 and 2007 peaks.

In Europe in 2007, consumption of sawnwood, panels and paper products rose, which necessitated more wood raw materials. Harvests in most countries increased, but in Germany accelerated by 23.2%, reaching 76.7 million m³. Approximately 75% of industrial roundwood is softwood species converted to sawnwood.

Despite the availability of storm-felled timber in central Europe in early 2007, demand for wood and paper products kept roundwood prices higher than the global average. In addition, the recent Russian export taxes have been another factor directly influencing roundwood prices.

Until 2007, when roundwood export taxes became a significant factor, Russian exports had been growing steadily. As the roundwood taxes took effect in 2007, exports fell for the first time in recent years, by 3.5%, down to 49.1 million m³. European countries that depend on Russian logs, especially Finland and Sweden, have been sourcing roundwood through other channels, which keeps prices under pressure. In contrast to rising sawlog prices, European sawmills faced reduced demand for sawnwood in mid-2008, and sawnwood prices were falling.

In Russia, industrial roundwood removals increased by 12% to reach 162.0 million m³, in line with increased production of sawnwood, panels and paper products. In October 2007 the Timber Committee forecast yet higher production of sawlogs, veneer logs and pulplogs for 2008. However, with the escalating export taxes, and consequently falling roundwood exports, this forecast needs confirmation of plans for capacity expansion and domestic consumption increases of wood and paper products.

In stark contrast to Europe and the CIS, North American industrial roundwood production and consumption fell for the second year in 2007. Sawlog production in the US fell to its lowest level since 1986, an indication of the gravity of the market crisis, which is continuing in mid-2008. Pulplog consumption has remained high, in large part due to the reduced availability of sawmill residues for pulp manufacturing.



Source: H. Bagley, 2007.

Exports of softwood and hardwood logs rose in 2007 and early 2008, principally from the western regions of both Canada and the US. Most go to Asia, and these exports could increase further if forest owners continue to seek alternatives to the weak domestic demand and target offshore markets. If Russian roundwood export taxes do increase to the prohibitive €50 per m³ in 2009, North

American log exports could continue increasing until domestic demand resumes.

Despite increased imports, with the downturn in US consumption of sawnwood and panels, roundwood prices fell in North America. However, in Europe sawlog prices grew faster than the world average, in part due to sawnwood demand, and in part due to the decreased Russian supply. Wood costs for the pulp industry increased worldwide and reached new records in 2008. Since pulpwood is also the raw material for panels and energy, both of which also increased production, the effect on prices was inevitable. These roundwood price increases in Europe undermined profitability in later 2007 and into mid-2008.

Following processing into wood and paper products, the combination of industrial by-products, e.g. chips and black liquor from pulping, with forest residues, means that most wood fibre is used for woodfuel. The EU, non-EU countries in Europe, and more recently North America, are implementing policies to reduce greenhouse gasses, and to replace fossil fuels with renewable energy sources, including woody biomass. Augmentation of woodfuels has consequences for the forest sector, both positive and negative, depending on perspective.

1.2.3 Wood energy markets

Originally promoted by government policies aimed at energy security and mitigation of the impacts of climate change, in 2008 there were new incentives for use of wood-based energy. Fossil fuel prices rose dramatically in 2007 and 2008, partly due to rising demand, partly due to a weakening US dollar, but also due to speculation. In July 2008, oil prices shot up to \$145 per barrel (graph 1.2.3).

The demand for wood for both wood and paper products, combined with the demand for wood-based biofuels, has created a need for greater harvests, as well as greater use of wood from sources other than forests. For example, some additional quantities are being generated from urban sources and trees outside of forests, such as hedgerows.

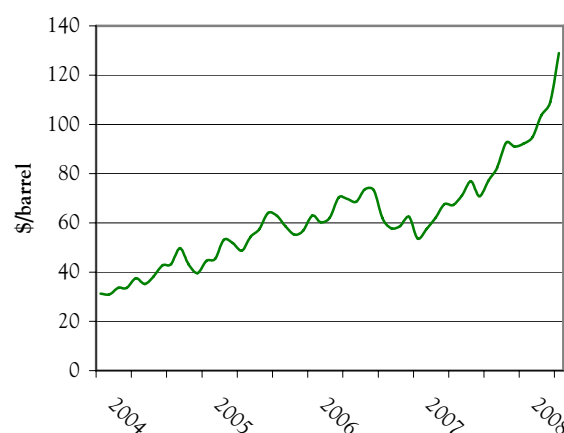
Although government policies to promote woody biomass for energy have existed for decades, the policies accelerated in 2007 with the EU target for renewable energy and member countries' integration of the targets into their policies. The EU target, established in 2007, of 20% renewable energy by 2020, has rapidly raised the demand for woodfuel. For example, Sweden is to base nearly 50% of its energy use on renewable sources, including wind, water, solar and others, by 2011.

Usage of wood-based fuels in large power plants is relatively easily documented in comparison to usage by private individuals' and manufacturing companies'

consumption. The UNECE/FAO, together with their partners, have been trying to better estimate the amount of consumption of wood for energy in all its forms. This is essential for analysing scenarios for future supply in relation to ambitious targets, as well as preparing for greater mobilization of woodfuels from all the different sources. The rather astonishing results of surveys in various countries are exemplified by France, where the statistics for roundwood removals jumped from 33.6 million m³ in 2004 to 63.2 million m³ in 2005. This large increase was due to a better estimation of woodfuel production.

GRAPH 1.2.3

Brent crude oil price, 2004-2008



Note: Graph of monthly averages.

Source: US Department of Energy, 2008.

A UNECE/FAO workshop on "National Wood Resources Balances"⁶ in April 2008 concluded, inter alia, that considerably more wood is used for energy than is recorded, and that countries must conduct comprehensive surveys of all sources of woodfuels, including woody biomass, from outside of forests as well as post-consumer recovered wood.

Regardless of the weakness of the statistics, it is obvious from the number of wood-fired and co-fired (wood and fossil fuel) power plants that demand for woodfuel is increasing in Europe and North America. The CIS lags behind in this regard, although a considerable volume of wood is burned by individuals and wood-processing companies.

Wood-pellet-production capacity rose across the UNECE region, including in Russia, where production is mainly for export to Europe. North American production

6

www.unece.org/trade/timber/workshops/2008/wood-balance/conclusions.htm

is mostly destined for Europe as well, where government incentives have enabled homeowners and small to medium-sized companies, as well as co-fired power plants, to invest in pellet-burning equipment. Pellets have a major advantage in that they are easier to convey and transport than other solid wood fuels; however, the manufacturing of pellets adds additional production costs. In British Columbia, Canada, and now in the neighbouring Province of Alberta, timber killed by the mountain pine beetle is being converted to pellets as well as other wood and paper products. Originally only feeding on ponderosa pine, the infestation has spread to other species, and to other regions, including, now, some northern US States. Despite increasing transportation costs, considerable trade in pellets now exists between and within continents. The mild winters in Europe in 2006/2007 and 2007/2008 have resulted in falling pellet demand and prices, with the notable exception of Sweden. Although processed fuels such as pellets receive considerable political attention, they represent only about 1% of the fibre going into energy production, according to a 2007 report by the UNECE/FAO and University of Hamburg, "Wood resources availability and demands – Implications of renewable energy policies" (Mantau, et al. 2007).

Liquid biofuels are becoming economically feasible in the light of rising energy costs. In the US, the Department of Energy initiated a major grants programme to make cellulosic ethanol cost-competitive by 2012. In 2008 there were 40 cellulosic ethanol production plants in various stages of planning or construction.

As an example of implementation of new energy technologies, in April 2008 in Germany, Choren Industries GmbH opened the world's first commercial biomass-to-liquid plant. Choren, in which Royal Dutch Shell, Daimler and Volkswagen all have a minority stake, expects to produce 18 million litres of biofuel annually, using 65,000 tons of wood (dry weight) from forest residues and wood waste. If successful, they intend to run a mammoth plant in 2012, consuming one million dry tons of biomass. While astonishing nowadays, this exemplifies the degree of concern about the capacity of future energy supplies to meet the growing demands of increasing populations worldwide.

1.2.4 Sawn softwood markets

Since 90-95% of US housing is of wood-frame construction, the crisis of the US housing market has had the most direct effects on sawn softwood production. The unprecedented reduction of over 50% in US housing starts from 2005 to 2008 has put the industry into a tailspin and caused North American sawmills to reduce production, with up to 25% closing either temporarily or permanently.

Sawnwood prices were at their lowest levels since 1991, which meant maximum export taxes for Canadian exporters according to the 2006 "Softwood Lumber Agreement" between the two countries. US exporters benefited from the weaker dollar and exports rose in 2007 by 10.2%, but from a much smaller base of 1.6 million m³ than Canada. Canadian exports fell by 5.5 million m³, down by 14.6% to 32.4 million m³, from 2006, in part because of the strengthened Canadian dollar.

North American sawnwood production fell sharply, by 10.6% in 2007, down to 109.6 million m³. This sharp decline meant that for the first time, European production was greater than that of North America.

European production rose to 115.0 million m³, with moderate gains in the major producing countries, and a sizable gain for Germany in 2007. Germany became the leading European sawn softwood producer in 2004, and with considerable capacity expansions often supported by local and federal governments, production expanded by 3.4% in 2007, to reach 24.0 million m³. Germany and Austria expanded their exports in 2007, while their domestic consumption fell. In mid-2008, the general economic weakness in Europe was affecting construction and the resulting demand for sawnwood was down, according to the European Organisation of the Sawmill Industry (EOS). Rising transportation and manufacturing costs, and high sawlog costs, together with the oversupply of sawnwood from the recently added production capacity, resulted in a difficult situation in 2008 for European producers (EOS, 2008).

European sawn softwood prices fluctuated in 2007, and then fell sharply in mid-2008. Following a profitable year in 2006, the sawmill industry was caught between high sawlog prices, rising manufacturing costs, especially for energy, and falling sawnwood prices. In mid-2008 the industry faced a difficult financial situation, which was exacerbated for those mills that had added capacity in recent years. Extraordinarily high stock levels in Sweden of 4 million m³ in April 2008 exerted further pressure on prices, according to the EOS.



Source: H. Bagley, 2007.

The severely weakened North American markets and weakening European markets have forced sawmillers to adopt new business models to survive. The German sawmill industry has expanded capacity in recent years, and with lower domestic consumption, the increased production was exported. German exporters were an exception to other Europeans when they remained in the US market, as they honoured commitments to fulfill long-term sales contracts and thereby maintain long-term relationships with US customers. German exporters also showed higher flexibility in pricing than their competitors against the backdrop of lower raw material costs, in part resulting from the winter storms in 2007 and 2008.

While it can be argued that operating sawmills at sizeable losses on every sale makes no economic sense, this appears to be one of the business models that was adopted in these extraordinarily difficult market conditions. North American sawmillers have kept mills running, sometimes below costs, for a variety of reasons, including:

- To maintain long-term contracts and relationships with customers
- To ensure log supply contracts in the future
- To keep a trained and skilled labour force
- To generate some revenues to meet fixed costs, e.g. bank loans.

In Russia, exports of sawn softwood continued. In Russia, exports of sawn softwood continued climbing in 2007 by nearly 9%, to reach 16.8 million m³. While not shown in the official statistics, based on increases in residential construction consumption of sawnwood in the CIS is estimated by the secretariat to have increased by 12%. If the escalating Russian sawlog taxes have their desired effect, and the planned capacity expansions take place, including some joint-ventures with foreign partners, more sawnwood production could occur. With soft export markets, the question is whether the new volumes can be consumed within the CIS.

1.2.5 Sawn hardwood markets

As in softwood, European hardwood markets were stronger than their North American counterparts in 2007. Production of sawn hardwood rose by 6.3% in the European Union, and fell by nearly the same percentage in North America (6.9%). However, the scale of production is different, with the EU rising to 11.7 million m³, thanks in large part to Romania's accession to the EU in 2007, and North America falling to 27.0 million m³. Turkey remains Europe's largest sawn hardwood producer, much of which is from poplar plantations and used domestically for packaging.

Through 2007 and into 2008, China, Viet Nam and neighbouring southeast Asian countries expanded production and exports of hardwood products, mainly based on imported temperate and tropical sawlogs and veneer logs. As noted in last year's *Review*, China became the largest exporter of furniture, overtaking Italy, which held the lead for many years. China imported increasing hardwood logs from the US and Europe, with significant consequences for local hardwood processors. Sales of logs to China raised prices for manufacturers in their countries of origin. China's hardwood log imports reached a record 13.8 million m³, rising 11.3% over 2006, and in 2007 reached a record volume of 13.8 million m³, signalling a rise of 11.3% over 2006. Imports were mainly for raw material for their massive veneer industry.



Source: AHEC, 2008.

China not only imported logs, but also sawnwood. However, sawn hardwood imports were lower in 2007 as more logs were converted into sawnwood. China also exported sawnwood, 465,000 m³ in 2007, which, although down by 1.1% on 2006, remains a substantial increase over earlier years. At this level, if China was in the UNECE region, it would rank as the eighth largest sawn hardwood exporter.

China's consumption is increasing, as described later in this chapter. In 2007, 60% of the furniture exports from China were produced by US joint ventures in China, 43% of which go to the US.⁷

The US hardwood industry has rationalized capacity over the past five years in the wake of lower-cost imports. European manufacturers initially shifted production to non-EU countries, and then moved further east to the CIS and southeast Asia. Furniture and flooring manufacturers that cease production where they are located have sometimes remained in business by

⁷ China Forest Products Market Information. April 2007. ITTO and the Tropical Forest Products Information and Consultation Center of China.

maintaining one of their most valuable assets, their marketing expertise and channels.

As domestic demand weakened in North America and production fell, less sawnwood was exported, both in terms of volume and percentage of production. Part of the reason is the greater export of logs as the US moves from value-added production back to exporting raw material.

1.2.6 Panel markets

The same divergence between North America and Europe and the CIS also occurred in the panel markets, continuing the trend from 2006 into 2007. Weaker EU markets in 2008 could mean that European markets reverse their positive trend. In fact, the first half of 2007 was positive for European panel manufacturers, as opposed to the later half of 2007 and early 2008.

Consumption of panels rose in Europe and the CIS, by 4.1% and 7.3% respectively, for all panels combined. Conversely, panel consumption in North America declined by 11.3%, falling to 61.8 million m³, a volume below EU consumption for the first time. As with sawnwood in North America, most panels are for structural purposes in residential and non-residential construction. The dependence on construction demand was obviously detrimental in 2007 and 2008. For comparison, approximately 60% of European panel production is particle board, which together with MDF, the other main non-structural panel, comprise nearly 80% of European panel production. These panels are most often for end uses such as furniture, and are less directly influenced by construction.



Source: APA – The Engineered Wood Association, 2008.

The strength of panel demand in Europe, especially in the first half of 2007, combined with the weakness of the US market, has caught the attention of exporters from Asia, the CIS and North and South America. Despite some EU import restrictions, European panel imports swelled by 10.0%, offsetting gains in exports and resulting in a drop in net trade. Nevertheless, Europe remained a net exporter. These developments were heavily influenced by

the relative strength of the euro, which attracted imports and impeded exports.

Consumption of panels continues to rise fastest in the CIS subregion, albeit from a smaller base. Plywood consumption increased by 28.2% in Russia, which was attributed to construction demand. Further growth in Russian production and consumption was forecast for 2008.

Panel manufacturers in both North America and Europe are concerned about wood raw materials, but for different reasons. In Europe, there is competition for small-diameter roundwood and residues among the panel manufacturers, the pulp makers and the energy sector. In North America, many particle board mills were based on planer shavings from sawmills and remanufacturing plants, which have diminished with sawnwood production.

Production costs are rising in both Europe and North America, in line with energy costs. Higher oil prices impact not only energy and transport, but also resins and adhesives. Rising manufacturing costs coupled with low market prices have led to lower profitability.

Reduction in manufacturing capacity, including closure of 11 structural panel mills in North America in 2007, and reduction of remaining capacity utilization to its lowest rate since the early 1990s, did not halt the slide in prices. In Europe, panel prices weakened in mid-2007, and were falling in mid-2008.

1.2.7 Paper, paperboard and woodpulp markets

Demand for paper and paperboard is correlated with economic strength, and as the North American and European economies slowed in 2007 and 2008, it appeared that the markets for paper and pulp had peaked. Although pulp and paper prices were at record highs in mid-2008, rising costs eroded manufacturers' profits. Acutely higher energy prices led to higher costs for transport, wood and other raw materials, including chemicals.

As with the sectors described above, China's production, consumption and trade directly influenced the UNECE region. Expanded production capacity enabled China not only to meet growing domestic demand, but also to increase exports. Paper and paperboard imports have been fairly steady, or even declining since 2004, as opposed to rising imports of waste paper and wood pulp. US exports of recovered paper jumped by 18% in 2007, and were up by 26% in the first quarter of 2008 as compared with the first quarter of 2007; most of these exports went to China and other Asian markets. The price of recovered paper has doubled in the last two years, and was near record levels in mid-2008. The high prices and sustained demand have

resulted in a record 56% recovery rate of waste paper and paperboard based on consumption in the US.

Currency-exchange-rate changes had a significant impact on trade in 2007 and 2008. US exports of paper and paperboard surged and export of recovered paper reached record levels, mostly going to China. The stronger Canadian dollar, coupled with higher input costs, reduced Canadian firms' competitiveness, causing exports to fall.

European consumption of paper and paperboard rose by 2.3%, reaching 100.3 million m.t., and as North American consumption fell by nearly the same percentage, down to 95.6 million m.t., Europe overtook North America for the first time.

CIS consumption of paper and paperboard continued its strong growth, increasing by 6.9% in 2007 over 2006. Russia has a slightly positive trade balance in volume, but negative in value. Lower-value paper grades are exported, while higher quality paper continues to be imported to meet demand for printing. This apparent production opportunity has existed for some time, and perhaps some of the joint ventures that have been initiated in recent years will address this market. When planning expensive pulp and paper manufacturing plants, a secure and stable investment climate is essential.



Source: Stora Enso, 2006.

The climate-change issue and the demand for renewable energy sources are affecting the pulp and paper industry both positively and negatively. While in the short term the industry is faced with competition and high prices for pulpwood, in the long term the industry has the opportunity to be a net exporter of energy. The pulp and paper industry is already the largest producer and user of renewable energy sources based on wood. Integrated biorefineries could eventually lead to manufacturers to produce more value in energy than in pulp and paper, as noted in the last *Review*. Governments

and industry are working together on research and development in this field. Russia's paper consumption climbed 11.1% on a per capita basis, and production continues to increase due to joint ventures with multinational corporations. Despite more production and exports, Russia's paper trade deficit (in value) continued growing to \$1.6 billion in 2007.

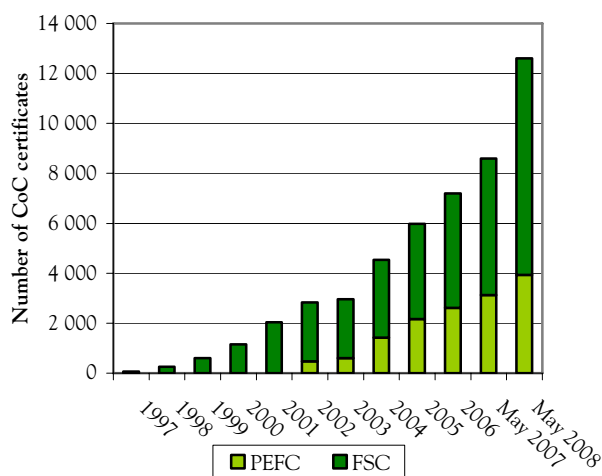
1.2.8 Certified forest products

The area of forest certified for sustainable forest management grew by 8.8% from mid-2007 to mid-2008, to over 300 million hectares, reaching 320 million ha, of which most is in the UNECE region. However, this remains only a fraction, approximately 13%, of the world's managed forests. The original target of certification, tropical deforestation, continues, despite attempts by some tropical countries to either achieve international certification, or establish national systems.

Some heavily forested countries within the UNECE region have 70-100% of their forests certified, including Austria, Canada, Finland and Sweden. The most heavily forested country, Russia, had approximately 20 million ha certified in mid-2008, a 2.5% share of its massive forest area. With minor domestic demand for certified forest products (CFPs), certification would benefit Russian exporters to environmentally conscious markets in Europe. However, to date, Russian sawnwood, panel and pulp exports have not been constrained due to a lack of certification.

Perhaps a better measure of certified forest product market development is the rapid increase in chain-of-custody (CoC) certificates. From 2006 to 2007, CoC certificates increased by 50%, reaching 12,600 certificates globally in mid-2008 (graph 1.2.4). Certification enables tracing between the forest, intermediate processing and end products. While consumers do not see certificates, they do see logos when manufacturers include them on final products. However, this is not always the case, for example in commodity sawnwood, or when retailers prefer their own brand's guarantee of reputable provenance rather than showing the logo of a specific certification system. Most CoC certificates are held by companies in the UK, US and Germany. Outside the UNECE region, the number of CoC certificates is increasing, especially in Japan, China and Brazil. In Japan, CoC is important for domestic market demand, which is met mostly by imports; in China and Brazil, CoC is mainly for export.

GRAPH 1.2.4
Chain-of-custody certification trends worldwide,
1997-2008



Notes: The numbers denote CoC certificates irrespective of the size of the individual companies or of volume of production or trade. Information valid as of May 2008.

Sources: FSC and PEFC, 2008.

Green building systems of energy-efficient residential and non-residential construction are a new driver for certified forest products. Some systems accept any internationally recognized certification scheme, while other systems discriminate between schemes. Schemes meeting restrictions from certain green building systems are fighting to prove their acceptability and to be included in this increasingly important market. Countries with a predominance of a single certification scheme, and thus the majority of CFPs from that scheme, can be precluded from lucrative markets by a green building system that does not recognize that particular certification scheme.

To gain broader market access, certification of forestland by more than one scheme is growing. Costs of initiating and maintaining certification multiply with dual certification. Generally lacking price premiums, the costs of certification are justified by market access to both the private sector, and increasingly, to meet green procurement policies of governments and organizations. Corporate responsibility programmes drive companies and their trade associations to promote environmental awareness and thereby open market channels for their products and enhance brand image. Since the costs of certification or chain of custody can be less than advertising, certification has become a normal business expense for many forest owners' associations, wood and paper manufacturers, middlemen and retailers.

As the demand for wood energy escalates, assurance of sustainable biomass production is increasingly driving the

need for certification schemes. When forest residues come from a certified forest, it is less difficult to establish a sustainable source than when the woodfuel comes from a sawmill processing a mix of certified and non-certified logs.

The certification systems have a major challenge to cover more of the remaining 87% of uncertified managed forests, especially in the tropical regions. Furthermore, raising consumer awareness of the guarantees of sustainably produced wood and paper products is necessary to create demand pull for CFPs, and hence, greater certification, with the costs of certification eventually borne by consumers.

1.2.9 Value-added wood products markets

Value-added products suffered when the motor of the UNECE region's forest products markets, the US, sputtered in 2007 and 2008. US imports of furniture, millwork and joinery, combined, declined in 2007 after a series of record-breaking years. Market demand for engineered wood products (EWPs) is highly dependent on residential construction, and production was scaled back, despite continued strength in non-residential demand.

The North American WoodWorks initiative is implemented by all of the major wood associations and forest sector research organizations, as well as a number of government agencies. With the downturn in residential construction, this major promotion campaign has targeted the increased use of wood products such as EWPs in non-residential structures, a market that has traditionally been dominated by concrete and steel. EWPs use value engineering to utilize fewer resources to manufacture high-end structural products, which accommodates the green building movement. Value-added wood products are expected to benefit from the WoodWorks campaign, which will focus on educating architects, engineers and contractors about the benefits of using wood, including modern EWPs.

While the US remained by far the largest importer of value-added wood products despite the downturn in 2007, the other major importers continued to consume more of these products. Germany, France, UK and Japan marked import increases. Furniture imports continue to be contentious for domestic manufacturers, and in many countries the less expensive imports from southeast Asia have led to rationalization of production facilities. Nevertheless, when criticizing imports, it must be remembered that 60% of China's furniture plants have a percentage of US ownership, and another large share is owned by European companies. In order to avoid trade barriers such as anti-dumping duties, a more positive approach in 2007 was the creation of the World Furniture

Confederation. This was the first time the UNECE region wood products manufacturers have established formal cooperation channels with Chinese and other Asian associations to jointly protect the interests of all member countries.



Source: APA – The Engineered Wood Association, 2008.

1.2.10 Tropical timber markets

Tropical wood products were not isolated from the reduced US demand in 2007 and 2008. Exports directly from tropical countries to the US suffered, as did exports of some further-processed tropical products from China to the US. China is by far the largest importer of tropical logs, as well as temperate logs, most of which are processed for domestic consumption. Despite China's rising demand for roundwood, of which an increasing portion comes from Russia, tropical log exports declined significantly in 2007, by 7.6% from 2006, down to 12.2 million m³. Sawnwood exports decreased slightly in 2007. Plywood exports have remained steady over the last few years, in part because China, the former net importer of plywood, has become a net exporter of plywood. China's plywood production is based largely on imported logs, and competes against other tropical plywood exporters as well as temperate plywood producers.

In order to boost value-added production, governments in tropical countries have enacted policies to reduce log exports. However, the statistics for 2007 do not indicate significantly greater consumption of logs, sawnwood or plywood.

Under the Forest Law Enforcement, Governance and Trade (FLEGT) initiative, EU countries have been developing voluntary partnership agreements with partner countries in the tropics that would be subject to strict licensing requirements. Governments of importing countries, international organizations and trade associations have public procurement policies to buy only

legally and sustainably produced products. Certification is often required, but tropical timber producers are underrepresented in the supply of certified wood products, with only about 6% of the world's certified forests in developing countries (ITTO, 2008). Green building initiatives have also created market uncertainty for tropical suppliers, who have faced problems in meeting green building product specifications.

1.3 Policy developments

Many of the policies affecting the forest products markets in 2007 and 2008 revolve around the issue of climate change. Whether government, trade association or corporate policies, most have an environmental orientation linked to the mitigation of climate change. This section summarizes the most important issues, which are further discussed in the following chapters. It also brings forth a focus on some overriding policies, such as China's promotion of its wood and paper industries. There will be plenary discussions of "Forests and climate change" and "Forests and energy" at the European Forest Week in October.

Topics covered in this section include:

- Climate change and forest products markets
 - Climate change policies
 - Wood energy policies
 - Biofuels versus food
 - Carbon markets
- Green building systems
- Corporate responsibility policies
- Research and development policies
- Policies combating illegal logging and trade
- Country-specific forest products policies and market developments
 - Russian Federation
 - China

1.3.1 Climate change and forest products markets

1.3.1.1 Climate change policies

The United Nations Intergovernmental Panel on Climate Change (IPCC) declared in 2007 that the evidence of a warming trend is "unequivocal," and that human activity has caused the changes over the last 50 years (Intergovernmental Panel on Climate Change, 2007). The IPCC announcement, together with the policies of many international organizations, both governmental and non-governmental, as well as national organizations and trade associations, have strengthened policies for mitigating climate change. Public awareness about climate change was also raised in 2007 with the dissemination of the Oscar-

winning documentary, “An Inconvenient Truth,” by former US Vice President Al Gore. The IPCC further reported that 17.4% of global greenhouse gas emissions caused by humans in 2004, in terms of CO₂-equivalents, resulted from forestry, mainly deforestation. Thus as green as the forest sector may be, it still remains implicated in the negative side of climate change.

There are direct links between sustainable management of tropical forests and climate change mitigation. A number of international forums in 2007 and 2008 addressed these links, including the 13th Meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change and its agreed “Bali Roadmap.” It emphasized the development of policies and incentives to reduce greenhouse gas emissions from deforestation and forest degradation (REDD) and the role of conservation, sustainable forest management and the enhancement of forest carbon stocks in the mitigation of climate change. The International Expert Meeting by the International Tropical Timber Organization (ITTO) in May 2008 explored REDD schemes and the need for adaptation of the forest sector to climate change. The ITTO meeting agreed that a large reduction in CO₂ emissions from “avoided deforestation” in the tropics is possible if appropriate institutions and effective systems are created.

1.3.1.2 Wood energy policies

Last year’s *Review* remarked that oil prices had reached \$77 per barrel for Brent crude. Now in mid-July 2008, the price has risen to \$145 per barrel. Regardless of the fact that the weakening US dollar is a factor in the price rises, the skyrocketing energy prices have provided additional incentives for policymakers to seek alternatives to fossil fuels, including renewable woodfuels.

One means of mitigating climate change is use of sustainable and carbon-neutral biomass fuels. Wood is the greatest renewable energy source, and because of its volume and widespread availability, is likely to remain as such. In Europe there has been considerable national activity to create renewable energy policies in line with the EU target of 20% renewable energy by 2020. Coinciding with the increase in the use of renewable energy sources, the EU has targeted energy efficiency in new and existing buildings. The latter policies promote the development of green building systems.

In the case of renewable energy, some policies may need to be corrected with regard to consequences that were not foreseen, such as deforestation from conversion to plantations for renewable energy. There has been a backlash against some forms of biomass energy, which means that wood for energy must be considered in a holistic manner, using a life-cycle approach. Within the

UNECE region, targets for wood energy must be balanced with the current and future availability of wood – not only for energy, but also to meet the long-term demand for paper and wood products.

In 2005, only 60% of the annual growth in forests available for wood supply was harvested in Europe (MCPFE/UNECE/FAO, 2007). This long-term trend of undercutting the annual growth means that the other 40% has been left in the forests to continue growing – hence, the growing stock is always increasing. In North America, the long-term trend has been 80% harvests of annual growing stock, whereas in the Russian Federation the annual removals are only 16%. Despite the availability of wood in forests, mobilization of additional quantities is contingent upon a combination of interconnected factors, including wood prices, forest ownership structure, motivation of forest owners to harvest, infrastructure such as forest roads, and availability of machinery and labour. In addition to wood supply from the forest, 31% of wood fibre in use in 2005 came from sources outside the forest, including residues and by-products from the wood-processing industries, post-consumer recovered wood (e.g. demolition wood), and wood from trees outside the forest, including agriculture (Mantau, et al., 2008). These sources can also be expected to make a contribution to increasing future wood supplies. The UNECE/FAO is currently working with partners on a study assessing the potential of the future sustainable wood supply in Europe, which will be published later in 2008.



Source: Stora Enso, 2006.

Wood for energy continues to compete for raw material to produce wood and paper products, especially in Europe. Exports of sawlogs and veneer logs from the UNECE region to China, and rising export taxes on Russian logs, have contributed to the current all-time high roundwood prices in Europe. These trade developments, in conjunction with higher transport costs,

mean that the markets could continue to face higher raw material costs.

The policy promotion of biomass energy, and specifically wood energy, has resulted in efficient wood-fired energy plants from large municipal size to small individual house size. In between, there are efficient district heating systems and manufacturing companies that have installed wood-fired heating and power systems, sometimes benefiting from government subsidies. Nearly 50% of roundwood equivalent used for energy in Europe is produced by the wood and paper industries for process heat, steam, and increasingly, electricity.

The production and international trade of woodfuels continues to increase to meet the rising demand. However, with the mild European winters in 2006/2007 and 2007/2008, the supply of wood pellets outweighed demand, and prices fell in most countries. North American exporters faced higher transportation costs as ocean freight rates rose with fuel prices. The production of pellets from beetle-killed lodgepole pine in British Columbia, Canada, continues, in part because of low salvage prices for the provincial timber, and in part because of Provincial Government attempts to salvage the dead trees before they are subjected to decay, and worse, forest fires, both of which emit massive amounts of CO₂. The onslaught of the mountain pine beetle continues, however, and has spread to neighbouring Alberta and some northern US States. Worse, the beetle has adapted to other tree species.

The EU is setting the pace for renewable energy, but similar targets have been established in North and South America, Asia, Oceania, and Africa. For example, the US aims to replace 15% of fuel for transport with biofuels by 2022, rising to 30% by 2030. Many US states have taken measures to reduce climate change, including wood-based energy production and consumption.

Based on the above policies, the rapid expansion of wood energy use will continue in the next decade. According to the UNECE Timber Committee and FAO European Forestry Commission in 2007, all strategies and measures must be within the limits of sustainable forest management, a reality that warrants continual reassessment against emerging policies and guidelines. Some policies formed in isolation risk failing to achieve their objectives, or creating market distortions in doing so.

1.3.1.3 *Biofuels versus food*

In 2008 there has been an ongoing global debate about rising food prices and causes. Food security is a central concern for many developing countries, in some cases leading to civil unrest. Food shortages have been blamed on the production of liquid biofuels from crops such as corn and sugarcane. A High Level Conference on

World Food Security, the Challenges of Climate Change and Bioenergy, held at FAO Headquarters in Rome in June 2008, addressed these complex global issues. However, to date there is not a global consensus on resolution of the problem.

One outcome of the debate which is favourable for wood-based energy is that it does not compete with food when woody biomass comes from forests, or residues and recycling of wood and paper products. However, when short-rotation cellulosic crops for energy production are planted on agricultural land, a concern about biofuel versus food arises.

1.3.1.4 *Carbon markets*

Forests are ecosystems dominated by trees that are net consumers of CO₂ and net producers of oxygen. If sustainably managed, they are carbon neutral or sequester carbon. Deforestation, which releases the carbon stored in the forest, accounts for 17% of atmospheric carbon emissions, according to IPCC. Could the future of the forest sector be in marketing carbon sequestration or services?

Active management of forests is one means of reducing carbon emissions. Studies have found that not harvesting the forest cumulatively increases carbon emissions over what would otherwise be possible under a management regime of forest harvest and use (Eriksson et al., 2007). Old growth forests have other values than production and storage of carbon after they reach a point of overmaturity and begin to emit carbon during decomposition. Use of timber for wood and paper products is a means of sequestering carbon for a variable period of time, possibly short term for a newspaper and long term for a wooden house. A UNECE/FAO workshop on "Harvested wood products in the context of climate change policies" will take place in Geneva from 6 to 9 September 2008 to address this issue.

Policies to mitigate climate change continue to support the development of carbon markets. Emissions trading is covered in US legislation at the federal and state levels. The EU emissions trading system might credit forestry projects from 2013 onwards. Forest managers may claim credits for sequestering atmospheric carbon, based on market prices, via:

- Voluntary carbon offset markets in Chicago, New South Wales and elsewhere;
- Mechanisms under the Kyoto Protocol.

2008 marked not only the beginning of the UNFCCC negotiations for the post-2012 period, but also the beginning of the first formal commitment period (2008-2012) under the Kyoto Protocol. Ahead of the forthcoming results of international negotiations for a post-2012 regime and its flexible mechanisms, the

European Commission tabled proposals in January 2008 for the structure of its Emissions Trading Scheme (ETS) from 2012 through 2020. Inclusion of forestry in the ETS from 2013 onward has been demanded but no decision has yet been made. The pulp and paper industry is, however, included in the EU ETS (as a carbon emitter) and initiated important emission reductions in 2005 and 2006 (10 million tons of CO₂ reduction in both years).

1.3.2 Green building systems

One of the most effective means of combating climate change is simply to use less energy. Approximately 75% of total energy consumption in buildings is used for space and water heating, according to the International Energy Agency (IEA, 2007). While discussions focus on transportation energy uses, possibly over 50% of global energy use is for space heating (Philibert, 2006). One means of reducing energy consumption is to increase energy efficiency in the construction of new buildings and remodelling of existing buildings. The scale of the projects extends from single-family homes to skyscrapers.



Source: Christian & Son Inc., 2008.

Official regulations and codes, which are obligatory for all construction, from single-family homes to large buildings, have become increasingly oriented towards energy efficiency. There are also a number of voluntary international and national green building initiatives in the UNECE region and around the world. In some locations, construction must meet these additional green building standards.

Green building is growing fast in the US, where, with rocketing energy prices, all buildings are being built with maximum energy efficiency. In Europe, too, green building systems have become well established, and all new buildings are better insulated than they were prior to the current surge in energy costs. Eastern Europe has also become extremely energy conscious in construction, especially in those countries dependent upon imported

fossil fuels; however, the existing housing stock is generally not energy-efficient.

These programmes aim to reduce energy consumption and the carbon “footprint” of buildings and thereby to contribute to energy efficiency and carbon emission mitigation. By setting new standards and promoting new concepts, they are changing basic conditions in the most important market for sawnwood and panels, and thus presenting the sector with both threats and opportunities.

Green building provides an opportunity for the wood sector when green building systems promote sustainably produced wood and wood products. Demand for energy-efficient windows and doors has been a boon for millwork manufacturers. To meet building system requirements, builders have chosen wood-framed, double or triple-glazed windows. Homeowners find that energy savings pay back the costs of retrofitting their houses.

The systems can also constrain the use of wood when they result in the use of wood’s competitors, including steel, concrete and plastic. Some systems allow wood certified under one certification scheme only, which precludes wood certified by another scheme, or wood that is equally well sustainably produced, but which does not have any certification. Such a dilemma can benefit the chosen certification scheme and its suppliers, while restricting the market for others.

The issue of green building is not yet entirely visible to forest-sector policymakers, despite its importance, and has therefore been chosen as the theme of this year’s *Review*. A workshop on the subject will also be held in conjunction with European Forest Week. Green building is addressed in this chapter, as well as in chapters on specific market sectors, in order to identify the ramifications of these far-reaching programmes.

1.3.3 Corporate responsibility policies

Corporate responsibility includes both social and environmental facets, and forest sector companies and their associations are enacting codes of conduct and providing public reports on their implementation. Some corporate responsibility programmes contain prescriptions for procurement of sustainably produced wood and paper products. Certainly the environmental elements contain means to recognize good forest management practices, and conversely, to combat illegal logging by precluding purchases of products that could have been derived from illegal logging.

Such policies have been a driving force for certification of sustainable forest management and chain-of-custody certificates. In 2007 the Forest Stewardship Council (FSC) found that several of its members were guilty of unacceptable forest practices in non-certified forest holdings. In response, it drafted a new “Policy for

Association with FSC”, which specifies that it is not acceptable for FSC members, constituents, certificate holders, or partners to be directly or indirectly associated with illegal logging, violation of civil rights, destruction of conservation values, conversion of forests to plantations or non-forest uses, planting genetically modified trees, or any other activities that might negatively influence FSC’s reputation, credibility, or values (FSC, 2007).

Corporations and trade associations that have not initiated their own policies have been prompted to do so by government policies for establishing and reporting on corporate responsibility programmes. The forthcoming ISO 26000 standards on corporate social responsibility will inevitably promote compatibility and comparability between programmes. The World Business Council for Sustainable Development and the World Resources Institute developed the “Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit” in 2008. It provides advice to corporate managers on purchasing forest-based products, e.g. about sourcing, legality, environmental issues (climate change, recycled fibre) and social issues (local communities and indigenous peoples).

Not only do corporate responsibility programmes help corporations meet their obligations to the non-economic pillars of sustainable forest management, the social and environmental aspects, but they are also a key communication tool to protect their brand image and address public concerns about corporate actions and inactions.

The first UN Global Compact Leaders Summit in 2007 in Geneva, Switzerland, led to the UN Global Compact,⁸ signed by a thousand leaders of corporations, including in the forest sector, governments and international organizations. The Summit launched major public-private initiatives on climate, education, investment and water. The Secretary-General announced the establishment of a new international movement of companies dedicated to advancing responsible business practices (United Nations Global Compact, 2007). The Timber Committee and its Team of Specialists on Forest Products Markets and Marketing continue to regularly discuss corporate responsibility and highlight the need for more even implementation across the UNECE region.

1.3.4 Research and development policies

The forest sector needs continued, strong research and development to expand its current markets and to create new market opportunities to satisfy consumer demands for sustainable and innovative products. The European

Commission’s Seventh Research Framework Programme began in 2007 and runs through 2013. Inputs to the programme are received from the Forest Technology Platform established by CEI-bois, the Confederation of European Forest Owners (CEPF), and CEPI. Both the Research Framework Programme and the Forest Technology Platform have numerous stakeholders and should eventually produce a wealth of outputs for the sector.

With a budget of €20 million, EFORWOOD is another cooperative research project on sustainability in the European forest sector. It covers the entire wood chain, will operate for four years, and involves 38 organizations from 21 countries.

In the US, the Department of Energy has supported development of biomass-based energy through grants to construct full-scale demonstration plants. These plants are producing liquid biofuels from cellulosic feedstock, most often wood.

1.3.5 Policies combating illegal logging and trade

Governments at federal and lower levels continue to progress with policies to eliminate illegal logging and the trade of illegally derived forest products. In June 2007, illegal logging was once again a subject of the G8 Summit of the leaders of the wealthiest countries. The G8 Summit Declaration links illegal logging, deforestation and climate change, declaring that world leaders will “support existing processes to combat illegal logging”, noting that it is “one of the most difficult obstacles to further progress in realising sustainable forest management and thereof, in protecting forests worldwide.”⁹ There has been commensurate new legislation in the US and Europe.



Source: S. Codrington, 2008.

⁸ www.unglobalcompact.org

⁹ www.g-8.de/Content/DE/Artikel/G8Gipfel/Anlage/2007-06-07-gipfeldokument-wirtschaft-eng,property=publicationFile.pdf

The passage by the US Congress of an amendment¹⁰ to the Lacey Act as part of the Farm Bill in May 2008 made it unlawful in the US to import or trade in timber and its derivatives harvested in contravention of the laws of any country. The Act provides strong incentives, with fines and prison terms, for US companies to assess and minimize the risk of suppliers delivering wood products from illegal sources.

In Europe, the EC is strengthening its Forest Law Enforcement, Governance and Trade (FLEGT) legislation.¹¹ The draft legislation, expected to be issued late in 2008, would become an additional option under the EU Action Plan for FLEGT, which combats illegal logging in the countries of origin. The proposed legislation would impose a requirement for “due diligence” with respect to wood purchases by European actors. The UK Timber Trade Federation (TTF) has proactively made it obligatory for its members to establish due diligence risk assessment systems which are added to the Federation’s Environmental Code of Practice. This follows their mandatory Responsible Purchasing Policy, part of an illegal timber risk assessment system. The goal, according to the TTF, is to improve timber’s marketability and to provide customers with assurance on legality (TTF, 2008). The TTF, like many other national trade associations, is a member of the Timber Trade Action Plan (TTAP) managed by the Tropical Forest Trust. The Plan works to reduce illegal timber trade in Europe through the associations’ verification of wood and paper products through stringent chain-of-custody systems. The TTAP project, co-financed by the EU and the member associations, reviewed members’ codes of conduct and purchasing policies to assess their success.

Policymakers in the EU, as well as in North America, continue to invest considerable time and effort in refining the details of public-sector timber procurement policies. The national governments of the Netherlands, Belgium, the UK, France, Germany, and Denmark have developed policies for wood and paper procurement, which form a basis for government policies at more local levels. Although the policies differ in their approaches, forest certification and chain-of-custody certification are a common requirement

One of the goals of the 2007 Russian Forest Code is to better control harvesting by giving greater autonomy to regional governments. However, implementation of the Code was confronted by a setback with the reorganization of the Ministry of Forestry in 2008. There is a fear that escalating roundwood export taxes may lead to greater illegal logging and log exports. Within the CIS region, an

acknowledged 10-30% illegal log exporting to China is the focus of policies on both sides of the border.

The Timber Committee and the FAO European Forestry Commission have discussed this serious problem in a number of forums, including their 2004 workshop which concluded with a number of options for actions, which remain valid.¹²

1.3.6 Country-specific forest sector policies and market developments

The interactions of government policies to promote development of the forest industries in Russia and China are changing the forest sectors in these countries. They are important trading partners, especially for Russian roundwood exported to China. Beyond this bilateral trade, their trade policies are restructuring the forest sector in the UNECE region. The impacts of these rapid and continuing changes warrants discussion here, although readers will also find references to Russian and Chinese trade effects in all of the other chapters as well.

1.3.6.1 Russian Federation

The one policy most affecting countries importing Russian roundwood concerns the export taxes. Initiated in 2006 at relatively low levels, the taxes have increased periodically to reach a minimum €15 per m³ on softwood roundwood and birch veneer logs, as of April 2008. While €15 per m³ has changed trading patterns in Europe already, the planned €50 per m³ in January 2009 could end Russian exports of logs entirely. The taxes are constraining exports, as indicated by softwood log exports declining in 2007 (graph 1.3.1). Log exports fell further, to Europe by 44%, and to Asia by 15%, in the first quarter of 2008, compared with the same quarter a year earlier. The question remaining in mid-2008 is whether the taxes will significantly boost value-added production in Russia in the near term. There is some evidence of increased foreign investment in the Russian wood-processing industry.

The new Russian Forest Code, which is also discussed above, has a goal of attracting foreign investment, as do the export taxes. Despite its passage into law in 2007, reorganization of the Ministry of Forestry has impeded implementation of the Code. The announcement of some joint ventures indicates that some investors are willing to take risks rather than wait for a more stable investment climate.

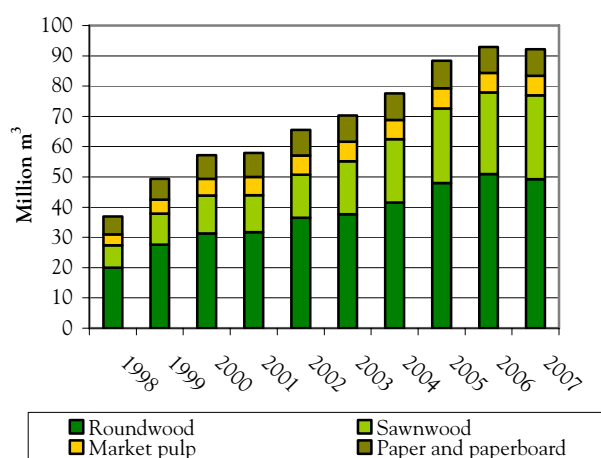
¹⁰ www.theorator.com/bills110/text/hr1497.html

¹¹ ec.europa.eu/environment/forests/flegt.htm

¹² www.unece.org/trade/timber/docs/sem/2004-1/sem-2004-1.htm

GRAPH 1.3.1

Russian forest products exports evolution, 1998-2007



Notes: Market pulp is woodpulp produced for sale and not used by the manufacturer to make their paper. Volumes in cubic metres converted to roundwood equivalents using factors in table 1.2.1.

Source: UNECE/FAO TIMBER database, 2008.

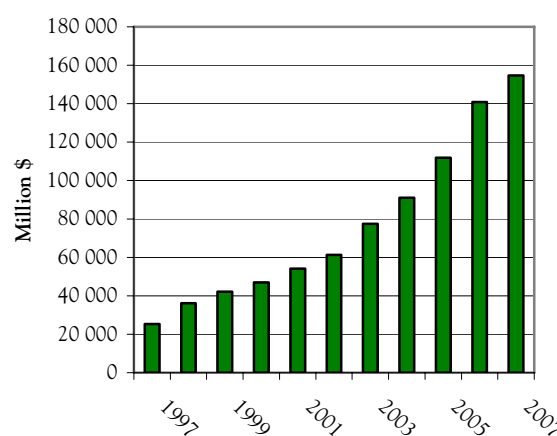
1.3.6.2 China

Official Chinese policies continue to support industrial development, including the wood and paper sector. The influence of China's trade is consistently analysed in every chapter of this *Review*. China's rapid rise in international forest products markets has caused a structural shift in the markets. The effects of Chinese trade are either advantageous or disadvantageous, depending on the particular UNECE region market sector, and often differ within the sector, i.e. importer or exporter, producer or consumer.

China's wood and paper products production marches onward, but appears to have slowed its advances in 2007 as total output of roundwood, sawnwood, panels, paper and pulp reached nearly \$155 billion (graph 1.3.2). One of China's most important exports in value terms, wooden furniture, is not included in this production total. It was \$11 billion in 2007, an important share of the \$22 billion of all furniture exported, i.e. wood and non-wood (graph 1.3.3) (IBISWorld, 2008). Since this section also focuses on Chinese consumption of wood products, it is important to note that total furniture production for 2007 is estimated at \$69 billion, meaning approximately two thirds of production remains in China. A few other statistics about China's burgeoning furniture industry exemplify the sector. In 2007 the 2,322 manufacturing enterprises, most of which have some foreign investment, often from North America and Europe, employed 529,348 workers and paid \$1.3 million in wages (IBISWorld, 2008).

GRAPH 1.3.2

Chinese forest products output, 1997-2007

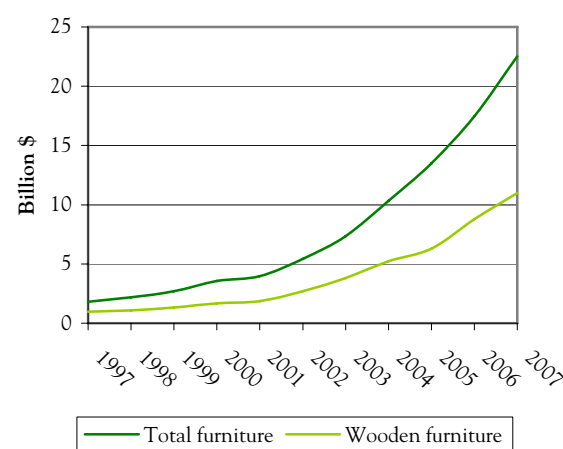


Note: Includes roundwood, sawnwood, panels, paper, pulp.

Source: International WOOD MARKETS Group, 2008.

GRAPH 1.3.3

Chinese furniture exports, 1997-2007



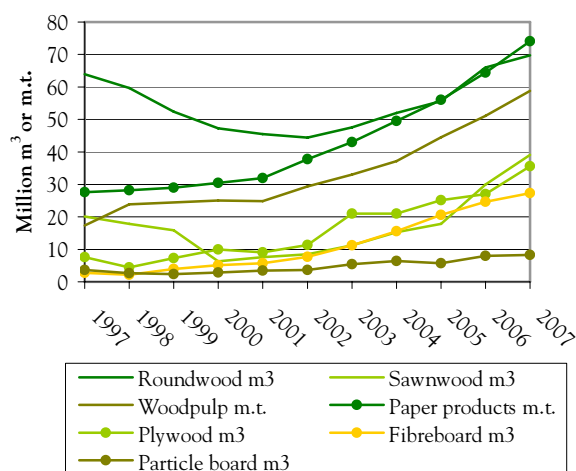
Note: 2007 total furniture exports is a secretariat estimate.

Sources: IBISWorld, 2008 and Tan, X. et al., 2007.

Looking at the individual components of production, it appears that paper products and the pulp that supports their production have climbed faster than either sawnwood or panels (graph 1.3.4). Part of this production is for export, but the majority is consumed in China.

GRAPH 1.3.4

Chinese forest products production, 1997-2007



Note: Woodpulp and paper products in million metric tons.

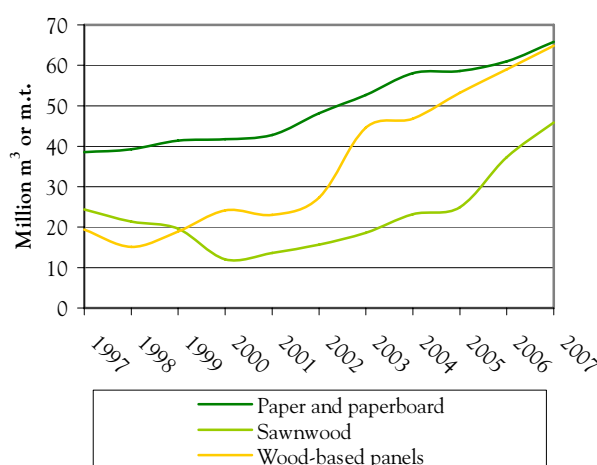
Source: International WOOD MARKETS Group, 2008.

Since the focus of attention has been on China's trade, its rising consumption has not received sufficient attention. Precise, current statistics are not available, but it is estimated that 80-90% of furniture production is for the domestic market. Consumption of other wood and paper products is rising as this fastest growing economy's consumer purchasing power expands (graph 1.3.5). Paper and paperboard, often for packaging purposes, have seen a strong increase in consumption over the last years. Despite additional pulping and papermaking capacity, China remains a net importer of paper. Much of China's pulp is based on imported recovered paper, most of which comes from the UNECE region. For example, approximately 40% of the record US recovery of paper and paperboard in 2007, i.e. 49 million metric tons (m.t.), was exported to Asia. US exports of recovered paper were at record levels of 18 million m.t. in 2007, advancing by 26% in the first quarter of 2008, driven primarily by booming exports to China.

Sawnwood and panel(s) consumption have been increasing as well, accelerating in recent years. In 2008 two events will presumably drive demand further: the summer Olympics in Beijing and the massive earthquake in May. Construction and reconstruction will require tremendous volumes, and imports will probably also rise.

GRAPH 1.3.5

Consumption of forest products in China, 1997-2007



Note: 2007 apparent consumption is a secretariat estimate.

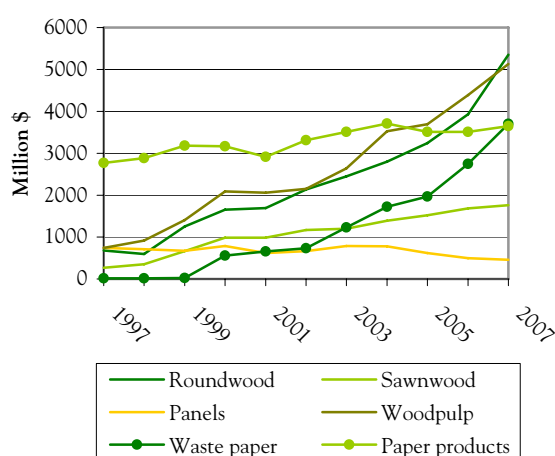
Sources: FAOSTAT, 2008 and Tan, X. et al., 2008.

China's massive trade surplus for all products, not only wood, estimated at over \$300 billion in 2007, was rising fast in 2008. However, in wood products the trade surplus varies by product, with some products, such as plywood, moving from net imports to net exports in 2001 as capacity for domestic production expanded, though based on imported logs. As with most wood and paper products, China often imports raw material from the UNECE region, processes it, and exports part of it back to the region. UNECE region exporters benefit one way, importers benefit another way, and consumers receive lower priced goods. However, UNECE manufacturers face competition for their raw materials and their customers. It should be remembered that approximately 60% of Chinese furniture manufacturing is financed by US investments. Trade journals regularly report on new investments in China's wood and paper industry by western investors.

China's imports of roundwood continued shooting up in 2007, maintaining China's lead in world roundwood imports, in both temperate and tropical species (graph 1.3.6). Increasing volumes of roundwood come from CIS countries, mainly Russia. As noted above, Russia's roundwood exports to Asia decreased in 2007 and again in the first quarter of 2008. These decreases were directly due to Russia's rising roundwood taxes. The downturn on China's imports from Russia in 2009, when the taxes rise to €50 per m³, will evidently impact other sources of roundwood, both legal and illegal.

GRAPH 1.3.6

Chinese forest products imports, 1997-2007



Note: 2007 woodpulp, waste paper and paper products imports are secretariat estimates.

Source: International WOOD MARKETS Group, 2008.

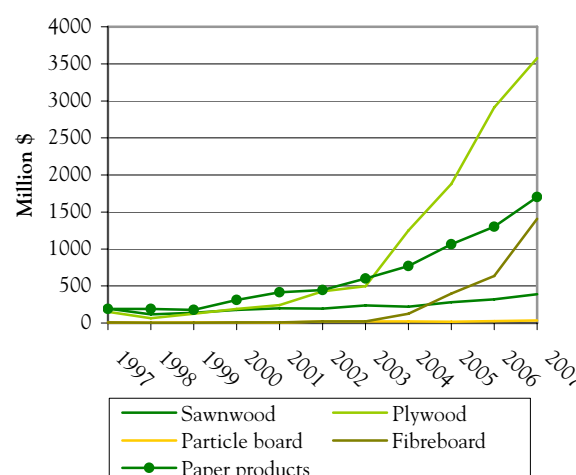
While some UNECE region wood and paper industries export to China, others import China's production of finished and semi-finished products. Plywood imports have grown rapidly over the last five years and broke the \$3.5 billion mark in 2007 (graph 1.3.7). Both the EU and US took measures to limit imports of lower-priced plywood from China, but also from other countries such as Brazil. With the large capacity increases in papermaking equipment, the constraint on greater exports seems to be the need for domestic usage.

Much of China's early roundwood imports were tropical logs and China remains the leading importer of tropical timber. However, tropical countries have initiated policies to promote domestic value-added processing and forest conservation laws. To support its seemingly insatiable need for industrial roundwood and paper furnish, today most of China's logs come from Russia and other CIS countries. China's increasing paper production is based in part on huge imports of recovered paper, mostly from the US. China is also the top importer of US sawn hardwood.

The Chinese Government has successfully attracted foreign investment through generous promotional policies, and the undervalued yuan has been advantageous for its exports. Importing countries are frequently divided on the benefits and detriments of the new trade channels. For example, in the US, half of imported wooden furniture came from China in 2006, mainly from US joint ventures. Many other countries are investing in China due to the low manufacturing costs.

GRAPH 1.3.7

Chinese forest products exports, 1997-2007



Note: 2007 paper products exports is a secretariat estimate.

Source: Tan, X. et al., 2008.

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Chapter 2

Policy issues related to forest products markets in 2007 and 2008¹³

Highlights

- Three ongoing and interlinked global debates, on climate change, energy, and food security, influence current and future conditions for forest products markets.
- Emerging policies of Governments and trade associations, stimulated by record high oil prices, are creating new markets for energy wood, and significant investments are being made in wood-based biofuels.
- Sustainability criteria for biofuels are being developed because of the need to ensure sustainable wood supplies for energy and wood processing.
- Negotiations on the first commitment period of the Kyoto Protocol (2008-2012) and its successor (after 2013) are ongoing; key forest-related issues include the reduction of emissions from deforestation and forest degradation, and accounting for forest management and harvested wood products.
- Concern with food security and food prices, influenced by the transfer of food crops to biofuels, may increase pressure to supply renewable energy from wood and other ligno-cellulosic materials.
- Green building programmes increasingly influence market conditions for forest products both positively and negatively, as some systems fail to use complete life-cycle assessment and some discriminate against different certification schemes.
- The Russian Forest Code, although approved in early 2007, has not yet been implemented due to administrative issues; Russian export taxes on roundwood are beginning to have effects, inside and outside Russia.
- Interest in the corporate responsibility concept is growing, and publication of the forthcoming ISO 26000 series of standards is likely to increase activity across all sectors, including the forest products sector.
- Recent research shows that active management of forests, including periodic harvests to obtain raw material for long-lived wood products, results in substantially greater carbon storage than when forests are left in an unmanaged state.

¹³ By Dr. Jim L. Bowyer, Dovetail Partners, Inc., US; Dr. Helmuth Resch, University of Natural Resources, Austria; and Ms. Franziska Hirsch, UNECE/FAO Timber Section, Switzerland.

Secretariat introduction

This chapter analyses developments and policies that affect forest products markets. Many policy developments discussed here are further analysed in subsequent market sector chapters.

Some of the policy issues addressed last year are again covered because of significant developments. New policies are examined by the authors with regard to their present and future impact on the forest sector. For example, green building policies are impacting forest products markets. The authors will present the policy issues examined in this chapter at the 21-22 October, 2008 joint Timber Committee and European Forestry Commission Market Discussions during European Forest Week. Green building is a central theme of both the *Review* and the upcoming Market Discussions.

The secretariat once again expresses its sincere appreciation to Dr. Jim Bowyer,¹⁴ Director of the Responsible Materials Program, Dovetail Partners, Inc., and Professor Emeritus, Department of Bioproducts and Bioprocess Engineering, University of Minnesota, USA. Dr. Bowyer was the lead author and chapter coordinator. He was joined once again by Dr. Helmuth Resch¹⁵ Emeritus Professor, University of Natural Resources and Applied Life Sciences, Vienna, Austria, who provides the valuable European perspective. Ms. Franziska Hirsch¹⁶, Policies and Institutions Specialist within the UNECE/FAO Timber Section, Geneva, contributed again in terms of both content and chapter review. The update on the corporate responsibility section was again written by Ms. Natalia Vidal¹⁷ and Dr. Robert Kozak,¹⁸ who are both specialists in this important field. Drs.

Bowyer, Resch and Kozak are members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

2.1 Chapter overview

The past year has seen a marked intensification of high-level, interlinked policy debates on energy and climate change stimulated by steep rises in prices of energy and many commodities, leading to significant commitments and policy targets by Governments. The rise in food prices, attributed in part to demand for bioenergy, has led to an intense global debate, culminating in the High Level Conference on World Food Security: the Challenges of Climate Change and Bioenergy, held at FAO Headquarters in Rome in June, 2008. All of these debates are complex and global, touch the vital interests of countries worldwide, and ultimately address the sustainability of major systems (energy, climate and food) and the correction of long-standing structural distortions. None of the three policy discourses has yet resulted in a strong global consensus on strategies to be applied.

These policy debates will potentially influence the forest sector and forest products markets, changing conditions in the short term and creating medium- to long-term challenges for the sector. How is the forest sector, including the actors involved in forest products markets, to find its rightful place in a truly sustainable world system?

Green building programmes aim to reduce the energy consumption and the carbon “footprint” of buildings and thereby to contribute to energy efficiency, carbon emission mitigation and the promotion of renewable energy. By setting new standards and promoting new concepts, they are changing basic conditions in the most important market for sawnwood and panels, and thus presenting the sector with both threats and opportunities. The subject of green building is not yet entirely visible to forest-sector policymakers, despite its importance, and has therefore been chosen as the theme of this year’s *Review*. A workshop on the subject will also be held in conjunction with the European Forest Week, beginning 20 October 2008 at the FAO in Rome. Green building is addressed in this chapter, as well as in chapters addressing specific market sectors, in order to identify the ramifications of these far-reaching programmes.

In this year’s *Review*, a selective approach is necessary, as it would be inappropriate to provide full discussions of these major global issues in a publication on forest products markets. This chapter therefore briefly describes major recent developments, but then focuses on trends that have influenced, or in the near future may influence, forest products markets. It also briefly describes how those

¹⁴ Dr. Jim L. Bowyer, Director of the Responsible Materials Program, Dovetail Partners Inc., 528 Hennepin Avenue, Suite 202, Minneapolis, Minnesota, 55403, USA and Professor Emeritus, Department of Bioproducts and Bioprocess Engineering, University of Minnesota, USA, tel: +1 612 333 0430, fax: +1 612 333 0432, e-mail: jimbowyer@comcast.net, www.dovetailinc.org.

¹⁵ Dr. Helmuth Resch, Emeritus Professor, University of Natural Resources, Gregor Mendel Str. 33, A-1180 Vienna, Austria, tel: +43 147654 4254, fax: +431 476 544 295, e-mail: resch@boku.ac.at, www.boku.ac.at.

¹⁶ Ms. Franziska Hirsch, Policy and Institutions Specialist, UNECE/FAO Timber Section, Trade and Timber Division, UNECE, Palais des Nations, CH-1211 Geneva 10, Switzerland, tel: +41 22 917 2480, fax: +41 22 917 0041, e-mail: Franziska.Hirsch@unece.org, www.unece.org/trade/timber.

¹⁷ Ms. Natalia Vidal, PhD Candidate, Faculty of Forestry, University of British Columbia, Vancouver, Canada, V6T 1Z4, tel: +1 604 822 2685, fax: +1 604 822 9104, e-mail: nvidal@interchange.ubc.ca, www.forestry.ubc.ca.

¹⁸ Dr. Robert Kozak, Associate Professor, Faculty of Forestry, University of British Columbia, Vancouver, Canada, V6T 1Z4, tel: +1 604 822 2402, fax: +1 604 822 9104, rob.kozak@ubc.ca, www.forestry.ubc.ca.

markets and forest-sector policies are adapting to the new situation. The issues covered in this chapter include:

- 2.2 Energy and the forest sector;
- 2.3 Climate change and forest-products markets;
- 2.4 The food security versus biofuels issue;
- 2.5 The green building movement;
- 2.6 Corporate responsibility;
- 2.7 Russian forest sector reform;
- 2.8 Research and development policies.

2.2 Energy and the forest sector

2.2.1 Policies and targets for renewable energies

The breathtaking rise in energy prices over the past 18 months has moved renewable energy development towards the top of the priority list of many Governments. Given that a principal concern is future availability of liquid fuels, concerted efforts to develop alternatives to petroleum-derived transportation fuels are under way globally, and biofuels are prominent among alternatives identified to date.

Today, a number of countries are directly financing or providing incentives for bioenergy research and development, and in some instances subsidizing biofuel production and use. As a result, a research focus in laboratories and pilot facilities around the world is the development of new technologies for conversion of biomass to energy, and biomass to liquid fuels in particular. At the same time, potential problems associated with biomass energy development are being examined by policymakers. Meanwhile, energy-related biomass markets (mostly wood-based), such as those for

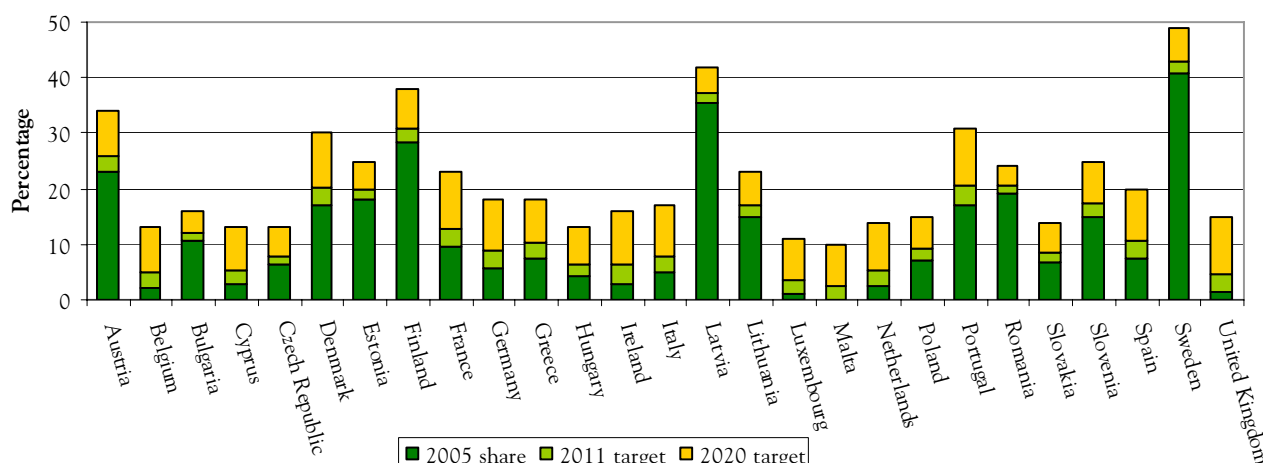
chips, pellets, hogged fuel, and other forms of biomass, have been expanding rapidly, with many new biomass-using installations, higher volumes consumed, and higher prices.

In general, biofuel development continues to be strongly influenced by government targets, subsidies, and incentives. For instance, the European biofuels market is greatly influenced by the European Union's policy and legislation on biofuels. In the past, EU Biofuels Directive 2003/30/EC has created a legislative framework in EU Member States, which has resulted in a rapid increase in biofuels production. This Directive set a target of 5.75% of biofuels for all petrol and diesel for transport placed on the market by 31 December 2010, requiring Member States to set indicative targets for 2005. According to the European Commission (EC), this interim indicative target has not been achieved. In 2005, biofuels accounted for 1% of transport fuels, and according to the Commission's assessment, the 2010 target is not likely to be achieved, although a share of about 4.2% can be expected.

A proposal for a Renewable Energy Directive in the EU issued in January 2008 confirmed the overall binding target of a 20% share of renewable energy sources (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases) in final energy consumption and a 10% binding minimum target for biofuels in transport, to be achieved by each Member State by 2020. The proposed Directive establishes specific national targets for the share of energy from renewable sources in final consumption of energy in 2020, ranging from 10 to 49% (graph 2.2.1).

GRAPH 2.2.1

Share of renewable energy consumed in the EU: status and targets, 2005, 2011 and 2020



Source: Commission of the European Communities, 2008.

The Renewable Energy and Climate package also stipulates an overall reduction of greenhouse gas (GHG) emissions by 20% in 2020, along with a 20% increase in energy efficiency (EU, 2008b). The Council of the European Union has proposed that countries increase the GHG reduction target to 30%. This proposal forms an integral part of the ambitious overall climate change policies of the EU. While the Emissions Trading Scheme (ETS) (EU, 2008a) should facilitate growth in renewable energy, the proposed Renewable Energy Directive will create conditions enabling renewable energy to play a key role in reaching the GHG reduction targets.

Similar targets have been established in North and South America, Asia, Oceania, and Africa. The United States aims to replace 15% of fuel for transport with biofuels by 2022, rising to 30% by 2030.

2.2.2 Wood for energy

In Europe and North America, biomass, including woody biomass, is expected to play a significant role in meeting renewable energy targets. Markets for biomass used in production of liquid fuels and for fuel pellets continue to grow. In addition, major research efforts aimed at developing new and improved technologies for bioenergy production are underway within the public and private sectors globally. These issues are further explored in the wood energy chapter.

While forest-policy development relative to biomass production is slow, expansion of wood-energy production capacity and technology development is rapid. Recent examples include:

- A joint venture of industry and forest owners in Norway to produce biodiesel from wood (over one million m³/year);
- A commercial biomass-to-liquid plant in Germany, already operational, expected to increase wood consumption to over 1 million m³/year (Global Agricultural Information Network, 2008);
- Rapid development of a number of biomass-fired electric generating plants and small-scale biomass-to-liquid fuel plants in the US and Canada.

Meanwhile, fundamental biomass energy research is now targeting direct production of gasoline. Direct conversion of plant cellulose into gasoline and jet fuel components has been achieved in the laboratory, and commercial interests are now reportedly already pursuing these possibilities (National Science Foundation, 2008).

The pace of technology and market development, coupled with biofuels versus food security concerns, should provide a clear signal to those in the policy arena that policy relative to biomass production and harvest is lagging behind developments on the ground. There is a

need to ensure that the policies, even though put in place quite recently, are still relevant to the changing situation.



Source: UPM, 2008.

2.2.3 Sustainability issues

Rising use of wood for energy generation is triggering concern in some regions about sustainability of planned higher levels of biomass removal. It may be the case that bioenergy incentive programmes and technology development efforts are ahead of policy development relative to forest management, given the potential for substantial biomass removal. Consequently, there is a need for:

- Development of specific guidelines for biomass removal from natural forests;
- Determination of the level of sustainable wood supply from forests, as well as from agricultural and urban areas;
- Analysis of the potential role of energy plantations.

Given these needs, momentum is growing for the establishment of some kind of certification system for biofuels (Bioenergy Business, 2008).

The EC has responded to concerns about biofuels production by suggesting that a provision be added to the Directive on promotion of the use of energy from renewable sources, saying that biofuel production should be environmentally sustainable (Commission of the European

Communities, 2008). Criteria identified include: 1) "Continuously forested areas" and lands "undisturbed by significant human activity" should not be converted for the production of biofuels and other bioliquids; and 2) all biofuel initiatives need to comply with EU environmental requirements for agriculture. In addition, according to the proposal, any biofuel production system should include minimum levels of GHG savings of at least 35%, taking account of the full carbon effect of possible land conversion in calculating the GHG savings. The EC is currently elaborating more specific criteria for sustainable biofuels. The draft directive proposes to leave verification to Member States while encouraging multinational certification schemes. "Tracing" of biofuels will be required through physical tracking, so that biofuels fulfilling the sustainability criteria can be identified and rewarded with a premium in the market.

2.2.4 Impact on the forest products industry

Amid rising concern on the part of established wood products manufacturers regarding the potential impacts of bioenergy development on raw material supplies, there is growing evidence of significant negative impacts.

In the US and Canada, problems have developed quickly due to rapid growth in biomass electricity generation and wood pellet production coupled with a sharp decline in bark, sawdust, and chip availability linked to the decline in sawnwood demand for housing. North American particleboard manufacturers have seen raw material prices increase 60-150% over the past two years. Paper and other panel manufacturers are also reporting impacts on raw material availability and prices, raising fears that substantial problems may be encountered when the housing market and economy begin to improve (Reuters, 2008).

With future wood supply concerns on the minds of industry leaders, news that wood costs for the world's pulp mills reached a 13-year high in the 4th quarter of 2007 was not comforting (Ekström, 2008). Softwood chip and pulpwood prices were up in all countries surveyed, with the greatest increases in Russia, Chile, Brazil, and the Nordic Countries; prices are up almost 60% over 2002. Industry associations have begun developing long-term strategies, as evidenced by several studies by and for the Confederation of European Paper Industries (CEPI).

2.3 Climate change and forest-products markets

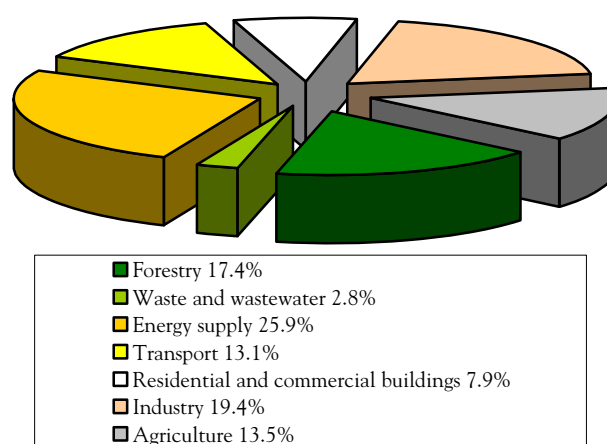
The Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report in 2007 found that 17.4% of global GHG emissions caused by humans in 2004, in terms of CO₂-equivalents, resulted from forestry, including deforestation (IPCC, 2007) (graph 2.3.1).

According to the report, key mitigation actions in forestry include afforestation, reforestation, forest management, reduced deforestation, harvested wood product management, use of forest products for bioenergy to replace fossil fuel use, tree species improvement to increase biomass productivity and carbon sequestration, improved remote sensing technologies for analysis of vegetation/soil carbon sequestration potential, and mapping of land-use changes. The reference to harvested-wood-product management points to increasing interest in more durable, longer-lived wood products for use in both interior and exterior environments.

In a development related to the IPCC 4th Assessment Report, the European Confederation of Woodworking Industries (CEI-Bois) recently requested that the EC consider more closely the major role that wood plays in combating climate change. Currently, there is little recognition of the fact that increased use of wood products stimulates the expansion of Europe's forests while also reducing GHG emissions by substituting for fossil fuel-intensive products. CEI-Bois seeks to increase awareness of the advantages of wood products, including low energy consumption and GHG liberation in manufacturing and carbon storage in wood products.

GRAPH 2.3.1

Global emissions of greenhouse gases by sectors, 2003



Note: Different sectors' share of greenhouse gases caused by man in terms of CO₂ equivalent. Forestry includes deforestation.

Source: Intergovernmental Panel on Climate Change, 2008.

The Land Use, Land Use Change, and Forestry (LULUCF) negotiations under the UN Framework Convention on Climate Change (UNFCCC) also address issues related to carbon storage in harvested wood products. Successful development of this tool would make it possible to fully take into account the capacity of wood to store carbon over long periods, thereby encouraging

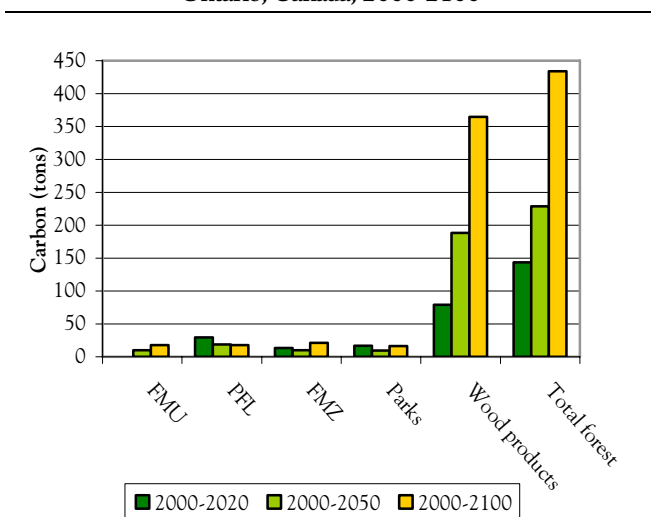
the use of products derived from wood as opposed to other materials that do not result from natural carbon storage processes. Recognition of the high intensity of carbon storage in wood, and the low energy consumption in wood products manufacture and use, is supported by numerous research reports over the past decade. Recent research demonstrates the beneficial impacts of active forest management, in which a significant share of outputs go to long-lived forest products.

Recent research on carbon implications of forest management concluded that active and sustainable management of forests, including their use as a source of wood products and biofuels, allows the greatest potential for reducing net carbon emissions (Sathre, 2007). Another research team reached the same finding, noting that not harvesting the forest cumulatively increases carbon emissions over what would otherwise be possible under a management regime of forest harvest and use (Eriksson et al., 2007). The importance of active management to growth of carbon stocks was highlighted in a study of Ontario's forests, including forest management units, private forest land, fire management zones, parks, and harvested wood products (Colombo et al., 2007).

The Canadian research team found that the vast majority of carbon accumulation attributable to Ontario, Canada's forests in the current century will occur within harvested wood (graph 2.3.2).

GRAPH 2.3.2

Projected change of carbon stocks in forests in Ontario, Canada, 2000-2100



Note: FMU = Forest management unit, PFL = Private forestland, FMZ = Fire Management Zone.

Source: Colombo, S., Chen, J. and Ter-Milkaelian, M., 2007.

A UNECE/FAO workshop on "Harvested wood products in the context of climate change policies" will take place in Geneva on 6-9 September 2008.

In addition to harvested wood products, the UNFCCC negotiation agenda of the last two years dealt with the problem of reducing emissions from deforestation (RED) and forest degradation in developing countries. Negotiations on RED resulted in an agreement that by the end of 2009, a framework and regulations will be put in place to account for reductions in emissions from deforestation and forest degradation, and to create mechanisms for financing actions to stem forest loss. If the framework and regulations are implemented in 2009, it could have an impact on global forest products trade with developing countries interested in earning credits from a future "avoided deforestation" scheme.

The development of carbon markets has been engendered by awareness of the need to slow climate change, as was reported in last year's policy chapter. Since the publication of last year's *Review* there have been several developments, including instituting emissions trading as part of an active climate agenda at both the US federal and state levels. At the federal level, an ambitious cap-and-trade bill passed the House of Representatives in December 2007, but failed in the Senate in June 2008. This bill would have established an emission trading scheme covering around 75% of GHG emissions in the US, with a cap more than 2.5 times larger than in phase II of the EU ETS (Point Carbon, 2008).

There are several ways in which forest managers may claim credits for sequestering carbon from the atmosphere. In all of them the price of a ton of carbon sequestered is set by market forces and varies over time. The most important are:

- Voluntary carbon offset markets in Chicago, New South Wales and elsewhere;
- Mechanisms under the Kyoto Protocol, particularly the Clean Development Mechanism (CDM).

Under the EU emissions trading system, credits for forestry projects cannot yet be accounted for, but it has been demanded that this be possible from 2013 onwards.

Since voluntary offsets have not faced as many restrictions as the CDM, voluntary carbon projects have been undertaken in the area of reforestation. Under voluntary markets, project types not possible under the CDM compliance market, as presently defined, can earn carbon credits such as avoided deforestation and sustainable forest management. All of the forestry registries recognize reforestation, afforestation, forest conservation, and responsible forest management that preserves forest stocks. In contrast to the CDM compliance market, in 2007 forest sequestration accounted for a high proportion of the overall voluntary

carbon markets with 36%, followed by renewable energy at 33% and industrial gases at 20% (Hamilton et al., 2007).

2.4 The food security versus biofuels issue

In mid-2008 a “food crisis” developed, which was marked by steep rises in food prices, local shortages leading to civil unrest, new trade restrictions (food export bans) and an intense policy debate on the links between food security, sustainability and renewable energy. There are numerous causes for the rise in food prices, including increased demand from emerging economies, increasing meat consumption, distorted international trade, and under-investment in agriculture. The price rise was due, in part, to the diversion of some crops, notably maize (corn) from food supply to feedstock for biofuels, under the stimulus of subsidies for renewable energies. The FAO High Level Conference on World Food Security: The Challenges of Climate Change and Bioenergy in June 2008, notably called for more emergency food aid and more investment in agriculture, as well as a series of measures to address the fragility and vulnerability of world food systems (FAO,2008). With regard to biofuels, it called for in-depth studies “to ensure that production and use of biofuels is sustainable in accordance with the three pillars of sustainable development and takes into account the need to achieve and maintain global food security” (FAO, 2008). The EC in its renewable energy policy is now demanding that biofuels should not endanger food security or come from land with high biodiversity or untouched ecosystems.

The significance of this discussion for forest products markets is that if renewable energy from food crops is excluded from consideration, pressure on wood and other ligno-cellulosic materials arising on less fertile land to supply renewable energy is bound to strengthen. Furthermore, the long-term trend towards a reduction in the area of agricultural land could be reversed (the EU set-aside programme is already suspended), which would in turn halt or reverse the expansion in forest area that has been ongoing in the US and in Europe for some time. The policy framework surrounding this challenge is changing rapidly under the influence of developments such as the food crisis. The Review will continue to monitor and report on developments that will likely influence markets for forest products.

2.5 The green building movement

In recent years, programmes for “green building,” i.e. with minimum energy consumption and carbon footprint, have been developed and put in place in Europe and North America. Although the standards they

set are in most cases not compulsory, they profoundly influence market conditions for forest products, introducing new constraints and presenting new opportunities. This section reports on the latest developments and how they are influencing market conditions for forest products.

Across the US, interest in green building has moved into the mainstream. There are now over 40 green building programmes operating in the US. Most of these include provisions related to energy efficiency, materials efficiency, water efficiency, emissions to air and water, and occupant health and safety. Many also include elements that focus on site impacts. Green building seminars, workshops, and conferences that only a few years ago generated low levels of participation are today consistently well attended. In addition, the number of articles in construction-oriented professional and trade magazines about green building concepts and practices has risen sharply in recent years, as have the number of green programmes nationwide.

In the US today there are three green building programmes of national scope – the Leadership in Energy and Environmental Design (LEED) programme of the US Green Building Council, the Green Globes programme of the Green Building Institute (a programme that has its roots in the Building Research Establishment Energy Assessment Method (BREEAM) of the UK), and the National Green Building Standard of the National Association of Home Builders. All of these programmes were developed and operate outside of government. Other green building initiatives are being pursued today at state, county and municipal levels.

The municipal programme of Austin, Texas, is the first green building programme in the US, dating back to the early 1990s. In 1993 the city began implementing green building technologies in its municipal facilities. From its inception until 2000 the Austin green building programme was voluntary, but as of 2000 all new municipal buildings are required to meet a silver rating of the LEED programme of the US Green Building Council (USGBC). Other aspects of the programme remain voluntary, and assistance is provided by the city to builders and homebuyers regarding green building practices and materials selection. Assistance is also provided, upon request, in rating of projects.

Whereas the EU, through its 1993 SAVE Directive (Council of the European Communities, 1993), 2002 Energy Performance of Buildings Directive (EPBD) (Council of the European Communities, 2002), and 2006 Energy Efficiency Action Plan (EC, 2006), mandated that all new buildings and substantially renovated structures meet specified energy standards, no similar actions have been taken in the US. Instead, green

building requirements, to the extent that they exist, apply almost exclusively to government buildings or government-financed structures. There is a tendency to require that government structures be green building certified, most often to the LEED standard. Adoption of green building practices remains largely voluntary for builders of dwellings and other non-governmental structures. However, in the state of California there is a recent trend to require commitment to green building practices (again typically LEED) before a building permit is issued (City of Albany, 2008; City of Santa Cruz, 2008). Whether this signals the beginning of a wider trend or a local phenomenon remains to be seen.



Source: Metsäliitto cooperative, 2008.

The significance to the North American forest products industry of the rising influence of green building programmes lies primarily in provisions related to designation of environmentally preferable materials – provisions that are often prejudicial to the use of wood. It is also problematic that most of such initiatives do not take into account the total energy required to produce construction materials.

A number of green building programmes in North America use single attributes of materials as indicators of environmental preferability (recycled content, rapidly renewable). This problem is magnified by the fact that such attributes were established intuitively rather than scientifically. The result is provisions with respect to materials selection that in some cases lead to demonstrably higher, rather than lower, environmental impacts of some ostensibly green practices (Bowyer, 2007).

Currently under consideration is inclusion of life cycle assessment (LCA) into USGBC's LEED programme, a development that would markedly increase credibility and utility, and which would likely lead to similar changes in other green building programmes. Coincidentally, incorporation of the LCA methodology would also

highlight the generally low embodied energy of wood products, and encourage rather than discourage the use of wood in green construction.

All green building programmes worldwide reward the use of wood certified as coming from sustainably managed forests; in the US, Forest Stewardship Council (FSC) certification is most often specified, although several mainstream programmes reward use of all national scope certification systems. Thus, growth of green building programmes will certainly lead to greater demand for certified wood products.

A persistent problem relative to certification is that all green building programmes require certification of wood, and wood only. This is the case despite well known environmental issues associated with the sourcing of all materials.

From a public policy perspective, it makes sense to require that any green building provisions (such as those related to designation of environmentally preferable materials) that might be incorporated into law or regulations or promoted by governmental units be firmly rooted in science and based upon transparent and widely accepted protocols. It also makes sense that when certified construction materials are required or given preference as a matter of public policy, such certification or similar requirements should be uniformly applied to all materials.

2.6 Corporate responsibility

The forest sector, like many others, is facing pressure with respect to corporate responsibility, and consumers increasingly expect companies to act responsibly. There has been a virtual explosion in recent years in product-sourcing policies and guidelines for incorporation of codes of conduct focused on environmental and social elements. It is likely that this effort will gain traction with the publication of the forthcoming ISO 26000 standards on corporate social responsibility.

In the past year, there have been some failures to maintain standards of responsibility, which will likely have negative consequences for the companies concerned, and possibly also for the sector as a whole. For example, there was an astonishing admission in January 2008 by eight Japanese paper manufacturers representing four fifths of Japan's paper industry. These firms admitted to lying about the amount of recycled content in their paper products for approximately a decade (Chhabara, 2008). One of the country's largest paper producers admitted to having only about 40% recycled content in their copy paper, despite earlier claims of 100% recycled content.

In 2007, several members of the FSC were linked with unacceptable forest practices in non-certified forest

holdings. In response, the FSC drafted a new “Policy for Association with FSC”, which specifies that it is not acceptable for FSC members, constituents, certificate holders, or partners to be directly or indirectly associated with illegal logging, violation of civil rights, destruction of conservation values, conversion of forests to plantations or non-forest uses, planting genetically modified trees, or any other activities that might negatively influence FSC’s reputation, credibility, or values (FSC, 2007).

Subsequently, the World Business Council and World Resources Institute developed the “Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit” in 2008. This guide provides answers to ten questions that corporate managers should ask when purchasing forest-based products, including questions about sourcing, legality, environmental issues (climate change, recycled fibre), and social issues (local communities and indigenous peoples).

2.7 Russian forest sector reform

The Russian Forest Code, which entered into force in January, 2007, introduced a number of changes in forest administration, which included structural reforms such as transfers of responsibility for forest management and protection to regional governments; reduction of the lease period from 99 to 49 years; introduction of auctions in timber sales; and the promotion of investment projects and infrastructure development. For the most part, these changes have not yet come into effect, since administration of the forest sector was still undergoing major reorganization in mid-2008, following abolition of the previously centralized forest management system.

Early experiences necessitated some changes to the Code. In July, 2007 the Russian Federation Council approved an amendment to streamline the procedure for the lease of forest areas by removing administrative barriers that arose in bringing contracts signed before January 2007 into compliance with the new Code. Further amendments to the Forest Code were being drafted by the Natural Resources Ministry to substantially reduce the time it takes to approve rezoning of reserve forestland for geological exploration.

Russian export taxes on roundwood increased from 6.5% to 20% in July 2007, and to 25% in April 2008 (minimum €15/m³). The tax will increase to 90% in January 2009 (minimum €50/m³). The intent of the export taxes on logs is to encourage more domestic value-added production in the forest-products industry. In addition, the Russian Federation has reduced import duties on wood-processing equipment with the same objective. There were indications that this strategy was working when several joint ventures with multinational forest products manufacturers were announced in 2008.

As reported last year, the changes in the Forest Code, and especially the export duties, have caused significant concern among nations that have long been importers of Russian roundwood. For instance, eastern Finland on the Russian border is facing considerable structural changes, in terms of income and employment effects, with loss of production value in the range of several hundred million euros (Pirhonen et al., 2008). According to the Finnish Forest Industry Association, 25,000 jobs in Finland could be jeopardized (Fitzsimmons, C., 2008). The high export taxes on logs have been brought to the attention of the World Trade Organization by the EC, on request by Finland and Sweden, as not being in the “WTO spirit”. This could affect Russia’s negotiations for accession to the WTO on the grounds that the taxes negatively impact European trade flows, leading to plant closures and job losses.

2.8 Research and development policies

CEI-bois, the Confederation of European Forest Owners (CEPF), and CEPI have established the Technology Platform for the forest-based sector (FTP), as reported in previous years. The FTP is industry driven and aims at establishing the sector’s research and development roadmap and implementing the Strategic Research Agenda, developed in the context of the FTP, but with the participation of numerous stakeholders and the EC. The FTP provides specific inputs to the EC’s Seventh Research Framework Programme, which will run from 2007 to 2013. In addition, EFORWOOD is a recent European cooperative research project on sustainability in the forest-based sector. It aims at covering the whole European chain, from forestry to industrial manufacturing, consumption, and recycling of materials and products. EFORWOOD has a budget of €20 million, will operate for four years and involves 38 organizations from 21 countries. This is the first project of the entire European forest-based sector to be financed by the EC, which will cover €13 million of the budget.

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Chapter 3

Severe housing slump in United States affecting worldwide economies: Economic developments affecting forest products markets, 2007-2008¹⁹

Highlights

- The United States housing market continued falling in 2007, and is expected to bottom out in 2008 and then begin a slow recovery in 2009.
- World economic growth remained strong through the middle of 2007, but then as severe stresses developed in financial markets, growth began to slow down, particularly in the US.
- World growth is likely to fall moderately in 2008 and the US may experience a recession.
- Economic growth in the UNECE region declined slightly in 2007 to 3.2%, but this still reflected solid performance in all of the major subregions and positive economic growth in every country in the region in 2007.
- Oil prices rose dramatically over the last year, reaching \$139 per barrel in June 2008, contributing to inflationary pressures for the UNECE region, and providing a greater incentive for wood-based energy.
- The US experienced a major financial crisis beginning in the fall of 2007, which, without the aggressive response by the US, and to a lesser degree European central banks and Governments, could have deteriorated into one of history's greatest financial crises.
- The period of rapid housing price appreciation in the UNECE region appears to have ended and could be followed by a period of reduced construction and a lower demand for wood products.
- Growing housing inventories, fuelled by increasing foreclosures, tougher lending standards, higher interest rates, and the weak economy, are delaying recovery of the US housing market and recovery of all associated forest products markets.
- The construction crisis has led to the lowest North American building material prices in decades.
- The European construction market peaked in 2006, fell by 2% in 2007 and is forecast to continue falling through 2010, driven by a dramatic reduction in new residential construction in western Europe, due in part to "credit-related" problems; however, residential construction growth is expected to continue.

¹⁹ By Mr. Craig Adair, APA – The Engineered Wood Association, US, Dr. Al Schuler, USDA Forest Service, US and Dr. Robert C. Shelburne, UNECE.

Secretariat introduction

This chapter explores the combined economic and construction developments in the UNECE region as a fundamental basis for the market developments in successive chapters. The UNECE/FAO Timber Section secretariat welcomes the continued collaboration with the three authors on this chapter. The section on economic developments is by Dr. Robert Shelburne,²⁰ Senior Economic Affairs Officer, UNECE. Additional information about economic developments in the region is available in the UNECE Discussion Paper Series²¹.

We appreciate once again the analysis in the second section of this chapter, focusing on construction developments, by Dr. Al Schuler,²² Research Economist, US Department of Agriculture, Forest Service, and Mr. Craig Adair,²³ Director, Market Research, APA – The Engineered Wood Products Association. Developments in construction of houses and non-residential buildings directly impacts demand for structural wood products, as well as for value-added wood products. The information for the European construction analysis is from Euroconstruct. We thank Mr. Yngve Abrahamsen, Head of Division, Swiss Federal Institute of Technology and the Swiss Economic Institute in Zurich for providing us with the “Euroconstruct Summary Report”. Mr. Abrahamsen is the Swiss representative to the Euroconstruct organization.

3.1 Economic situation in the UNECE region in 2007-2008

3.1.1 Global context

Despite the financial market stresses that developed in the second half of 2007, the world economy experienced its fifth year of real growth above 3% - the best extended performance of the global economy since the 1960s. The world's emerging economies have performed considerably better than the advanced economies since 1990, and the gap has been slowly increasing over time. A similar pattern has evolved in the UNECE region, with the

emerging economies growing over twice as fast as the advanced economies in 2007.

The US experienced a major financial crisis beginning in the fall of 2007 due to inadequate government regulation of its financial industry, combined with poor risk management by the private sector and the bursting of its residential property bubble. The decline in the price of housing after an historic escalation in prices over the previous decade, resulted in a significant increase in defaults of sub-prime mortgages; these consist of home loans to generally low-income households with a poor credit history. As a result, there was a collapse in the value and marketability of US mortgage-backed securities. Although the initially affected securities were generally those backing US mortgages, European banks, especially those in Germany and Switzerland, had purchased sizable quantities of these assets, and thus the financial problem rapidly spread to Europe and beyond.

Uncertainty about who owned the affected assets and the solvency of the financial institutions that held them created a credit crisis and a scramble for liquidity. In addition, the financial problems spread to many other financial asset classes through often unexpected channels; for example, the market for US municipal bonds became disrupted due to concerns about the bond insurance industry. In addition, since market participants realized that they had underestimated the risks involved with mortgage-backed assets, they reappraised the risk of all assets, which generally resulted in an upward re-pricing of almost all risks. The freeze-up of credit markets, combined with the impacts of reduced investment in real estate and lower consumer wealth, created an economic slowdown in the US that spread throughout the world through trade and financial market linkages. The sovereign credit spreads for most emerging markets, including those in the UNECE region, increased beginning in the third quarter of 2007, which further reduced the ability to continue borrowing at the same levels. Increased uncertainty about the geographical extent and duration of the crisis and the economic slowdown has resulted in increased asset market volatility.

The ultimate cost of the current crisis is still unknown, but could approach one trillion dollars, which would be the costliest financial crisis in history. The root cause of the problem lay in the fact that mortgage lenders made overly risky loans to questionable borrowers without requiring sufficient collateral. In 2007, the median down payment was only 2% of the home value, and 29% of borrowers put no money down. The originators of these loans were able to securitize these mortgages and sell them in a manner that concealed their true level of risk. Credit rating agencies and the bond insurance industry improperly calculated the riskiness of these assets by using inadequate accounting techniques. The purchasers of these assets

²⁰ Dr. Robert C. Shelburne, Senior Economic Affairs Officer, UNECE, Palais des Nations, CH-1211 Geneva, Switzerland, tel. +41 22 917 2484, fax +41 22 917 0107, e-mail: robert.shelburne@unece.org www.unece.org.

²¹ UNECE Discussion Paper Series available at http://www.unece.org/oes/disc_papers/disc_papers.htm.

²² Dr. Al Schuler, Research Economist, Northeast Forest Experiment Station, USDA Forest Service, 241 Mercer Springs Road, Princeton, West Virginia, 24740, USA, tel. +1 304 431 2727, fax +1 304 431 2772, e-mail: aschuler@fs.fed.us, www.fs.fed.us/ne.

²³ Mr. Craig Adair, Director, Market Research, APA – The Engineered Wood Association, P.O. Box 11700, Tacoma, Washington, 98411-0700, USA, tel. +1 253 565 7265, fax +1 253 565 6600, e-mail: craig.adair@apawood.org, www.apawood.org.

failed to fully realize that the originators had lost any incentive to monitor the true risk underlying these securities. Many of the large financial institutions in the US and abroad that owned these assets had to raise additional equity from outside sources to compensate for their sub-prime losses. Some financial institutions, such as Bear Stearns, were nearly forced into bankruptcy.

There has been insufficient time to properly analyse the fundamental causes of the current US financial crisis and derive the optimal policy responses; however, it is apparent that financial market innovation has been occurring more quickly than the financial regulatory systems can keep up. Undoubtedly, regulators will need to be more proactive in anticipating such developments. The need for more global supervision of financial markets needs to be addressed as well.

This turbulence in world financial markets was not entirely unexpected, however. Over the last 40 years, almost every time there has been a significant increase in global interest rates it has precipitated some form of financial or currency crisis. Given such an increase in interest rates in the major world economies between 2004 and 2006, it would have been somewhat atypical if some form of financial crisis had not occurred. In addition, the large increase in housing prices appeared unsustainable at current income levels and a potential crisis and correction was to be expected.

Although the economic stresses that developed in financial markets were quite severe, and have been referred to by some as being the greatest since the 1930s, the major central banks responded to the crisis in a rapid and proactive fashion. Interest rates were cut significantly in the US, and although the interest rate response was quite limited in Europe, several unorthodox interventions nevertheless provided significant liquidity to markets. This included the willingness of the European Central Bank, as well as the US Federal Reserve, to accept essentially unmarketable mortgage-backed securities as collateral. A fiscal expansion in the US based on tax cuts, combined with a number of important regulatory changes, also played a major role in limiting the extent of the financial market disruptions.

After the slowdown in the US in the first half of 2008, which may or may not be officially declared a recession, there is an expectation that the US economy will respond to the monetary, fiscal, and exchange rate stimulus and should begin to improve in the second half of 2008. Real growth is expected to remain above the medium-term trend in many of the emerging markets, especially China and India. Although world growth is expected to decline in 2008 to 3.7% from 4.9% in 2007, it will still have experienced a sixth consecutive year above 3%. However, the slowdown in world growth has begun to reduce the

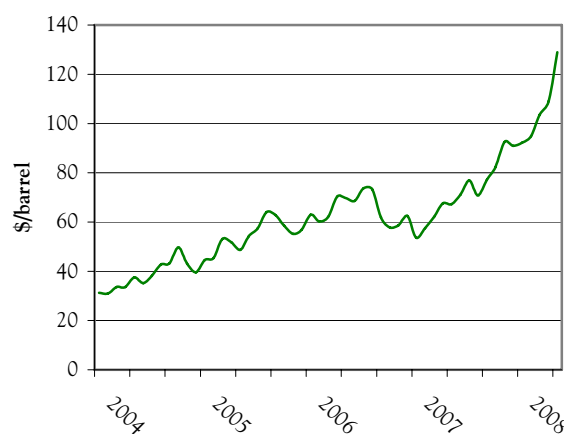
growth of world trade; on a volume basis growth is forecast to fall to 5.6% in 2008, from 6.8% in 2007 and 9.2% in 2006.

Economic growth in 2008 in the UNECE region is likely to fall to 2.1% from the 3.2% rate in 2007. All of the subregions of the UNECE are likely to experience a significant decline. Growth is forecast to be below the trend in most of western Europe (1.7%) and North America (0.9%), and below the recent trend but still relatively solid in the CIS (7.1%), new EU Member States (5.1%) and southeast Europe (4.2%). Only a few economies are likely to experience an actual increase in growth in 2008 from 2007 levels; this includes Hungary, which had a significant slowdown in 2007 due to fiscal tightening.

Inflation throughout most of the world has been moderate, with the average rate below 3.0% for the last six years; the emerging economies have had rates averaging over twice that of the advanced economies, somewhat higher than these in the NMS. In 2007, consumer inflation was 2.2% in the advanced economies while it was 6.4% in the emerging economies. Inflation in the emerging economies in central, east and southeast Europe²⁴ was 5.6% in 2007 and 9.7% in the CIS. However, the rapid global growth over the last several years has put upward pressure on commodity prices, especially oil, metals and food (graph 3.1.1).

GRAPH 3.1.1

Brent crude oil price, 2004-2008



Source: US Department of Energy, 2008.

The price of oil roughly doubled between mid-2007 and mid-2008 and has quadrupled since 2003. When oil prices increased by these magnitudes during the two oil shocks of the 1970s, the world experienced periods of

²⁴ List of countries in table 3.1.1.

stagflation. Government policymakers now have the difficult task of trying to avoid another similar outcome, while also having to deal appropriately with the credit crisis. A major difference from earlier oil shocks is that with the widespread attention to climate change, the dramatically rising fossil fuel prices are driving expansion of renewable energy sources, including wood.

Food prices have also increased dramatically, and this is important since food purchases represent a large portion of household budgets in emerging economies and these price increases represent a serious setback in achieving the Millennium Development Goal of reducing hunger. Essentially the increased demand for these items from the growing emerging markets has not initiated a sufficient supply response. The considerable decline in the value of US currency has also magnified the increase in commodity prices when these are valued in dollars.

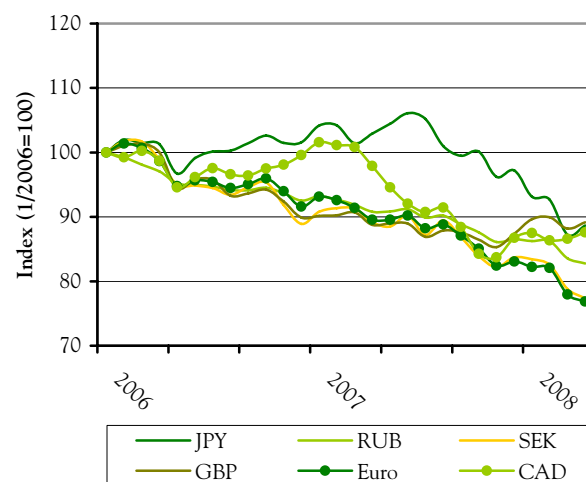
Inflation in all of the subregions of the UNECE is likely to increase in 2008 and be well above the central bank targets in the advanced economies, somewhat higher than these in the new EU Member States (NMS), and in the double-digits in the CIS. The real implications of these price increases will be determined by the degree to which they are incorporated into inflation expectations and possibly wage demands.

Some potential downside risks could further negatively impact the moderate slowdown being forecasted. Obviously any additional increase in commodity prices, especially oil, would tend to further increase inflationary expectations. Nevertheless, there is a prevalent belief that despite the increase in commodity prices, there will be general wage restraint so that an inflationary spiral does not start to develop. If such a spiral does develop, however, monetary policy in the major economic regions would need to be tightened and thus the monetary stimulus being anticipated would be muted. Moreover, higher interest rates could have a direct negative impact on housing by further reducing demand and increasing defaults. The value of mortgage-backed securities would consequently face a further markdown. Larger-than-anticipated price declines in European housing could also negatively impact financial markets in these economies.

Due to the large US trade deficit, which exceeded 6% during much of 2005-2006, the dollar has been gradually declining (graph 3.1.2). This decline has reduced the competitiveness of the European economies in exporting to the US and to other economies with currencies pegged to the dollar. A further slow decline in the US dollar, however, could provide some much-needed additional stimulus for the US economy, but if this decline should become rapid and disorderly, the disruption to financial markets could further escalate the global slowdown.

GRAPH 3.1.2

Exchange rates of selected currencies vs the US dollar, 2006-2008



Notes: National currency unit per dollar. JPY = Japanese yen, RUB = Russian ruble, SEK = Swedish krona, GBP = British pound Sterling and CAD = Canadian dollar.

Source: International Monetary Fund, 2008.

The Canadian dollar appreciated by 77% against the US dollar between 2002 and autumn 2007 due to its export concentration in commodities; since then it has fallen back by 10% and was near parity during the first quarter of 2008. This appreciation has had a tremendous impact on Canadian exports to the US, including wood products. Profitability for the Canadian forest products industry has been severely constrained in 2007 and 2008, since approximately 90% of exports go to the US.

From a longer-term perspective, the rapidly growing emerging economies, including China and India, are slowly undermining the relative economic weight of the UNECE region. This region, comprised of 56 countries, accounted for 53.5% of real world output in 2007; this is down from 57.8% in 1998. The only subregion of the UNECE that has substantially increased its weight in the world economy over this period is the CIS, whose share increased from 3.4% to 4.5% of world output. More than half of this increase has been due to Russia's increased share. The world share of both Germany and the US each declined by over one percentage point.

3.1.2 North America

The US had real growth of 2.2% in 2007; however, there was a significant decline near the end of the year, with fourth quarter growth of only 0.2% at an annual rate (table 3.1.1). The US growth rate forecast for 2008 is highly uncertain but will probably be less than 1%. The decline in growth in the US has been led by a decline in residential investment which began at the beginning of 2006 and has continued for nine successive quarters

through the first quarter of 2008. This is the longest period of declining residential investment in the US in the last 50 years. The ratio of residential investment to GDP, which had reached 5.5% during 2005, may fall as low as 3.5% based upon previous historical patterns.

The policy response to the slowdown in the US was rapid and large. The US federal funds target rate was reduced from 5.25% in the summer of 2007 to 2.0% by

mid-2008 (including two unusually large three-quarter point drops). However, due to inflationary concerns, this easing of short-term rates has not significantly affected the average interest rate on the standard 30-year mortgage. Nonetheless, it should limit the resetting of interest rates for adjustable-rate mortgages and should stimulate the economy in other sectors to compensate for the weakness in the housing sector.

TABLE 3.1.1
UNECE real GDP growth rates, 2006-2008
(Percentage)

Country	2006	2007	2008 ^f	Country	2006	2007	2008 ^f
Albania	5.5	5.6	5.8	Denmark	3.9	1.8	1.3
Bosnia and Herzegovina	6.2	5.0	5.0	Sweden	4.1	2.6	2.2
Croatia	4.8	6.0	5.0	United Kingdom	2.9	3.1	1.7
Montenegro	8.3	7.0	6.0	Bulgaria			
Serbia	5.7	7.5	6.0	Czech Republic	6.4	5.8	4.7
The FYR of Macedonia	3.1	5.0	5.0	Estonia	11.2	7.1	4.0
Turkey	6.9	5.1	4.0	Hungary	3.9	1.3	2.5
Southeast Europe (non-EU)	6.6	5.3	4.2	Latvia	11.9	10.2	5.8
Armenia	13.3	13.8	8.0	Lithuania	7.7	8.6	7.2
Azerbaijan	34.5	25.0	17.0	Poland	6.2	6.5	5.1
Belarus	9.9	8.2	6.0	Romania	7.9	6.0	5.8
Georgia	9.4	11.0	9.0	Slovakia	8.5	8.7	7.5
Kazakhstan	10.6	8.5	7.0	EU – 27	3.2	3.0	2.1
Kyrgyzstan	2.7	8.2	5.0	Iceland	4.2	2.2	2.0
Moldova	4.0	7.0	6.5	Norway	2.2	2.9	2.9
Russia	7.4	8.1	7.0	Switzerland	3.2	3.1	2.0
Tajikistan	7.0	7.8	7.4	Israel	5.2	5.1	3.5
Turkmenistan	9.0	8.0	8.0	Europe – 31	3.2	3.1	2.1
Ukraine	7.1	7.3	6.2	Canada	2.8	2.0	1.4
Uzbekistan	7.3	8.6	7.2	United States	2.9	2.2	0.8
CIS	8.1	8.4	7.1	North America	2.9	2.2	0.9
Austria	3.3	3.4	2.5	UNECE – 52²⁵	3.6	3.2	2.1
Belgium	2.8	2.7	1.9	Memorandum Items			
Cyprus	4.0	4.4	4.0	CIS (without Russia)	10.0	9.3	7.5
Finland	4.9	4.4	3.0	EU-pre 2004 - 15	2.8	2.7	1.7
France	2.0	1.9	1.6	EU NMS-10+2	6.5	6.0	5.1
Germany	2.9	2.5	1.9	World	5.0	4.9	3.7
Greece	4.2	4.0	2.4	Denmark	3.9	1.8	1.3
Ireland	5.7	4.9	2.4	Sweden	4.1	2.6	2.2
Italy	1.8	1.5	0.7				
Luxembourg	6.1	5.2	4.9				
Malta	3.4	3.8	2.9				
Netherlands	3.0	3.5	2.1				
Portugal	1.3	1.9	1.8				
Slovenia	5.7	6.1	4.6				
Spain	3.9	3.8	1.9				

Note: f = forecast.

Sources: IMF, OECD and national central banks, 2007.

²⁵ This total excludes four countries within the UNECE region: Andorra, Liechtenstein, Monaco and San Marino, which do not report GDP.

Lowering interest rates by providing additional liquidity to markets will moderate the crisis, but since the underlying problem is not just one of illiquidity but one of the solvency of financial institutions due to the collapsing prices for mortgage-backed securities, monetary policy on its own will be insufficient. As a result, the US Federal Reserve has also implemented a policy that allows banks to borrow (from its Term Auction Facility) using lower-quality assets (i.e. untradable mortgage-backed securities) as collateral than had previously been allowed. The US Government has also implemented a number of regulatory changes to help stabilize its housing and mortgage markets. Of particular importance are the increases in the upper limits on the size of mortgages that the two government-chartered mortgage financiers, Fannie Mae and Freddie Mac, are legally allowed to purchase. Further regulatory changes reduced the capital requirements of these agencies and will thereby allow them to purchase an additional \$200 billion worth of mortgages. The Federal Housing Administration also increased the number of mortgages that it insures. A fiscal expansion of \$170 billion (or about 1% of GDP) was implemented in February in a fairly proactive way and should begin to provide an additional stimulus by summer; two thirds of it was in the form of tax rebates for consumers and the remainder was comprised of tax incentives for business investment.

Inflation in the US during 2007 increased to 4.1% for the consumer price index and 2.4% for the core rate; generally, rates picked up slightly in the latter part of the year. In April 2008, consumer prices were 4.2% above the level a year earlier. The price of imports that had been a constraining factor on price increases began to increase near the end of 2007.

Real economic growth in Canada was 2.0% in 2007, but declined considerably near the end of the year with fourth quarter growth of only 0.2%, and was slightly negative at minus 0.1% in the first quarter of 2008. However, growth in 2008 is being forecast to be 1.4%. The western regions have benefited from the ongoing commodities boom, while manufacturing, especially automobiles, has been depressed in the eastern regions. The current Canadian trade surplus is forecast to decline in 2008 due to the appreciation of the Canadian dollar and the slowdown in the US economy, which purchases three quarters of its exports. Timber exports, which accounted for 8.3% of Canadian exports in 2006, are experiencing a significant decline due to the contraction in US housing construction. Unemployment is expected to increase in 2008 from the 5.8% level of 2007. The housing market has weakened in Canada, with housing starts down to their lowest level in five years. Inflation was only 1.4% in January 2008 due to tight monetary growth and the appreciated currency. Canada has been

running a budget surplus for the last 11 years and this is expected to continue in 2008 despite a tax cut in October of 2007.

3.1.3 Western Europe

Economic growth was relatively high in Europe in 2007 according to recent historical comparisons and relative to the US which it has lagged behind for the last decade. To a large extent, this is due to cyclical considerations with the economic expansion moderating in the US prior to that of Europe. It is less clear if the structural reforms that have been implemented in Europe to improve its longer-run growth prospects have had any significant effect. For example, current growth projections for 2008 and 2009 show the eurozone growing below the average rate over the 1995-2006 period. Medium-term projections forecast eurozone economic growth over 2007-2013 to average 1.9% a year, which is slightly below the previous decade and considerably below estimates for the US of 2.8%. Growth in the EU-15 and the eurozone was quite respectable at 2.7% and 2.6% for 2007, however it slowed considerably near the end of the year; in the fourth quarter of 2007 growth in the Eurozone was 0.4%, which was only one half of the rate in the third quarter. Growth in 2008 is forecast to be 2.1% in the EU-27, 1.7% in the EU-15, and 1.7% in the Eurozone.

Eurozone inflation in April 2008 was 3.6% (year-on-year), the highest in 16 years, with 2.9% forecast for 2008. The rate varies considerably among its members, with the highest rates in the newest Member States. Since its creation, the European Central Bank has not achieved its target of having inflation slightly below but close to 2% in any calendar year.

Given the decline in housing prices that started in the US in 2007 and the associated financial problems, there are concerns about European housing markets, since the price appreciation in these markets was in some countries even greater than in the US. Housing prices increased considerably in both western and eastern Europe over the last five years and prices appear overvalued in a number of economies including Belgium, France, Ireland, the Netherlands, Spain and the UK. However, the period of rapid appreciation appears to have ended in the second half of 2007 and moderate price declines have begun in several of these economies.

The European banking sector seems less exposed to a financial crisis relative to the US because mortgages were generally not extended to risky borrowers who had limited income or poor credit histories. In most of Europe, unlike the US, homeowners are liable for the negative equity if they return a depreciating property to the bank; thus they have a greater incentive to continue paying the mortgage. Also, in Spain, where real estate is under stress

after a period of extensive over-building, the banks created few off-balance sheet vehicles for their mortgages. Generally the supply response to the housing price appreciation is lower in western Europe and thus the oversupply is less; however, this does not apply to Ireland and Spain.

3.1.4 EU New Member States

The EU new Member States²⁶ (NMS) are expected to keep growing at well over twice the rate of the western European economies, although growth should begin to moderate slightly as it becomes more dependent on intra-sectoral productivity increases and less on decreasing unemployment and inter-sectoral resource shifts (i.e. labour movement from agriculture to services). During 2008, real growth is projected to decline to 5.1%, from 6.0% in 2007. The NMS now have a purchasing power parity per capita income of 56% of the EU-27 average and have been converging by slightly over one percentage point a year; this is a rate slightly above that experienced by the southern EU members over the last two or three decades. Cyprus and Slovenia, the richest NMS, now have a per capita income above that of Portugal, the poorest of the EU-15.

The date for accession to the Eurozone of most of the remaining NMS countries is being pushed back due to their difficulties in satisfying the Maastricht criteria; only Slovakia is likely to be eligible to join soon (January 2009). Of all of the criteria, the inflation target has been particularly problematic. It has been particularly high in the NMS with fixed exchange rates or currency boards. Reducing government deficits to below the Maastricht threshold of 3% of GDP remains difficult for some of the NMS; the problem is generally not excessive government expenditures, although some reforms are needed, but low government revenues.

Housing prices have increased significantly in the NMS over the last several years but have recently begun to cool somewhat and have even fallen in the Baltics due to tightening financial conditions. Nevertheless, construction is expected to continue to grow at moderate rates due to latent demand, and the availability of mortgages should continue to improve. Many of the NMS have been running considerable current account deficits and have a sizable proportion of foreign currency denominated mortgages and therefore are perceived to be vulnerable to tightening credit conditions; however, although growth has slowed, they appear to have weathered the global credit crisis fairly well thus far.

3.1.5 Non-EU Southeast Europe

Despite significant uncertainty surrounding future accession to the EU for most of these economies and some continuing political instability, economic growth and foreign investment remained rather strong in this subregion in 2007, although below the levels of the last several years. Non-EU southeast Europe²⁷ (SEE) had been growing more rapidly than the NMS, but growth fell to below the NMS in 2007, for the first time since 2001, when Turkey was experiencing a currency crisis. Real growth in SEE was 5.3% in 2007 with much of the fall due to the decline in growth in Turkey to 5.1%. However, Turkey revised its procedures for estimating its GDP in early 2008 in order to better capture the activity in its informal economy. As a result, its GDP series increased by about a third. Growth is expected to decline to 4.2% in 2008, down from 5.3% in 2007.

3.1.6 CIS

Growth in the CIS, which reached 8.4% in 2007, was the highest since 2000; this increase was due largely to Russian growth from 7.4% in 2006 to 8.1% in 2007. Growth was remarkably high in the Caucasus countries (Armenia, Azerbaijan and Georgia) with all three experiencing double-digit growth; Azerbaijan's growth of 25% being the highest in the world. Elsewhere in the CIS, growth was fairly uniform, reaching between 7% and 9%. The record high prices for energy have acted as a stimulus for the region, and the income gains have spread to other sectors, including services and construction, and through increased imports, to the other non-energy-rich economies of the CIS. The CIS is expected to have real growth of 7.1% in 2008.

Inflation remains a problem in a number of CIS economies. The trade surpluses resulting from energy exports have led to monetary growth from exchange market intervention which the central banks are unable to neutralize due to the shallow markets for government debt. In addition, the rapidly growing banking sectors have created sizeable amounts of new credit, often from funds borrowed abroad.

Foreign direct investment (FDI) has greatly increased in the CIS over the last year, with approximately two-thirds going to Russia. It is estimated that Russia received more FDI in 2007 (\$55 billion) than all the NMS combined (\$51 billion).

Real estate prices in many of the CIS countries have been increasing rapidly; this has been the case particularly in Russia and Ukraine. The increases have been driven by the increasing availability of mortgages (although overall penetration remains low), low real interest rates,

²⁶ Listed in table 3.1.1.

²⁷ Listed in table 3.1.1.

and limited investment alternatives for consumers. Improving financial intermediation remains a major challenge for many of the CIS countries. Capital inflows into the CIS have increasingly consisted of private borrowing by banks in international capital markets, which are then used to extend credit domestically. With the tightening of liquidity in global credit markets in the second half of 2007, credit expansion declined significantly in a number of these economies, particularly Kazakhstan; the availability of mortgage finance has been similarly affected. These banking systems are now more dependent on domestic deposits; however, there is a reluctance to deposit money in these banks since they generally pay negative real interest rates.

Ukraine signed its WTO accession agreement in February 2008. Negotiations between Ukraine and the EU on a free trade agreement have also begun. In addition to increasing market access in both directions, the agreement is likely to further liberalize investment flows and align regulatory standards. Russian accession to the WTO is advancing, though a significant problem remains with the EU over Russia's recently enacted export taxes on roundwood, which were introduced to diversify the economy by stimulating development of its forest products industries.

3.2 Construction sector developments

3.2.1 North America

3.2.1.1 US construction market – review and outlook

The year 2007 was full of contrasts. New residential construction (value basis) fell 17% in 2007, continuing a correction which began in 2006 when construction value fell 5% (table 3.2.1). In contrast, non-residential markets posted gains of 15% in 2007, following 12% gains in 2006. Residential repair and remodelling (R&M) was less volatile, showing little gain in 2007 following a 6% gain in 2006. In terms of the next several years, most forecasters expect new residential construction to bottom out in 2008, but are not expecting a full recovery before 2010 at the earliest. Residential R&M is expected to remain flat in 2008 with modest improvement in 2009. Non-residential markets are expected to moderate in 2008 and 2009 as the credit problems in the residential markets spread to commercial construction and the economic slowdown during 2008-2009 negatively impacts non-residential market activity.

TABLE 3.2.1

Value and forecast change of US construction, 2006-2009				
	2006	2007	2008 ^f	2009 ^f
	Billion \$	Billion \$	%	%
Private residential:				
single family plus multi-family	470	352	18.8	-3.6
Private residential improvements	172	173	0.9	6.0
Total non-residential (private and public)	545	629	2.4	2.3

Notes: f = forecast. Remodelling forecasts by National Association of Homebuilders. Non-residential forecasts by APA – The Engineered Wood Association. Historical data from the Census Bureau.

Sources: National Association of Homebuilders and APA – The Engineered Wood Association, 2008; US Census Bureau, 2008a.

On a housing start basis (in contrast to value basis as outlined above), the downturn in the US market is even more dramatic. Single family housing construction peaked in the autumn of 2005, and then began a precipitous contraction that is expected to continue at least through 2008 (graph 3.2.1). The drop is due almost entirely to the collapse of single family housing, which saw starts fall 15% in 2006 and another 29% in 2007, for a total drop of 39%. In April 2008, the building rate for single family construction was 692,000 on a seasonally adjusted annual rate – a 42% drop year over year. Seasonal adjustment smoothes the monthly statistics to an annual basis, overcoming seasonality issues such as the winter slowdown. Multifamily construction, in contrast, did not collapse the way single family construction did, and has essentially remained steady throughout the past several years.

The bubble in construction and housing prices that burst in 2006 was driven by many factors – record low interest rates; lax lending standards; proliferation of sub-prime mortgages, many of which were of the adjustable variety (with periodic resets), and imprudent or unrealistic home buyers. Eventually, prices were far beyond realistically affordable levels, and mortgage rates started increasing in response to US Federal Reserve rate increases driven by inflation concerns. This caused demand to slow dramatically, driving up inventories of both new and existing homes, eventually reaching a historically high supply. This caused prices to begin a downward spiral that will probably continue until homes are more affordable to a larger share of the home-buying population. As of mid-2008, supply greatly exceeds demand. To address this issue, home prices must fall and there must be a reduction in the foreclosure rate. The National Association of Homebuilders forecast in June 2008 suggests that a recovery may not begin before 2010.

It may take several years to work off the excessive inventories and regain the normal trend in demand.

GRAPH 3.2.1

United States housing starts, 2005-2008



Note: SAAR = Seasonally adjusted annual rate.

Source: US Census Bureau, 2008.

At the end of 2007, 2.04% of US mortgages were in foreclosure and 5.82% were past due; the combination of the two (7.86%) was the highest rate since records began in 1979. For sub-prime mortgages, 13% were in foreclosure and 20% were past due. The foreclosures have been concentrated in several states, with California and Florida accounting for almost a third of new foreclosures. The US commercial property market has also experienced some weakness.

Foreclosures are at record numbers in mid-2008, and this is adding to inventories of existing homes while builders try to reduce inventories of new homes by cutting back on starts. There is tremendous pressure on various levels of government – federal, state, and municipal – to help homeowners facing foreclosure. Many of the proposed solutions include some form of revision of mortgage terms. This may help existing homeowners, but over the long term will result in tighter lending (less money available for mortgages) and higher mortgage rates for future homebuyers (lenders will remember that if new terms were forced on them after signing their original mortgage, they will build in higher risk premiums in the future).

US housing prices doubled between 1997 and 2006 and at the beginning of 2007 were historically high compared to standard yardsticks such as the ratio of house prices to rent, house prices to income, or total household real estate assets to GDP; the latter was almost twice the level observed in the early 1970s. These high prices stimulated investment in new housing and by the end of

2007 the supply of unsold new homes reached its highest level since 1981 and inventory was twice the normal level. Existing home sales fell 12.8% in 2007 over 2006 levels; this was the largest one-year fall in 25 years. In January 2008, home sales were down almost 25% from their 2006 pace to an annual rate of 4.9 million, while new home sales fell to an annual rate of 588,000, less than half the level reached during the peak of 2005.

The median national price of an existing single family home fell 1.8% in 2007; this was the first annual decline since records began in 1968, and may have been the first nationwide annual decline since the Great Depression of 1929. In January 2008, the median price was \$201,000, or 4.6% below the level in January, 2007. The Standard and Poor's/Case-Shiller house price index for the 10 leading cities experienced a 9% decline in 2007 and futures contracts on the Chicago Mercantile Exchange suggest another 18% decline is expected in 2008.

3.2.1.2 North American building material markets

Considering that 70% of wood building materials (sawn softwood and structural panels) in 2007 went into residential construction (new construction plus remodelling), the collapse of construction has caused a crisis in wood products markets. Sawn softwood and panel prices correlate directly with housing starts (graph 3.2.2). With the collapse of housing, both lumber and panel production and prices have collapsed. North American sawn softwood production in 2007 was down 14% from the 2005 peak, and prices for framing sawnwood were down 30% from their 2004 peak. Panel production fell 11% from 2005 and composite structural panel prices dropped 35% from 2004 (Random Lengths, 2008). In North America prices in 2008 have been even weaker, mill curtailments are widespread, and some companies will not survive the current downturn. Further details on sawnwood are found in chapter 4 and details on panels in chapter 6.

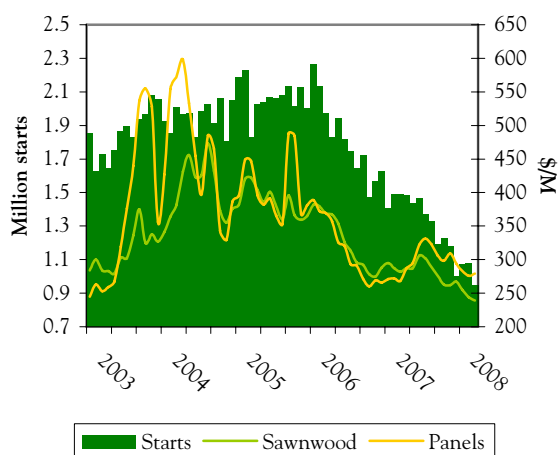
3.2.1.3 Canadian housing market

The Canadian housing market, in stark contrast to the US market, fared well in 2007, with starts remaining near historical highs at 228,000 units. However, housing starts are expected to moderate over the course of 2008 and 2009 as rapid price appreciation over the past several years has eroded affordability. Increased supply (new listings and new construction) during this period has been substantial (Statistics Canada, 2008). In addition, the Canadian economy is expected to slow in response to problems with the US economy. Consequently, starts are forecast to fall 3% in 2008 to 221,000 units and another 5% in 2009 to 211,000 units (Toronto Dominion Bank, 2008). On the resale market, prices are holding firm –

again in stark contrast to the US market, where house prices, at the national level, are falling for the first time since the Depression. In Canada, housing resale prices increased 11% in 2007 on top of an 11% increase in 2006.

GRAPH 3.2.2

US sawn softwood and panel prices vs US housing starts, 2003-2008



Notes: Sawnwood is framing lumber composite (FLC) and panels are structured polycarbonate (SPC) panels.

Sources: *Random Lengths* for prices and National Association of Home Builders for housing starts, 2008.

3.2.2 European construction market²⁸

3.2.2.1 European construction market – review and outlook

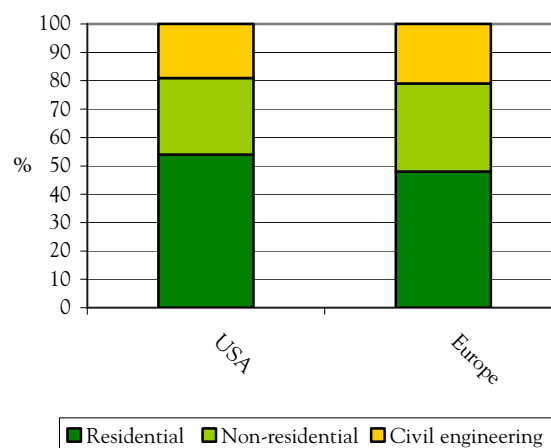
The European construction sector, similar to that of North America, is dominated by residential construction, i.e., new housing plus R&M (graph 3.2.3). In Europe, it represented almost 50% of total construction in 2006, due in large part to its dominance in western Europe. Non-residential construction comes next at 31% followed by civil engineering at 21%. Europe's total construction expenditure at 1.4 trillion euros is greater than that of the US, at 930 billion euros (thanks in part to the 50% appreciation in the euro versus the dollar over the past several years). There are strong similarities in recent trends with the US at the macroeconomic level, and

²⁸ This section is based on Euroconstruct reports and its 19-country region. The western region includes 17 EU Member States (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Slovakia, Spain, Sweden and the United Kingdom), together with Norway and Switzerland. Euroconstruct's western European countries are not the EU27, but the first 17 countries listed above. Euroconstruct's analysis of eastern European construction is based on the Czech Republic, Hungary, Slovakia, and Poland.

when observing construction trends, there are similarities with the boom and bust in new residential construction. There are also similarities between Europe and the US for residential expenditures (54% in the US versus 48% in Europe) (table 3.2.2).

GRAPH 3.2.3

Construction spending in Europe vs the US, 2007



Notes: Total construction spending in USA is 930 billion euros and in Europe 1.42 trillion euros.

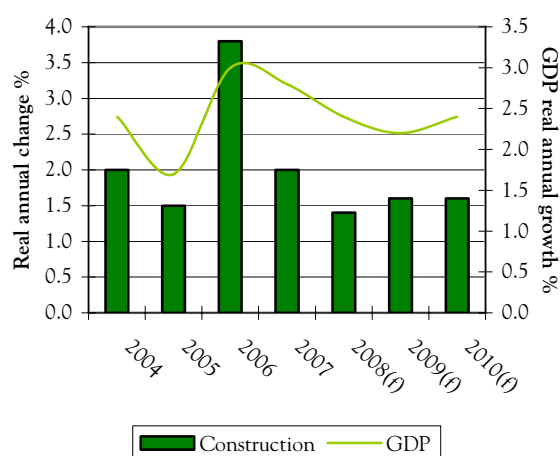
Sources: US Census Bureau, 2008, and Euroconstruct, 2007.

However, Europe and the US differ more in the other categories: US non-residential construction is 27% versus 31% for Europe, whereas Europe spends a greater percentage on civil engineering (21% versus 19% in US). In retrospect, Europe is spending more on infrastructure, which represents long-term capital investment, whereas the US was probably overspending on residential construction (at least through 2006).

According to Euroconstruct, the European construction sector will face a slowdown through 2010 (graph 3.2.4). The economic revival led to a boom in construction, peaking in 2006, and beginning a slowdown in 2007 that is expected to continue over the period 2008-2010. Construction output grew by 3.8% in 2006, but fell to 2% for the 19 Euroconstruct countries. As has been common in the past, there is considerable divergence between eastern and western Europe. In western Europe, real (inflation adjusted) construction was strong in 2006 (+3.6%), but began cooling down in 2007 (+1.7%), with growth in 2008 expected to slow even further to 1%. Eastern Europe saw strong real growth in 2006 (+7.7%) and 2007 (+7.6%) and growth in the near future is expected to be even stronger at 9.2% in 2008 and 8.8% in 2009.

GRAPH 3.2.4

Total construction output and GDP in Europe, 2004-2010



Notes: f = forecast. For 19 Euroconstruct countries.

Source: Euroconstruct, 2007.

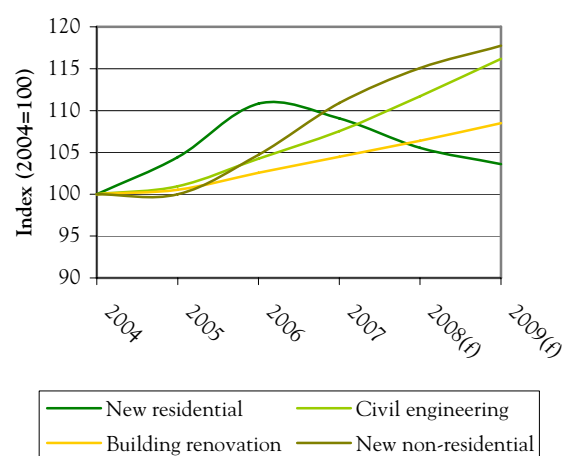
3.2.2.2 Trends in individual sectors

There has been a dramatic shift evolving between new residential construction and the other construction sectors over the period 2002-2009. During 2002-2006, new housing was the driver for total construction and bubbles developed in certain countries, including Spain and the UK. Europeans enjoyed good credit terms (e.g. longer-term loans) due in part to strong competition among lending institutions; interest rates that were attractive; and the strong economies and solid job market, which provided excellent income growth, thus enhancing affordability; and consequently, housing loans increased 123% between 2002 and 2006. This climate started to change in 2006 as more European households suffered repayment problems and rising defaults as interest rates reversed course and house prices reached lofty levels. This triggered the implementation of tougher credit terms (higher mortgage rates, higher down payments, etc.), which further resulted in slower growth in housing loans. In addition, house prices are now coming down after rather spectacular increases over the period 2002-2007.

During 2007, building renovation, civil engineering and non-residential construction were major influences and this is expected to continue through 2009 (graph 3.2.5). According to Euroconstruct data, non-residential construction will drive growth in western Europe, a benefit from the still healthy economy. Strong civil engineering growth across all of the Euroconstruct countries will be a major construction growth driver over the forecast period. In addition, new housing construction is starting to grow more rapidly in eastern Europe.

GRAPH 3.2.5

Construction output in Europe by sector, 2004-2009



Notes: f = forecast. For 19 Euroconstruct countries.

Source: Euroconstruct, 2007.

3.2.2.3 Construction sector shares and growth

When comparing eastern and western Europe, there are huge differences, both in growth outlook and makeup of construction. Strong residential markets, both new housing and R&M, make that sector more important in western Europe, where the population and gross domestic product are higher. Eastern Europe invests more heavily in civil infrastructure and non-residential construction, including factories and other commercial construction (graph 3.2.6). The continuing slowdown in residential markets in western Europe has much to do with the slowdown in overall construction expenditures across the Euroconstruct region during 2008-2010, whereas eastern Europe's outlook calls for continued robust expansion in all sectors, particularly civil engineering and non-residential construction.

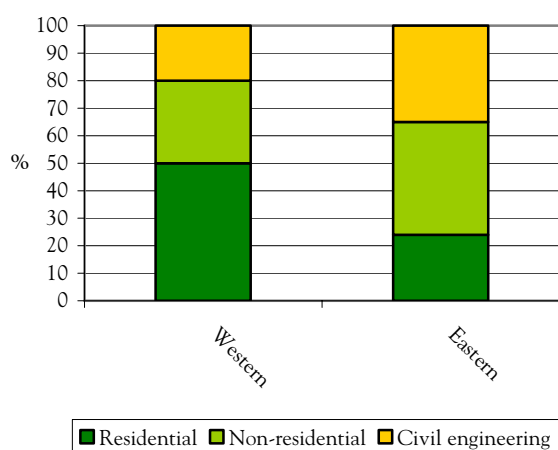
For all of the Euroconstruct region, new housing expenditures will slow dramatically from 6.1% in 2006 to -1.6% in 2007, -3.2% in 2008, and -1.9% in 2009, which will have a significant impact on total construction (graph 3.2.7) (Euroconstruct, 2007).

Note: the authors are attempting to develop more information on wood use in European construction and we intend to include this information in future editions of the *Review*. Overall, today European residential construction techniques favour non-wood building materials such as stone, steel, and concrete for structural purposes. However, this generalization fails to consider strong wooden construction in certain countries, including Scotland and the Nordic countries. There are several reasons why wood is not the preferred building material, as it is in North America: insurance premiums

are higher for wood construction; tradition favours non-wood – partially due to longer life cycles for housing in western Europe; and cost, wood construction is cheaper in North America. Nonetheless, wood construction is gaining more popularity in Europe, promoted by government and industry association policies for green building. However, Europe's wood-based construction remains far behind North America.

GRAPH 3.2.6

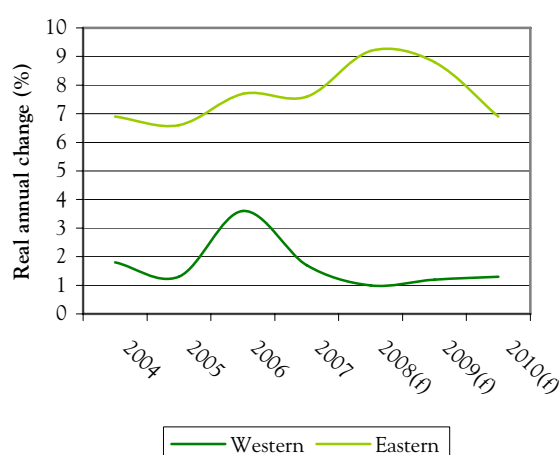
Western vs eastern European sectors, 2007



Source: Euroconstruct, 2007.

GRAPH 3.2.7

Total construction output in western and eastern Europe, 2004-2010



Note: f = forecast.

Source: Euroconstruct, 2007.

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Chapter 4

Forest products industry caught between rising wood costs and weakening markets: Wood raw material markets, 2007-2008²⁹

Highlights

- Sawlog prices in Europe grew faster than the world average over the past two years, while prices have fallen in North America.
- Wood costs for the global pulp industry increased, reaching new records in 2008; the biggest price increases were for softwood fibre in the western United States, Spain, Chile, Finland and Japan.
- Total removals of industrial roundwood in the UNECE region were up 4.3% and reached almost 1.17 billion m³ in 2007.
- The total consumption of industrial roundwood in the UNECE region in 2007 was 4.3% higher than in 2006 and 7.2% more than five years ago, with greatest increases in the CIS (+18% compared to 2006) and Europe (+10%); however, consumption was down 2% in North America, to the lowest level since 2001.
- Almost 10% of roundwood production in the UNECE region was exported in 2007, and this share, which is slightly lower for softwood and higher for hardwood, has been fairly stable over the past few years.
- Wood fibre consumption by the European pulp industry increased by 4.1 % in 2007 and reached a new record of 162 million m³, of which 121 million m³ was roundwood.
- Global trade of woody biomass, primarily for energy, was just over 11 million m.t. in 2007, up from 5.6 million m.t. in 2003, with major trade flows within Europe and between Canada and western Europe.
- As intended by the Russian Government's log export taxes, shipments of softwood logs from Russia declined in 2007, further falling by an additional 44% to Europe and by 15% to Asia in the first quarter of 2008; if implemented as proposed these export taxes could halt Russian roundwood exports in 2009.
- Consumption of softwood industrial roundwood in the US fell 6.8% to 266 million m³ in 2007, mainly the result of record low housing starts.

²⁹ By Håkan Ekström, Wood Resources International, US.

Secretariat introduction

The secretariat appreciates the continued collaboration with Mr. Håkan Ekström,³⁰ President, Wood Resources International. His expertise in global markets is evident in this UNECE region analysis. He is the Editor-in-Chief of two publications that follow global wood fibre markets, including prices: *Wood Resource Quarterly* and *North American Wood Fibre Review*. Mr. Ekström is a member of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing. He has regularly presented his analyses to the UNECE Timber Committee Market Discussions, and in 2007 to the International Softwood Conference as well.

Our thanks also to the chapter's contributors, beginning with Dr. Nikolai Burdin, Director, OAO NIPIElesprom, Moscow. He is also our statistical correspondent for Russia. Dr. Burdin has been chairman of the Timber Committee and the FAO/UNECE Working Party on Forest Economics and Statistics, and is also a member of the Team of Specialists. We appreciate the contributions from Dr. Riitta Hänninen and Mr. Yrjö Sevola, both from the Finnish Forest Research Institute, and Mr. Bernard Lombard, Confederation of European Paper Industries and co-author to chapter 8 on paper and pulp markets.

A schematic diagram of the roundwood breakdown into different subcategories appears in the annex to this Review.

4.1 Introduction

Thanks primarily to strong markets for forest products in Europe, total removals of industrial roundwood in the UNECE region were up 4.3%, reaching almost 1.17 billion m³ in 2007. However, the trends were not the same in all subregions. The biggest increase came in Europe, where softwood harvests were up 14% from the previous year, while softwood removals in the United States were down 6.4% compared with 2006. In addition to roundwood for industrial purposes, there were also an estimated 212 million m³ removed for energy consumption. Practically all major countries with forest resources in Europe and the CIS increased timber production in 2007.

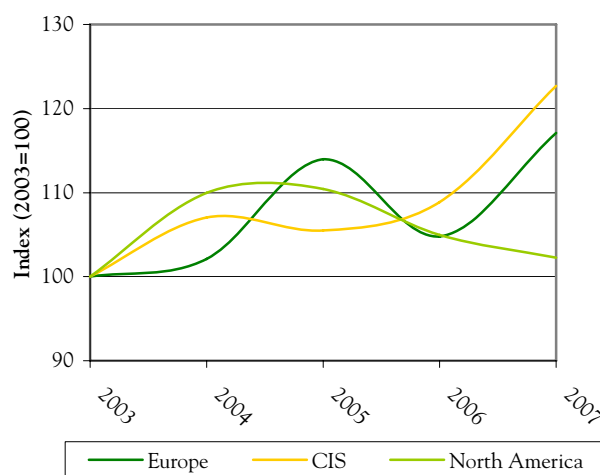
Over 80% of the world's softwood roundwood production is from Europe, the CIS and North America, making the UNECE region the leading producer of softwood-based products. This region is also a major producer of hardwood products, accounting for about 50%

of the world's total harvest of hardwood species. The total consumption of logs in the UNECE region in 2007 was 4.3% higher than in 2006 and 7.2% more than five years ago. The largest increases occurred in the Russian Federation (+18% compared to 2006) and Europe (+10%). Conversely, consumption was down 2% in North America to the lowest level since 2001. Much of the decline in North America can be directly linked to the weak housing and consumer market in 2007 and 2008.

The total consumption of roundwood, including both industrial wood and woodfuel, has trended upward in most UNECE subregions, and was higher in 2007 than the previous year. The largest changes over the past five years have been the rapid expansion of softwood and hardwood log consumption in the CIS region, where Russia has been the dominant leader (graphs 4.1.1 and 4.1.2). Since 2003, consumption of logs has increased over 20% in the CIS.

GRAPH 4.1.1

Consumption of softwood roundwood in the UNECE region, 2003-2007



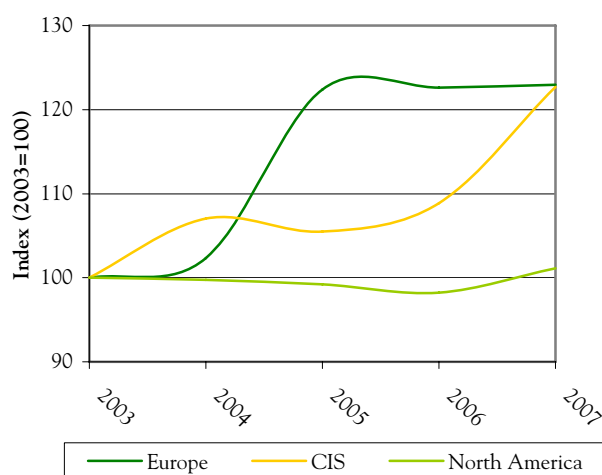
Source: UNECE/FAO TIMBER database, 2008.

Almost 10% of UNECE roundwood production was exported in 2007. The share of exports, slightly lower for softwood and higher for hardwood, has been fairly stable over recent years. There have been a number of changes in trade flow between 2005 and 2006, with trade to Asia from both the US and Russia increasing substantially, while intra-trade within Europe and Russian log exports to Europe fell after having increased for four consecutive years (graph 4.1.3). These flows are derived from the most recent UN Comtrade statistics, as validated by the European Forest Institute (EFI) for the Review, however some of the trends in 2006 changed direction dramatically in 2007 and 2008, for example CIS exports, as analysed below.

³⁰ By Mr. Håkan Ekström, President and Editor-in-Chief, Wood Resources International, P.O. Box 1891, Bothell, Washington 98041, US, tel: +1 425 402 8809, fax: +1 425 402 0187, email: hekstrom@wri-ltd.com, www.woodprices.com.

GRAPH 4.1.2

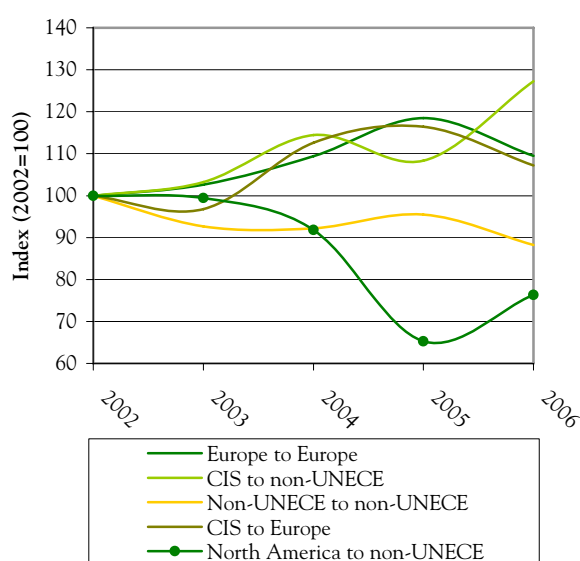
Consumption of hardwood roundwood in the UNECE region, 2003-2007



Source: UNECE/FAO TIMBER database, 2008.

GRAPH 4.1.3

Major industrial roundwood trade flows in the UNECE region, 2002-2006



Note: Corresponding trade flow table in electronic annex.

Source: UN Comtrade/EFI, 2008.

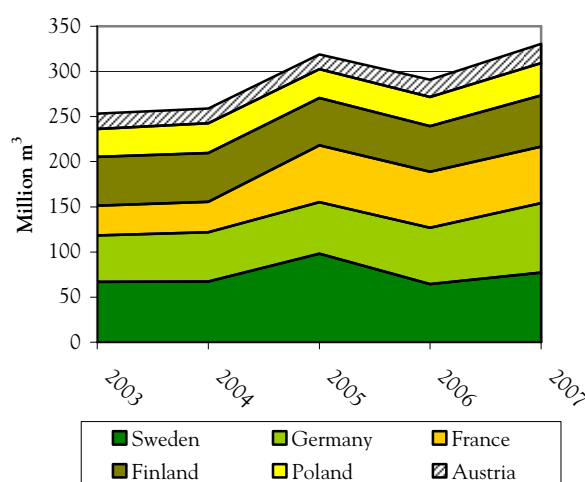
4.2 Europe subregion

Total roundwood consumption increased by 7.8% in 2007, reaching a record 537 million m³. The continent is a net importer, since removals were only 513 million m³ (also a record) in 2007 (table 4.2.1). Removals of industrial roundwood were nearly 411 million m³, with the remaining 102 million m³ (albeit an uncertain

estimate) being used for energy. The largest increases in timber harvests occurred in Germany, Austria and Sweden, reflecting the impact of severe storms in recent years. The most dramatic change occurred in Germany, which harvested 50% more volume in 2007 than in 2003 (graph 4.2.1).

GRAPH 4.2.1

Removals of industrial roundwood in Europe, 2003-2007



Source: UNECE/FAO TIMBER database, 2008.

TABLE 4.2.1

Roundwood balance in Europe, 2006-2007
(1,000 m³)

	2006	2007	Change %
Removals	471 732	512 932	8.7
Imports	67 362	66 535	-1.2
Exports	40 115	41 815	4.2
Net trade	-27 247	-24 720	...
Apparent consumption	498 979	537 653	7.8
of which: EU27			
Removals	426 293	466 555	9.4
Imports	61 888	61 064	-1.3
Exports	36 058	37 639	4.4
Net trade	-25 831	-23 425	...
Apparent consumption	452 124	489 979	8.4

Source: UNECE/FAO TIMBER database, 2008.

The two storms that hit Europe in January 2008 resulted in large volumes of storm-damaged trees in central Europe for the third year in succession. The damage, estimated at 16 million m³, occurred mainly in Austria, Germany and the Czech Republic, but was less severe than in 2006 and 2007, when, respectively, over 60 million m³ and 50 million m³ were affected. The storms in

2008 occurred when the forest industry was cutting back production and already had large stocks of bark beetle-affected logs from the severe storm of 2007. As a result, it seems likely that log prices will move downward, particularly in Germany and Austria, the two countries most severely affected.

Though in 2008 there are signs of a slowing demand for wood products, the European forest industry can look back at 2007 as a good year with high production levels and healthy profits. Sawn softwood production was up by 1.9% from 2006, sawn hardwood production was 5.2% higher, and panel production increased 2.8%, all record levels.

Softwood industrial roundwood removals, which account for 79% of total industrial removals, were up by 11% from 2006, and 17% higher than five years ago. Much of the increase occurred in the forest-rich countries of Germany (up 31% from 2006), Sweden (+22%), Austria (+15%), Poland (+16%) and Finland (+13%). By contrast, Latvia and Spain have seen reduced harvest levels of 10% and 20%, respectively, over the past three years, and reduced log availability has forced sawmills to cut back production capacity.



Source: Metsäliitto, 2008.

The Finnish forest industry, already facing difficulties with high wood costs and the prospect of a sharply reduced log supply from Russia in the coming year, has begun to alter its log procurement strategy by increasing imports from countries other than Russia, and intensifying campaigns to encourage private Finnish forest owners to increase harvests. The timber harvest reached record levels in 2007, as private landowners increased timber harvests by 25% compared to the previous year. Despite this, the industry is still heavily dependent on imported timber from Russia. Higher Russian log export taxes (see section 4.3) saw softwood

log imports to Finland fall by 37% in 2007, as compared with 2006. Hardwood log imports were down 16%. To compensate, Finland tripled imports of softwood logs, mostly sawlogs, from Sweden, and imported 39% more eucalyptus logs from Uruguay. Latvia shipped 28% more logs to Finland, and Lithuania increased shipments by 210%. Over the next few years, the Finnish forest industry may have to go through a process of rationalizing processing capacity to accommodate a predicted decline in wood raw material availability as higher export taxes bite harder and reduce imports of Russian logs even further. Even allowing for increased harvesting of domestic timber and increased imports of roundwood and chips from Sweden, the Baltic States and Latin America, some rationalization of capacity seems inevitable.

Wood fibre consumption by the European pulp industry increased by 4.1% in 2007, reaching a new record of 162 million m³ last year, according to the Confederation of the European Paper Industries (CEPI). The sector consumed 121 million m³ of roundwood, which was 28% of the continent's total consumption of industrial timber. Wood fibre use has increased in eight out of the past ten years and was 14% higher in 2007 than in 1998. To supply the expansion of virgin wood pulp production during much of the 1990's and early 2000, the industry increased its use of residual chips as the sawmill sector expanded and consumed more hardwood logs from thinning operations in northern Europe and fast-growing plantations in Iberia. However, during the past five years, over 70% of the additional wood fibre use has been softwood roundwood that, to a large extent, has been storm-damaged wood from Sweden, the Baltic States and central Europe.

Just five years ago, the wood chip trade was practically in balance in Europe. Since then, the continent has become a net importer of wood chips. In 2007, the continent imported 28.7 million m³ while it exported 21.0 million m³. The major destinations were pulpmills, composite panel manufacturers and energy plants in Italy, Finland, Sweden, Austria, the Netherlands and Germany, while major European exporters were countries in central Europe, including Germany, Latvia, France and the Czech Republic.

Pulp companies in the Nordic countries are increasingly exploring opportunities to source wood fibre for their mills from Latin America and North America. One pulpmill in southern Sweden has recently started to substitute maple chips from eastern Canada for expensive beech wood chips from Germany. Some pulp producers in Finland are importing eucalyptus chips from Latin America and one pulpmill in Norway is now importing wood chips rather than logs from Uruguay. These new wood supply sources may expand in the next few years.

One of the most interesting developments in the global commerce of wood raw material in recent years has been the substantial increase in the trade of wood for energy generation. Much of the increase in shipments is the result of policies implemented by European governments to generate more green energy based on renewable resources in order to substitute fossil fuels. By-products from sawmills have historically been the most commonly used wood fibre source for energy generation, but because of higher demand for renewable energy and growing costs for fossil fuels, it has increasingly become possible for power plants to utilize higher-cost forest residues such as tree tops, branches and smaller-diameter trees. Global trade of woody biomass, as estimated by Wood Resources International and based upon customs data and market actors, was just over 11 million m.t. in 2007, up from 5.6 million tons in 2003. (Included in this category is wood for energy and a smaller share of sawmill by-products used for manufacturing wood panels.) The major trade flows have been within the European continent and between Canada and countries in western Europe. Wood pellets, which account for a large share of biomass trade, reached a record three million tons in 2007.

The largest exporter of biomass in 2007 was Germany, which exported 1.4 million tons to neighbouring Austria, the Netherlands, Belgium and Italy. Canada exported 1.3 million tons, of which an estimated 600,000 tons were wood pellets targeted for the European market. Most of the overseas volume was shipped from British Columbia (BC), Canada to Belgium, the Netherlands and Sweden, despite the seemingly prohibitively costly 15,000-kilometer journey from the interior of BC to the European market. This situation can be explained by the currently low costs for raw material (shavings and sawdust) in Canada and the high prices for wood pellets in Europe.



Source: M. Fonseca, 2008.

The rapid expansion in global trade of biomass is likely to continue over the next three to five years as more countries are favouring renewable energy and as local, relatively inexpensive supplies of biomass reach their limits. The question is how long expansion of the overseas water-borne transport will continue to grow, given the high cost of oil and the paradox of consuming large quantities of low-refined heavy fuel oils for the shipments of green energy to European customers.

In addition to importing biomass, European countries are also promoting the production of domestic woody biomass for energy use. By 2011, Member States of the European Union have to develop national plans for renewable energy, including bioenergy. In these plans, EU countries must explain how they will reach their national target for renewable energy, contributing to reaching the EU target of 20% renewable energy by 2020.

Since biomass is likely to continue to be the major source for renewable energy, there are significant efforts in most EU countries to increase their wood production. Using latest figures on fellings and increment ratio as an indicator of harvest potential in Europe, there appears to be significant potential for increasing harvests. In 2005 only 60% of the increment in forests available for wood supply was felled in Europe (MCPFE/UNECE/FAO, 2007). However, it will be a challenge to mobilize these additional resources, since mobilization is not driven exclusively by wood prices, but also by a combination of factors including forest ownership structure; motivation of forest owners to harvest; infrastructure such as forest roads; and availability of machinery and labour. In addition to wood supply from the forest, 31% of wood fibre in use in 2005 came from sources outside the forest, including residues and co-products from wood-processing industries; post-consumer recovered wood (e.g. demolition wood); and wood from trees outside the forest, including fast growing energy crops (Mantau, et al, 2008). These sources can also be expected to make a contribution to increasing future wood supply. The UNECE/FAO is currently working with partners on a study to assess the potential of the future sustainable wood supply in Europe, which will be published at the end of 2008.

4.3 CIS subregion

In the CIS subregion, where only the Russian Federation, Ukraine and Belarus have the major forest resources, roundwood removals hit a new record of 233 million m³ in 2007 (table 4.3.1). Industrial roundwood accounted for 76% of the total removals, while fuelwood reached an estimated 24%, or 56 million m³.

TABLE 4.3.1
Roundwood balance in CIS, 2006-2007
 (1,000 m³)

	2006	2007	Change %
Removals	216 481	232 881	7.6
Imports	1 379	1 187	-13.9
Exports	55 324	53 524	-3.3
Net trade	53 945	52 337	-3.0
Apparent consumption	162 536	180 544	11.1

Source: UNECE/FAO TIMBER database, 2008.

The total harvest of industrial roundwood in Russia was 162 million m³ in 2007. This accounted for 13.8% of the total industrial log supply in the UNECE region, which was up from 11.6% in 2002 and only 7.7% in 1998. Harvest levels in Russia have increased every year since 1998, with the export market being the principal driver of higher log demand. In 2007, Russia exported 29% of the country's total softwood log production, and 50% of the hardwood log production was shipped abroad. In 2007, the share of roundwood production in western Russia was 59%, while Siberia and the eastern provinces accounted for about 41%. Both regions are major exporters of logs with China, Finland and Japan being the major destinations, despite rising rail transport costs. With the expansion of the Russian forest industry, in particular that of sawn softwood and plywood manufacturing, domestic demand for wood raw material has steadily gone up, reaching 113 million m³ in 2007. This is over 20% higher than in 2006 and 26% more than five years ago. Most of the investments in the forest industry over the past few years have occurred in northwest Russia, where predominantly forest industries from the Nordic countries have seen opportunities to expand production capacity for sales in both the European market and an expanding domestic Russian market.

The new Forestry Code that was put in place in January 2007 was meant to decentralize decision-making to regional governments, increase transparency of the forest management system, and reduce corruption through public auctions for forest leases. However, it has not been successfully implemented, according to Mr. Valeriy Roshchupkin, the former head of Rosleskhoz (the Federal Forestry Agency of Russia). The major problems have been a lack of understanding of the new legislation and difficulty in coordination between the federal and regional authorities. The new measures have not attracted enough foreign investment and new government incentives will be necessary according to Mr. Roshchupkin. In 2008, Rosleskhoz reorganised, possibly further delaying the Code's implementation.

The Russian Federal Government has assisted development of its forest industry by adding export taxes on logs, thereby limiting foreign competition for timber.

As of April 2008, Russian log export taxes for softwood species and large-diameter birch logs (mainly for plywood production) increased from 20% (minimum €10/m³) to 25% (minimum €15/m³) of the log value. Smaller-diameter birch logs (less than 15 cm in diameter), which are important to the Finnish pulp industry, were not taxed in mid-2008. Although the tax increase of €5/m³ is a small share of the total log cost for foreign sawmills, it has still had an impact on the sourcing strategies for many forest companies, particularly in neighbouring Finland. Despite continued negotiations amongst the governments of the Nordic countries, EU representatives and Russian ministers, there has, so far, been no willingness by Russian representatives to reconsider the announced increase of log taxes to 80% of the log value (minimum €50/m³) for softwood species in January 2009. If Finland is not successful in reversing the Russian export barrier, and if the Finnish Government does not find a way of compensating the Finnish forest industry, it is likely that the last legal shipment of softwood logs may leave Russia in late December, 2008.

Although in mid-2008 importers of Russian logs are being most heavily impacted by the higher log tax, many forest companies in other parts of Europe and North America will eventually be affected as the currently Russian-supplied pulp and sawnwood manufacturers search for wood raw material elsewhere. As a result of the implemented and planned log export taxes, shipments of softwood logs from Russia have declined both to Europe and Asia in 2007 and 2008. In the first quarter of 2008, shipments to Europe were down 44% from a year earlier and were down 15% to Asia. Russia exported less to all of its major trading partners except China, which increased purchases by 14%. Hardwood log exports, which typically are small pulplogs, have not been affected by the higher taxes on large birch logs and were actually up by as much as 28% in the first quarter of 2008, as compared with 2007.

The declining exports of softwood logs have benefited the domestic industry both because of increased availability and lower costs of sawlogs and pulplogs. This has been particularly true in 2008, when raw material costs have fallen substantially in both northwest Russia and Siberia.

4.4 North America subregion

Removals of industrial roundwood were down for the second year in North America in 2007 because of the weakening market for all forest products in both the US and Canada (table 4.4.1). In the US, log production fell 4.6% to 393 million m³, the lowest level since 1986. In Canada, an estimated (but uncertain) 193 million m³ of industrial timber were removed in 2007, surprisingly, a 4.2% increase from 2006 despite lower domestic production of pulp, sawnwood and wood-based panels.

TABLE 4.4.1

Roundwood balance in North America, 2006-2007
(1,000 m³)

	2006	2007	Change %
Removals	645 241	639 910	-0.8
Imports	8 969	7 666	-14.5
Exports	14 631	13 710	-6.3
Net trade	5 662	6 044	6.8
Apparent consumption	639 579	633 866	-0.9

Source: UNECE/FAO TIMBER database, 2008.

Consumption of softwood industrial roundwood in the US fell 6.8% to 266 million m³ in 2007. Although consumption levels have been down for two successive years, they were only 3% lower in 2007 than they were five years ago. One reason that log consumption did not fall further, despite the dramatic reduction in sawnwood production, was the increased use of pulplogs by the pulping industry. Historically, the pulp sector in the US has relied heavily on relatively inexpensive by-products from the sawmilling and plywood industry for its wood fibre supplies. Due to the reduced sawnwood production and, as a consequence, lower availability of residual chips, many pulpmills have had to increase their volumes of chips from roundwood, thus increasing demand for small-diameter logs. This development has not only occurred in the southern US and northwestern US, but also to a very large extent to the industry in BC.

The pulpmills in the interior of BC have historically consumed 85-100% of relatively inexpensive chips from a large and growing sawmilling industry. This changed when the sawnwood market weakened in the US and the sawmills in the province started to cut back production. As a result, pulpmills in the region have increasingly relied on roundwood chips, with some plants consuming more than 25% of their total fibre from the more expensive pulplogs. There is, however, no lack of logs to chip in the province: the mountain pine beetle infestation, which has spread from 320,000 hectares (ha) in 1999 to over 13.5 million ha in 2007, is resulting in large volumes of dying trees in the province. There are an estimated 600 million m³ of timber that have been infected and that could be utilized by pulpmills as well as sawmills, if the infrastructure is in place. Typically, sawmills can accept the killed trees for only three to five years after the needles have died because the sawtimber quality deteriorates. Unfortunately, the epidemic has not stopped at the eastern provincial border, and trees are now being infected in the neighbouring province of Alberta.

Roundwood consumption in North America is directly driven by the health of the US economy, and particularly by the strength of the housing market. During 2007 and 2008, this market plummeted and in May 2008 the number of housing starts was down by as much as 32% in just 12 months, and fell below 950,000 units (seasonally adjusted annual rate) for the first time since the 1980s. With almost 40% of sawnwood consumed in the US going into new residential construction, these developments have had a detrimental impact on the sawnwood industry and log consumption in 2007 and 2008. In the southern US, which is the largest sawnwood-producing region in North America, sawmill production was 10% lower in 2007 than in 2006, which resulted in decreased demand and falling prices for sawlogs in the region. Most other regions of both the US and Canada have gone through the same scenario with lower production of sawnwood, panels and pulp resulting in a reduction in usage of wood raw material.

North America continues to be a net exporter of softwood logs. In 2007, exports exceeded imports by 4.4 million m³. Practically all overseas log shipments were from the western US and Canada to Asia. Douglas-fir and hemlock are the main species being exported to Japan, Republic of Korea, and China. Shipments of hemlock to the Republic of Korea have risen by 33% from 2006, reaching 1.2 million m³ last year. China has also increasingly sourced both softwood and hardwood logs from the US. In 2007, total exports to China were 675,000 m³, up 30% from 2006 and 73% higher than five years ago. The weaker US dollar against many currencies in Asia has been helpful for timber owners and log traders when exploring alternatives to the slowing US domestic log market. Over the next few years, it is also possible that there will be an increase in log exports, particularly from the US to Asia, as Russian logs become prohibitively expensive as new Russian export taxes take effect.



Source: M. Fonseca, 2007.

The strength of the Canadian dollar means that Canadian logs have become less competitive and log exports to both the US and Asia have fallen in the three years since 2005. In 2007, Canada exported 3.8 million m³ of logs, 22% less than in 2006 and 28% less than 2003. Unless the US sawnwood market improves or the Canadian dollar weakens, both unlikely in the short term, log exports from Canada will continue to decline in 2008 and 2009.

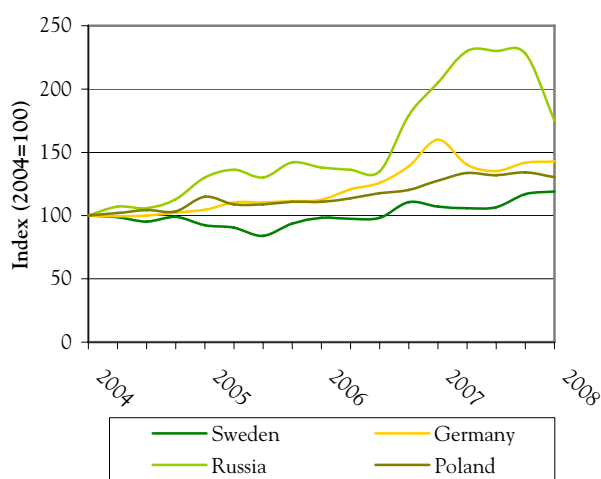
4.5 Raw material costs

Softwood sawlog prices (in both US dollars and local currencies) have gone up more quickly in Europe than in any other region of the world within the past two years, according to *Wood Resource Quarterly* (WRQ). Wood costs account for 65-75% of the variable production costs of producing sawn softwood, and are, therefore, the key factor determining a region's or a company's competitiveness.

In early 2008, softwood sawlog prices increased in central and eastern Europe, while they fell in Finland, Norway and the Baltic States, compared with average prices in 2007. The price reduction in northern Europe over the winter of 2007/2008, which was a break from a long upward price trend, was mainly the result of a weakening demand for logs (graph 4.5.1).

GRAPH 4.5.1

Softwood sawlog prices in Europe and Russia, 2004-2008



Note: Price index is based on prices in local currencies.

Source: *Wood Resource Quarterly*, Wood Resources International, 2008.

In 2006 and 2007, log prices in Europe rose 40-60% in US dollar terms, both as a result of higher costs in the local currencies but primarily because of the weak US dollar. The major reasons for the price increases in local currencies include the reduction in log exports from

Russia, higher fuel costs, and strong sawnwood markets over the past few years. In 2007, the total sawn softwood production in Europe was more than 9% higher than in 2005, with the most substantial increases occurring in Germany, the Czech Republic and Poland.

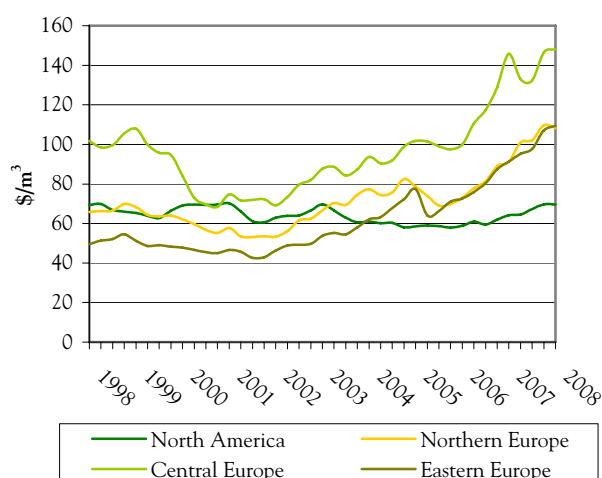
Sawmills in Europe have the highest wood costs in the world, with all major countries being above the global average, while sawmills in Latin America, North America and Oceania continue to have substantially lower production costs. Sawmills in Sweden and Poland have the lowest wood costs in Europe, while Germany and Austria continue to be the highest-cost markets, with log costs more than 40% higher than the world average. In the first quarter of 2008, the WRQ Global Softwood Sawlog Price fell for the first time in almost three years. The Index, which is based on sawlog costs delivered to sawmills in 20 key regions around the world, reached an all-time high of \$91.85/m³ in the fourth quarter of 2007, but fell in the first quarter of 2008 to \$90.50/m³ because of lower log prices in North America and the Nordic countries. The global average sawlog price has been fluctuating between \$55/m³ and \$75/m³ over much of the past 13 years. However, in 2006 this pattern changed, and the price has increased steadily from \$73/m³ to \$92/m³ in just two years.

Another noteworthy development has been the discrepancy between low-cost and high-cost wood markets. It has long been expected that wood raw material costs in different regions would converge toward a global average, but this prediction has not been realized. In the mid-1990s, the difference between the lowest cost region (Latin America) and highest cost region (central Europe) was about \$75/m³. In 2000, this cost disparity fell to \$45/m³, but has increased over the past eight years, reaching a record \$88/m³ in the first quarter of 2008 (graph 4.5.2). However, a number of factors, including higher wood costs in Brazil due to increased competition, point to a reduced wood cost difference between world regions over the next 12 months.

Russian domestic log prices fell sharply in the first quarter of 2008 from their peak in the fourth quarter of the previous year. Pine sawlog prices declined 22%, softwood pulpwood prices were down 20% and hardwood pulpwood costs fell just over 15%. The major reasons for the price declines were an improved log supply thanks to favourable logging conditions, and a substantial reduction in log exports. In the first quarter of 2008, softwood exports were down 44% as compared to the same quarter a year earlier and 64% lower than in first quarter of 2006. With the recent reduction in log costs, Russian sawmills have some of the lowest wood costs in the world.

GRAPH 4.5.2

Global softwood sawlog prices, 1998-2008

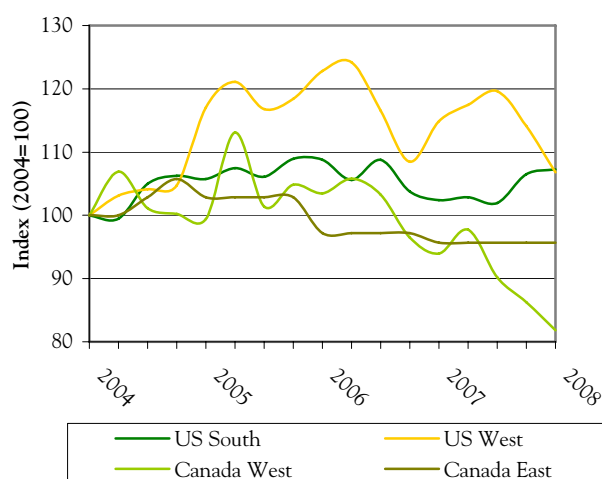


Source: Wood Resource Quarterly, Wood Resources International, 2008.

Sawlog prices in BC fell sharply in 2007 and 2008 (in the local currency). Despite this downward cost trend, sawmills are still paying more in US dollar terms for raw material now than they did four to five years ago. The major reason for the declining log costs is the shrinking market; a number of sawmills have shut down or cut back manufacturing over the past year. Total production in the province fell by as much as 29% during 2007 compared to the previous year, with production levels in BC falling faster than in the rest of Canada. Sawlog costs have also fallen in the western US, while they have remained fairly stable in both eastern Canada and the southern US (graph 4.5.3).

GRAPH 4.5.3

Softwood sawlog prices in North America, 2004-2008



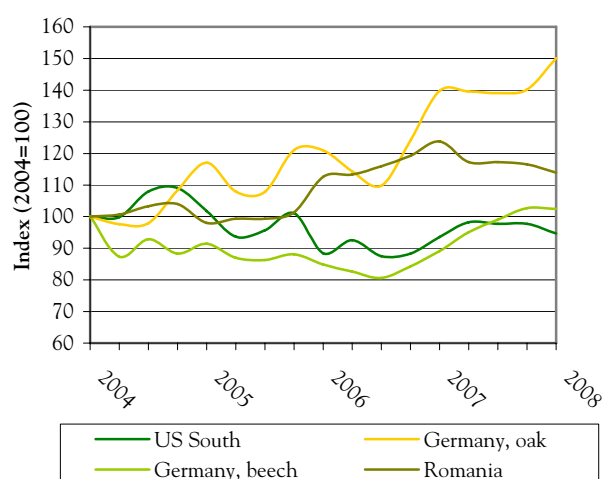
Note: Price index is based on prices in local currencies.

Source: Wood Resource Quarterly, Wood Resources International, 2008.

Hardwood sawlog prices, particularly for oak, have trended upward in both the US and Europe since 2006 (graph 4.5.4). Many hardwood sawmills in the major markets in Europe, including Germany, France and Romania, have had to pay higher prices for wood raw material in 2008 because both roadside log prices and transport costs have gone up. Since 2006, oak log prices in Germany have increased by between 10-25% depending on grade, dimension, and section of the country. The upward price pressure is partly the result of a mild winter in 2008 that reduced the volumes being removed from the forests. Prices for oak logs in France have gone up about 25% since early 2007, while beech logs have become slightly less expensive. One factor that has impacted the beech log costs in central Europe is an increase in supply for domestic consumers as log exports to Asia have declined. With the higher ocean freight costs, exports from Germany to China were down by 44% during the first five months of 2008 as compared to 2007. Demand for beech sawlogs and lower quality oak logs has also recently slowed due to weaker markets for parquet flooring throughout Europe, and there are expectations that log prices reached their peak last winter and will start to decline later in 2008.

GRAPH 4.5.4

Hardwood sawlog prices, 2004-2008



Note: Price index is based on prices in local currencies.

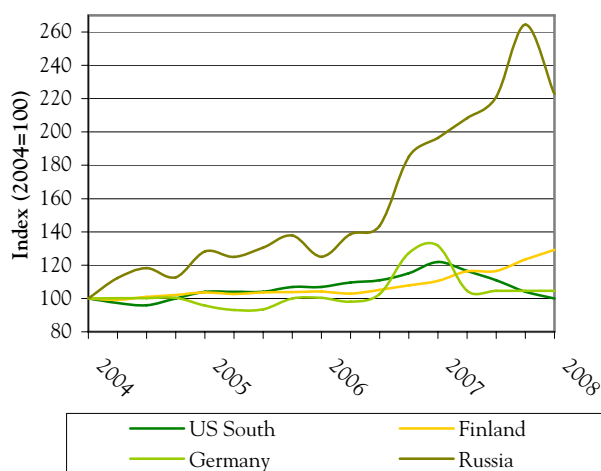
Sources: Timber-Mart South, ZMP and EUWID, 2008.

In the US, hardwood log prices have held up surprisingly well in 2007 and 2008 despite the housing market slump throughout the country. This is both because log exports to Asia have increased somewhat, and because the sawnwood demand in Canada, China, Vietnam and Mexico has remained fairly strong.

Global pulpwood prices reached new records in 2008. Tight residual supply, higher fuel costs, higher log export taxes and unfavourable weather were all factors that pushed wood costs for the global pulp industry to new record levels in the first quarter of 2008. The total wood costs went up in most world regions, as reported by WRQ. One country that avoided the upward price trend was Russia, where a higher log supply reduced wood costs by over 15% in the first quarter of 2008, down to price levels last seen in 2006. Prices also fell in France, where competition for smaller logs from sawmills and wood-based panel manufacturers eased early in the year, resulting in more than 10% lower softwood fibre prices compared to a year ago. The greatest price increases for softwood fibre have been in the western US, Spain, Chile, Finland and Japan, as tighter supply forced many pulpmills to go outside their normal wood supply region and increase the share of expensive roundwood (graph 4.5.5). These events resulted in the average global conifer wood price reaching a new all-time-high of \$109.67/odmt (oven-dry metric ton), which was 2% higher than the previous quarter and 7.8% higher than a year ago.

GRAPH 4.5.5

Softwood pulplog prices, 2004-2008



Note: Price index is based on prices in local currencies.

Source: Wood Resource Quarterly, Wood Resources International, 2008.

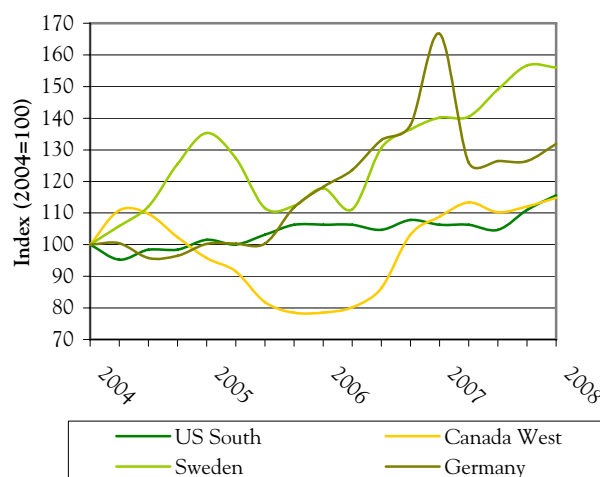
The Global Average Wood Fibre Price is a weighted average of delivered wood fibre prices for the pulp industry in 17 regions worldwide, reported quarterly in the WRQ. These regions together account for 85-90% of the world's wood-based pulp production capacity. As the wood cost accounts for 40-50% of the total pulp production costs, it is often the predominant factor determining a company's or a region's competitiveness. Average non-conifer wood fibre costs were also up in

early 2008, reaching a record high of \$106.11/odmt, which was 16% higher than a year ago. The biggest price increases occurred in Spain, Finland, Chile, Australia and Indonesia, while prices were lower in Russia and the southern US.

The health of the sawmilling sector is very important to the pulp industry, as pulpmills rely to varying degrees on relatively inexpensive residuals from sawmills in both North America and Europe. Depending on the region, sourcing of wood fibre varies substantially; from 25-30% residuals of total softwood fibre furnish in the southern US and the Nordic countries to over 75% in the western US and Canada. As sawnwood production has been falling during 2007 and 2008, many pulpmills have been forced to either expand the sourcing area or consume a higher percentage of roundwood; both scenarios increase the average wood cost for a mill. In early 2008, wood chip prices in many of the UNECE countries, including the US, Canada, Sweden and Spain, were near or at record-high levels (graph 4.5.6). In addition to reduced availability of residual chips and higher transport costs, competition from the energy sector has also impacted the upward price movement for wood chips in some markets.

GRAPH 4.5.6

Softwood wood chip prices in Europe and North America, 2004-2008



Note: Price index is based on prices in local currencies.

Source: Wood Resource Quarterly, Wood Resources International, 2008.

The declining price trends for softwood sawlogs that started in the first quarter of 2008 in most regions of the UNECE are likely to be prolonged during 2008 and into 2009. This is mainly the result of a continued sluggish market for sawnwood both in Europe and the US, resulting in reduced demand for logs. The pulp-manufacturing sector is expected to stay quite healthy

over the next 12 months, thus keeping pulplog and wood chip costs at current levels in North America and slightly higher than current levels in Europe.

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Chapter 5

United States market crash affects entire sector:

Sawn softwood markets, 2007-2008³¹

Highlights

- An unprecedented reduction of over 50% of US housing starts between 2005 and those estimated for 2008 has had a drastic impact on North American sawmilling industry output and trade capacity, as well as on sawnwood prices.
- The current US housing market collapse has caused up to one quarter of the North American industry capacity to curtail or close in order to accommodate much lower demand levels.
- In 2007, moderate growth in both production and consumption of sawn softwood in Europe continued to be led by Germany, which strengthened its lead in production and even extended exports to the weak US market.
- In 2007 and into mid-2008, European prices for sawn softwood fluctuated and then declined, while in North America prices sank to their lowest levels since 1991.
- Since the start of 2007, the North American market for “green building” has quickly emerged to become a new business and expanding market in North America.
- After a profitable 2006, most European sawmill revenues declined in mid-2007 and the industry drifted into a more difficult financial situation in mid-2008.
- Russian production and exports increased and a significant number of new sawmill investments were announced, possibly resulting from escalating sawlog export taxes.
- North American output fell sharply by 10.6% to 109.6 million m³ in 2007, with the effects felt evenly in the US and Canada; this decrease meant that for the first time, in 2007 European production was greater than that of North America.
- In mid-2008 there was a slight oversupply in most markets as sawnwood intended for Japan and the US were redirected to Europe or the Middle East.
- The catastrophic market situation in North America and the downturn in Europe present challenges and require new business models if sawmills are to maintain production, marketing channels, trained employees and customer loyalty.

³¹ By Dr. Nikolai Burdin, OAO NIPIElesprom, Russian Federation, Mr. Thorsten Leicht and Mr. Mathias Lundt, both Pöyry Forest Industry Consulting, Germany, and Mr. Russell E. Taylor, International WOOD MARKETS Group Inc., Canada.

Secretariat introduction

The secretariat expresses appreciation once again to the coordinator of the chapter on sawn softwood markets, Mr. Russell E. Taylor,³² President, International WOOD MARKETS Group Inc. He also analysed the North American markets. He presented forest products market and policy developments at the 2004, 2006 and 2007 Timber Committee Market Discussions and is scheduled to present this chapter at the 2008 joint Timber Committee and European Forestry Commission Market Discussions during the European Forest Week in Rome on 21-22 October.

As in previous years, the Russian sawnwood analysis was undertaken by Dr. Nikolai Burdin,³³ Director, OAO NIPIEllesprom, Moscow. He is also our statistical correspondent for Russia. Dr. Burdin was formerly Chairman of the UNECE Timber Committee and the FAO/UNECE Working Party on Forest Economics and Statistics. Both Dr. Burdin and Mr. Taylor are members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

We welcome two new analysts, and their new perspectives, to the *Review*, Mr. Thorsten Leicht,³⁴ Senior Consultant, and Mr. Mathias Lundt,³⁵ Analyst, Pöyry Forest Industry Consulting. They wrote the Europe subregion analysis, with input from two former authors from Pöyry Forest Industry Consulting, Mr. Antti Koskinen and Mr. Jarno Seppälä. Together with Mr. Taylor, Mr. Leicht is also scheduled to present this chapter at the 2008 joint Timber Committee and European Forestry Commission Market Discussions.

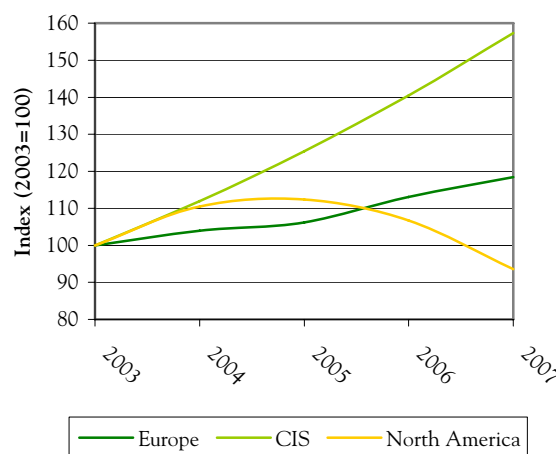
5.1 Introduction

In 2007, consumption of sawn softwood in the UNECE region experienced divergent trends, with a sharp decline in North America and continued steady growth in Europe (graph 5.1.1). CIS consumption was

estimated by the secretariat to have grown in parallel with construction growth. The analysis of the drivers behind these trends is in the following sections.

GRAPH 5.1.1

Consumption of sawn softwood in the UNECE region, 2003-2007



Note: CIS apparent consumption is a secretariat estimate.

Source: UNECE/FAO TIMBER database, 2008.

In 2007, the opposing trends in consumption of sawn softwood on each side of the Atlantic Ocean were replicated in terms of production. European production rose by 1.8% to reach 114.9 million m³, whereas North American production fell by 10.6% to 109.6 million m³. For the first time, European production has overtaken that of North America. Notably, the year was characterized by tight sawlog supplies in Europe, continuing development in German sawnwood capacity, and volatile price trends with rising and falling prices in Europe vs. North America, with prices remaining close to cost levels.

Sawn softwood trade flows were indicating expanding markets as North American producers sought offshore markets (graph 5.1.2). This trend was expected to continue in 2007 and 2008; however, the basis of the graph below is UN Comtrade statistics, which, as a global database, are one year behind the rest of the statistics in the *Review*. The UN Comtrade data is validated by the European Forest Institute for use in this analysis. Strengthening intra-European trade is also demonstrated, since European construction demand was solid in 2006 and that trend would likely have continued into 2007.

³² Mr. Russell E. Taylor, President, International WOOD MARKETS Group Inc., Forest Industry Strategic Services, Ste. 501, 570 Granville Street, Vancouver, British Columbia, Canada, V6C 3P1, tel: +1 604 801 5996, fax: +1 604 801 5997, e-mail: retaylor@woodmarkets.com and website: www.woodmarkets.com.

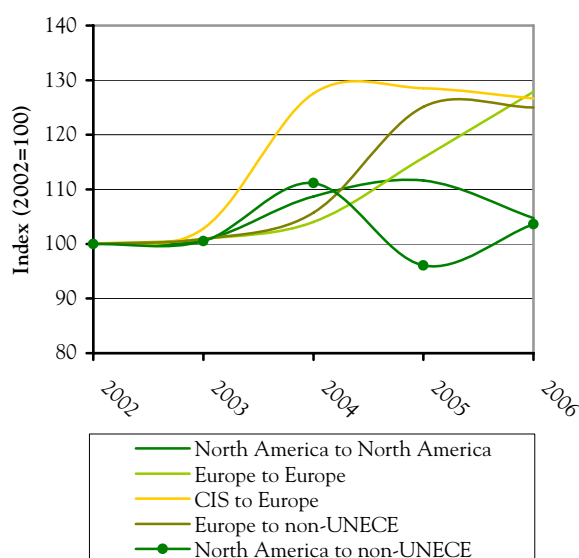
³³ Dr. Nikolai Burdin, Director, OAO NIPIEllesprom, Klinskaya ul. 8, Moscow, Russian Federation, RU-125889, tel: +7 095 456 1303, fax: +7 095 456 5390, e-mail: nipi@dialup.ptt.ru.

³⁴ Mr. Thorsten Leicht, Senior Consultant, Pöyry Forest Industry Consulting, Amtsgericht München HRB 119191, Erdinger Strasse 43b, Freising, Germany, D-85356, tel: +49 8161 4806 87, fax: +49 8161 4806 71, e-mail: thorsten.leicht@poyry.com and website: www.poyry.com.

³⁵ Mr. Mathias Lundt, Analyst, Pöyry Forest Industry Consulting, Amtsgericht München HRB 119191, Erdinger Strasse 43b, Freising, Germany, D-85356, tel: +49 8161 4806 88, fax: +49 8161 4806 71, e-mail: mathias.lundt@poyry.com and website: www.poyry.com.

GRAPH 5.1.2

Major sawn softwood trade flows in the UNECE region, 2002-2006



Note: Corresponding trade flow table in electronic annex.

Source: UN Comtrade/EFI, 2008.

5.2 Europe subregion

In 2007, sawn softwood production in Europe amounted to 114.9 million m³, with European Union countries accounting for almost 90% (table 5.2.1). With almost 2.1 million m³, Europe exhibited a slightly lower growth of 1.8% in sawn softwood production in 2007 compared with the previous year. Germany was able to strengthen its leading position, recording an increase in production of almost 800,000 m³ (+3.4%), aided by the fact that felling following the Kyrill storm system in January 2007 resulted in cheaper logs. The same was true of Austria, which reported a similar increase and by far the greatest growth on a relative basis (+7.4%). The Czech Republic, Sweden and Finland all documented major increases (357,000 m³, 300,000 m³, and 255,000 m³, respectively) in 2007 while all other countries more or less maintained 2006 levels. It is expected that production will decrease slightly in 2008. Production declines are forecast, especially in the Nordic countries as well as the Baltic States, mainly as a result of weak export markets and reduced log availability. The increasing impact of the rising Russian sawlog export taxes was felt principally by Finland and the Baltic countries.

TABLE 5.2.1

Sawn softwood balance in Europe, 2006-2007
(1,000 m³)

	2006	2007	Change %
Production	112 902	114 969	1.8
Imports	41 149	43 105	4.8
Exports	49 624	48 676	-1.9
Net trade	8 475	5 571	-34.3
Apparent consumption	104 427	109 398	4.8
of which: EU27			
Production	100 895	102 868	2.0
Imports	38 143	39 954	4.7
Exports	48 272	47 400	-1.8
Net trade	10 129	7 447	-26.5
Apparent consumption	90 765	95 422	5.1

Source: UNECE/FAO TIMBER database, 2008.

At the same time, European consumption in 2007 totalled approximately 109.4 million m³, demonstrating strong growth of 5.0 million m³ (+4.8%). Over 87% of the total consumption can be attributed to the EU countries (95.4 million m³), which also accounted for 4.7 million m³ (93.7%) of the total European growth in consumption. With 2.2 million m³ (+42.8%), Sweden exhibited extraordinary growth in total sawn softwood consumption. The apparent consumption has to be qualified, however, as the Swedish sawmill industry has been confronted with historical peaks in stock levels (4 million m³ in April 2008 according to the European Organisation of the Sawmill Industry (EOS)). The reasons for these high stocks can be seen mainly in the recent capacity additions, as well as in the processing of the windthrown logs caused by the Per storm system in early 2007. High stocks have previously preceded fluctuating and declining prices. Otherwise, Slovenia's consumption increase was considered the highest on a relative basis (+152.7%), followed by Romania (+54.1%). Remarkable consumption growth was also observed in Finland (+950,000 m³), the United Kingdom (+830,000 m³) and France (+795,000 m³). On the other hand, Germany (nearly -800,000 m³), Austria (-380,000 m³) and Latvia (-370,000 m³) are countries with major consumption decreases in 2007, reflecting lower levels of building activity.

The domestic market still plays a major role for the European sawmill industry. However, the importance of exports has been increasing. Europe remains a net exporter of sawn softwood, with a trade surplus of approximately 5.6 million m³. Nevertheless, 2007 was the first time in several years that trade surplus significantly declined, by -2.9 million m³ (-34.3%). This was caused primarily by decreasing export volumes (almost -950,000 m³) in combination with a significant growth in imports

(almost 2 million m³). Although EU 27 countries also faced a drop in net trade of around 2.7 million m³ (-26.5%), these countries still record a higher trade surplus than Europe as a whole (7.4 million m³).



Source: Finnish Forest Industries Federation, 2008.

With an export volume of 11.3 million m³, Sweden maintained its position as the largest European exporter, although it recorded a decrease of almost 1.9 million m³ (-14.2%) compared with the record year of 2006. Sweden's 2006 production and export records were storm-related, and fortunately came when export markets were strong. In 2007, Germany was able to strengthen its position as the number two exporter, reporting growth of 460,000 m³ (+5.8%) to 8.4 million m³. Since domestic consumption dropped significantly in 2007, the German sawmillers were forced to enlarge their exports. Promising markets were found mainly in the UK and North Africa, where German exporters were able to successfully compete against the backdrop of relatively cheap raw material costs. Sweden and Germany were followed by Austria (7.6 million m³), exhibiting an increase of 14.1%, overtaking Finland (7.1 million m³), whose exports fell by 8.4%. These four countries dominate European exports, far ahead of the Czech Republic and Latvia, with Latvia recording decreasing export volumes for the second year in a row (-18.6%).

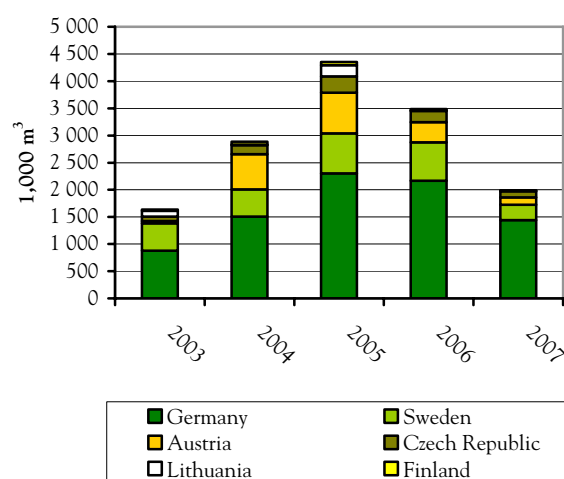
Among the principal importing countries, Spain (+536,000 m³), the UK (+513,000 m³), and the Netherlands (+495,000 m³) increased their volumes, whereas Germany (-1.1 million m³) recorded a major drop in its import volumes. The EU countries' imports totalled almost 40.0 million m³ (+4.7%) in 2007 and remained the most important importers, accounting for around 92.7% of total European imports.

After European exports to the US had already decreased by 17.8% in 2006, they further dropped considerably (-54.4%), totalling less than 2.0 million m³ in 2007 (graph 5.2.1). This was mainly due to the economic downturn (the subprime mortgage crisis that affected housing activity) and falling sawnwood prices that had a negative impact on European imports. Unfavourable currency developments and higher freight costs also put European imports under pressure. However, at 1.4 million m³ in 2007, German exporters were able to strengthen their leading position, accounting for 72.3% of all European exports to the US. More surprisingly, this trend intensified in the first four months of 2008, with Germany's export volumes recording an increase of 35.0% (almost 131,000 m³) over the same period in the previous year.

In contrast to Germany, all other major exporters documented significant declines to the US. There were several reasons for the success of German industry in this regard. First, major German exporters were committed to fulfilling long-term sales contracts. In addition, they had established long-term relationships with US customers and have exhibited greater flexibility in pricing against the backdrop of lower raw material costs than their competitors.

GRAPH 5.2.1

Sawn softwood exports to the US from selected European countries, 2003-2007



Source: Foreign Agricultural Service, US Department of Agriculture, 2008.

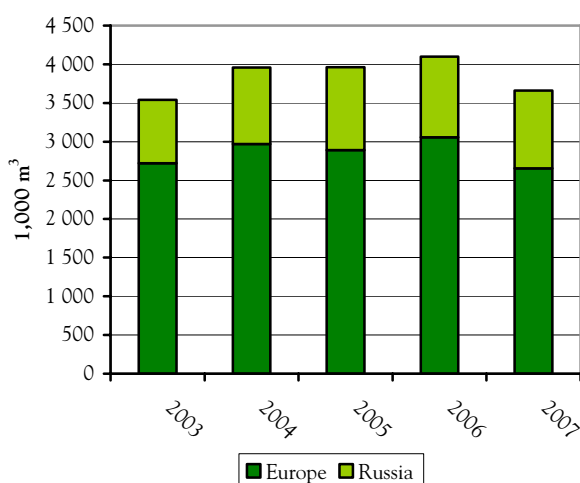
In 2007, European shippers also faced an unfavourable market situation in Japan, primarily caused by declining housing starts as a result of new housing permit regulations. In addition, the competition among the European exporters was intense as more and more producers turned their attention towards Asia in order to redirect sawnwood originally intended for the US market.

As a result, European exports to Japan decreased by 13.1% to 2.6 million m³ (graph 5.2.2). Despite a significant decline of 15.9%, Finland strengthened its leading position, exporting 1.0 million m³. Sweden's exports to Japan decreased by 24.3%, down to 689,000 m³, while Austrian exports rose by 9.9%, up to 434,000 m³. Romania has emerged as a leading European supplier to the Japanese market, with export volumes to Japan of approximately 210,000 m³, up 5.2%.

Against the background of the difficult market situation in both the US and Japan, central European shippers turned their attention to other non-European export markets. The EU countries were able to increase their volumes significantly in North Africa, totalling almost 6.5 million m³ in 2007. Algeria is still the most important export destination for European shippers, accounting for more than 35% of total exports to that region, followed by Egypt and Morocco. In mid-2008, however, these markets were characterized by a slight oversupply situation, and Europeans increasingly competed with Russian and North American exporters. This applies as well to Middle Eastern markets, which are dominated by Russian supplies. However, European exporters – Romania, Slovenia and Austria, for instance – could significantly expand their exports. Saudi Arabia, in particular, has emerged as a “hot spot” for sawn softwood shipments in recent years, with EU exports totalling 882,000 m³ in 2007, and with Romanian exports accounting for almost one third of this figure as production levels and exports rose.

GRAPH 5.2.2

European and Russian sawn softwood exports to Japan, 2003-2007



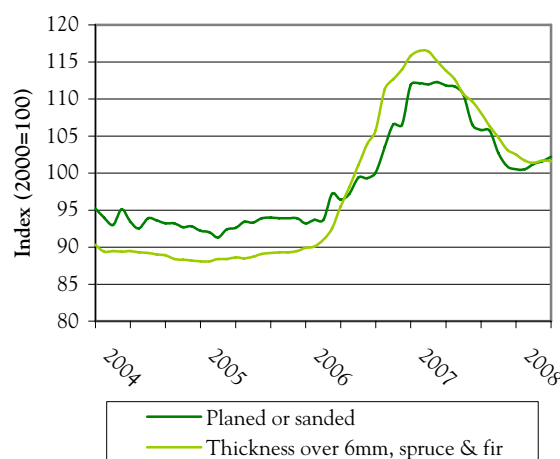
Source: Japan Ministry of Finance, 2008.

Capacity extensions and greenfield start-ups in central Europe have totalled around 6 million m³ of sawn softwood since 2005. However, the significant investment boom in the central European sawmill industry peaked during 2007. The installed sawmill capacities slightly exceed the harvesting potential, at least in some regions, and have caused a small oversupply of sawnwood. As a consequence, the European sawmill industry is expected to enter a phase of consolidation.

Following a very profitable year for most sawmills in 2006, 2007 turned out to be a challenging year, characterized by high fluctuations in prices and a comparatively weak market situation. For instance, the German prices for sawn softwood soared between the beginning of 2006 and April 2007 (graph 5.2.3). Against the background of the comparatively cheap raw material caused by the Kyrill storm system in combination with weak market environments, prices decreased significantly until the beginning of 2008, remaining at a relatively low level ever since. The slight oversupply of sawn softwood on the major markets is expected to continue throughout 2008 and negatively impact sawmill revenues. This situation has put some sawmills under financial pressure and industry consolidation is just one result that is expected throughout this cycle.

GRAPH 5.2.3

Sawn softwood prices in Germany, 2004-2008

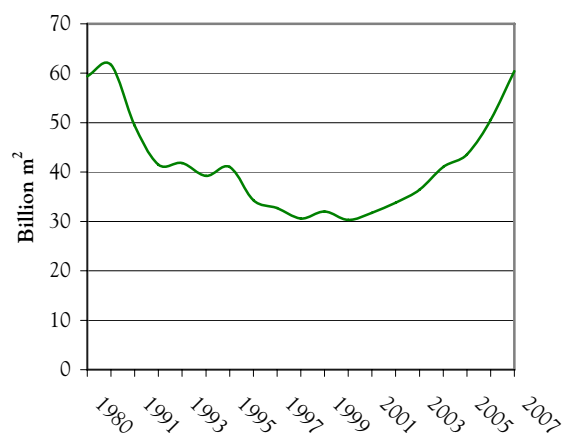


Source: Federal Statistical Office, Germany, 2008.

5.3 CIS subregion, focusing on Russia

Sawn softwood consumption has been rising in the CIS, especially in Russia, where positive economic growth has spurred a building boom over the past 10 years (graph 5.3.1).

GRAPH 5.3.1
Russian residential construction, 1980-2007



Source: Pöyry Forest Industries Consulting, 2008.

Exports of sawn softwood continued to climb, reaching a new record of 18.9 million m³ in 2007 (table 5.3.1). New export taxes on Russian sawlogs are meant to favour an expansion of domestic processing: If capacity exists, coupled with sufficient market demand, exports could increase in 2008, as forecast by the Timber Committee and International Softwood Conference in October 2007. Apparent consumption is estimated to have risen by 12%, and therefore production by 10%, as indicated below.

TABLE 5.3.1
Sawn softwood balance in CIS, 2006-2007
(1,000 m³)

	2006	2007	Change %
Production*	29 185	32 119	10.1
Imports	1 743	1 744	0.1
Exports	17 603	18 939	7.6
Net trade	15 860	17 195	8.4
Apparent consumption*	13 325	14 924	12.0

Note: * = secretariat estimates.

Source: UNECE/FAO TIMBER database, 2008.

The secretariat estimates in the above table can be explained as follows. The official statistics received in May 2008 for Russian production were acknowledged by the correspondent to be considerably underestimated. Analysts outside Russia attribute the underestimation to lack of reporting by predominantly small- and medium-sized sawmills, although some larger mills may not have all of their production data included by the time statistics have to be submitted. On the other hand, export statistics are judged to be more reliable, in part because exports are verified by importing countries. As exports have risen

faster than recorded production, official statistics have shown falling apparent consumption as reported in past *Reviews*, whereas the reality of rising housing starts indicated the opposite.

To portray more accurately the positive development of apparent consumption in the CIS, the secretariat used residential construction statistics for Russia. Graph 5.3.1 above shows the upturn in construction, and for the past five years, from 2003 to 2007, an average of 12% was calculated. This 12% increase was applied to the apparent consumption of the “base year” of 2003, and succeeding years were increased accordingly. This straight line increase is evident in the UNECE region apparent consumption graph at the beginning of this chapter. Without changing the official trade volumes for the CIS for 2003-2007, the production figures were estimated by working backwards from apparent consumption. Admittedly, neither the apparent consumption nor production estimates are perfectly accurate; however, they are more accurate than the decline in consumption reported in past *Reviews*. The following analysis of the Russian sawn softwood markets does not have any secretariat modifications to the statistics, and readers are cautioned to focus on the trends for production, and not on the absolute volumes. They should note that the tables in the electronic annex³⁶ contain only official statistics, and no secretariat estimates – therefore discrepancies exist in production and consumption for 2006 and 2007 between this chapter (which again are secretariat estimates) and the electronic annex tables.

Output of sawnwood in the Russian Federation in 2007 accounted for 23.1 million m³, of which 20.4 million m³ (88.3%) was sawn softwood and 2.8 million m³ (11.7%) sawn hardwood.

In 2007 production of sawn softwood increased by 4.6% as compared with 2006, and exports increased by 9.1%. Sawn softwood production is forecast to rise in 2008, in part due to new capacity which has been announced.

In 2007 the major destinations for sawn softwood and their shares of Russia’s exports in 2007 (2006 in brackets) were:

- CIS countries 27.3% (23%).
- Egypt 11.3% (15%).
- China 9.8% (10%).
- Baltic countries 9.5% (7%).
- Japan 6.5% (6%).
- Germany 4.5% (5.4%).
- UK 3.6% (4.2%).
- Others 27.5% (29.4%).

³⁶ www.unecce.org/trade/timber/docs/fpama/2008/table-list-2008.htm.

The Russian sawmilling industry has been adapting to increases in the log export tax schedule that supports more processing in Russia. A significant number of new sawmill investments were announced throughout 2007 and into the first half of 2008. These investments should increase Russian sawn softwood production and exports substantially in the years to come.

5.4 North America subregion

North American sawn softwood consumption fell sharply in 2007 to 107.1 million m³ from 122.2 million m³ in 2006 due to the ongoing collapse in US housing starts – this represented a decrease of more than 15.0 million m³ (-12.3%) from 2006 (table 5.4.1). The US accounted for over 82% of all North American sawn softwood consumption in 2007. Its demand is driven primarily by new residential construction – as determined by housing starts, interest rates and mortgage lending – as well as repair and remodelling activity. US apparent consumption was 88.1 million m³ in 2007 – a decline of 14.4 million m³ (-14.1%) from 2006, while Canada consumption was more stable at 19.0 million m³ (a decrease of 3.2%).

TABLE 5.4.1

Sawn softwood balance in North America, 2006-2007
(1,000 m³)

	2006	2007	Change %
Production	122 616	109 639	-10.6
Imports	38 986	31 515	-19.2
Exports	39 392	34 014	-13.7
Net trade	406	2 499	515.7
Apparent consumption	122 210	107 140	-12.3

Source: UNECE/FAO TIMBER database, 2008.

The US experienced a substantial economic downturn in the latter part of 2007, related to significant corrections in the residential housing sector. These current difficulties are a result of financial problems in the subprime mortgage market sector for residential housing, which is threatening the wider US economy and creating a large current account deficit. (These issues are relevant in that house price appreciation has increased consumer wealth and reduced consumer incentive to save).

Since housing starts are a key demand driver for wood products, plunging housing starts in the US have had a drastic impact on North American sawnwood consumption. From a peak of 2.07 million in 2005, housing starts plummeted to 1.35 million units in 2007 and the outlook for 2008 is for well below one million units. This halving of the number of housing starts is unprecedented and is having a huge impact on the sawmilling industry, imports and prices. While offshore

sawnwood imports have been reduced by half, US and Canadian producers continue to curtail production to meet declining US demand. More details on the US housing crisis and its ripple effects on the rest of the UNECE region, as well as a graph of US housing starts, are found in chapter 3.

Between mid-2006 and mid-2008, demand levels for sawnwood in the US have been dropping so rapidly that excessive supply has continued to build up, causing prices to plunge to below break-even levels for many (and at times all) commodity sawnwood sawmills. Sawnwood consumption will continue to be negatively affected for the rest of 2008 when the housing start cycle is expected to bottom out.

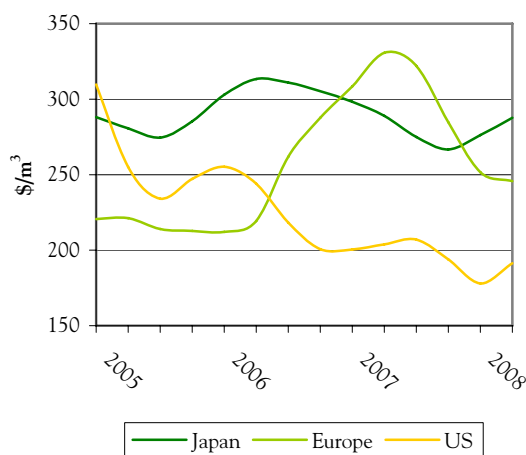
Weak demand, weak prices and excess capacity remain major concerns for sawnwood producers in North America, as well as for exporters from Europe and from around the world. The current three-year housing market collapse has caused up to one quarter of North American industry capacity to be curtailed or closed to accommodate the reduced demand levels. Much of this capacity reduction is tied to market conditions and should only be temporary. When demand starts to climb again, it is unlikely that sawmillers will see any early rise in prices as capacity is brought back into production to keep pace with demand.

Total US demand in 2007 was 14.4 million m³ (-14.1%) lower than in 2006 and 19.5% lower than in 2005. With a further reduction of up to 15% in demand expected in 2008, North American sawnwood prices are expected to remain at levels that are already their lowest since 1991 and have been at or below cost levels for much of the second half of 2007 and the first half of 2008 (graph 5.4.1).

Declining demand and lower prices meant lower production in North America. Output slumped by 10.6% to 109.6 million m³ in 2007, 13.0 million m³ lower than in 2006. The reductions were fairly evenly distributed between the US, at 6.8 million m³ (-15%) and Canada, with 6.2 million m³ (-13%). Further reductions have already occurred in the first half of 2008, during which output has been substantially lower (by approximately 19%).

US sawn softwood output in 2007 was 58.8 million m³ (-11.6%) as opposed to 65.6 million m³ in 2006. All producing regions of the US had double digit declines in 2007 as mill closures and curtailments were announced weekly. However, exports increased 10.2% (to 1.63 million m³) as the weak US dollar contributed to gains in all markets. US imports decreased by 19.5% (-7.50 million m³) in 2007 to 31.0 million m³ as compared with 2006, the greatest impact being felt by European exporters as volumes plummeted by 54.4% (-1.7 million m³).

GRAPH 5.4.1
Sawn softwood price trends in US, Europe and Japan,
2005-2008



Notes: Exporters' prices are for structural sawnwood (net sizes) in key markets. Japan: 2x4, J-Grade, FOB Japan. Europe: 47x100mm, carcassing, FOB Europe. US: 2x4, #2 & Better, delivered to Chicago. Currency fluctuations account for part of the European price drop.

Source: WOOD MARKETS Monthly Newsletter, 2008.

Canada's sawn softwood output in 2007 was 50.9 million m³ as compared with 57.1 million m³ in 2006. Production gains in the British Columbia (B.C.) interior region, due to the mountain pine beetle salvage programme in 2006, did not carry over in 2007 (as forecast) due to the weak US market. Production reached 24 million m³ (-7.0%) as compared with almost 26 million m³ in 2006, and a further decline is expected in 2008.

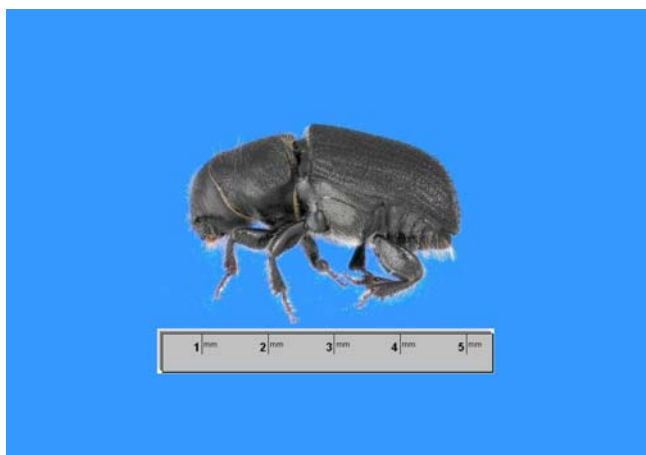
Reductions in eastern Canada totalled 3.0 million m³ (-13.7% in 2007 as compared with 2006). Canadian exporters to the US continue to face an export duty (under the Softwood Lumber Agreement signed in 2006) that was at its maximum level in 2007 (15% in B.C. and Alberta and 5% in the rest of Canada). The rate is higher when prices are lower and zero once price thresholds are exceeded. A few formal complaints have already been issued, with the first, brought against Canada by the US, addressed by the London Court of Arbitration in March 2008. Canadian exports to the US were reduced, falling by 6.0 million m³ or 17.3%, resulting in dozens of mill closures, both temporary and permanent.

The fact that North American mills have been operating during periods when prices are well below break even could be tied to various strategies or business factors that may result in even greater consequences if mills later decide to close to reduce immediate losses, for example:

- Sawmills owned by pulp companies need to keep operating to supply minimum volumes of wood chips, especially when these high-capital pulp-mill investments are operating at near-record prices. Some sawmills, therefore, must operate regardless of the current sawnwood market price.
- Both corporate and independent mills have contracts or obligations to consider with regard to log supply, from their own logging crews to log supply agreements. Giving up a log supply agreement also means it could be even more difficult for a mill to restart when market conditions begin to improve, since the log supply may be locked up by another mill.
- Many mills have longer-term market commitments with large contractual customers (e.g. Home Depot, Lowe's or other professional building materials dealers). Breaking contracts or letting down long-term customers in a weak market may come with a cost some companies are unwilling to risk.
- In considering mill downtime in weak markets, many mills need to be concerned about keeping their skilled workers, especially younger ones who are more mobile. With general unemployment levels very low in many parts of North America, taking downtime could further complicate mill start-ups if key skilled workers have moved on, especially if they have moved to higher-paying jobs at competitors' mills or in another industry.
- Fixed costs that need to be absorbed during a mill shutdown or curtailment can be very high (even prohibitive for shutting down), especially if bank loans need to be serviced through cash flow.

While it can be argued that operating sawmills at sizeable losses on every sale makes no sense, this appears to be one of the business models that has been adopted in these very difficult and unusual market conditions.

In B.C., the mountain pine beetle epidemic continues to ravage pine forests. The root causes of the current epidemic are related to the large tracts of mature pine timber now prevalent in B.C. (three times the volume and area of a hundred years ago, due largely to successful fire suppression) and milder winters (prolonged periods of minus 30-40 degrees Celsius have historically kept the beetle's population in check). Latest estimates indicate that more than 900 million m³ of lodgepole pine trees will be killed by 2017, representing some one third of the total volume of the B.C. Interior's timber harvesting land base. If all this timber could be converted into dimension sawnwood, it would be equivalent to building more than 15 million typical North American wood-frame homes (a 10-12 year supply).



Source: E. Vallery, 2008.

The mountain pine beetle has already crossed the Rocky Mountains into Alberta and attacked such species as jack pine, which constitute over 20% of the Canadian boreal forest. Although cold weather events are more likely in Alberta and eastward, the beetle has the potential to seriously threaten the entire Canadian forest industry. The tight supplies of higher quality pine have restricted B.C. shipments of J-grade dimension to Japan, allowing other suppliers to access this market, since prices have been firm or slightly higher. Total Canadian exports to Japan have dropped by 520,000 m³, or 19.8%



Source: M. Fonseca, 2008.

Since the start of 2007, the market for “green building” has quickly emerged, becoming a new business and expanding market in North America. From a foundation of about 2% in 2006, it is expected that builders will incorporate “green” practices into the development, design and construction of more than 40% of new homes by 2011. As in the early days of developing certified wood products, there is already controversy about sustainable design and resource efficient and

environmentally conscious construction methods and materials. Leading groups in the US are: Leadership in Energy and Environmental Design (LEED); Green Globes; and the National Association of Home Builders’ National Green Building Standard.

The early issues related to green building programmes include vague designations of environmentally preferable construction materials as well as variability in the standards. However, in a depressed market, many companies in the distribution channel will be moving quickly to adopt green building practices in order to gain a competitive advantage.

The 2008 outlook is for much lower North American sawnwood consumption as a result of depressed housing starts. An excess of domestic sawnwood capacity is expected to maintain very low prices that should force additional mills to be curtailed or closed down. Offshore imports are expected to maintain a small presence in the US market until a turnaround occurs, probably not until late 2009 at the earliest.

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Chapter 6

Significant downturn in US production and consumption, while China draws in hardwood logs from UNECE region: Sawn hardwood markets 2007-2008³⁷

Highlights

- Chinese purchases of hardwood logs from all over the UNECE region to secure supplies for its vast veneer slicing industry rose significantly in 2007 and is set to continue rising in 2008.
- Downturns in the US and European housing sectors, coupled with high inflation and rising fuel costs, continue to negatively impact demand and production of sawn hardwoods in 2008.
- In 2007, sawn hardwood production and consumption in the UNECE region fell by approximately 2.1%, down to 47.2 million m³ and 47.0 million m³ respectively.
- Production of sawn hardwood in Europe rose by 5.4% to a total of 16.1 million m³ in 2007, mainly due to a sharp recovery in Romania's production.
- Hardwood flooring production and consumption in Europe increased considerably in 2007, reaching record levels and marking a continuing trend in this sector, despite the ever-increasing competitive imports from Asia.
- European and American white oak increasingly dominate the global sawn hardwood market, and represented nearly 57% of all European hardwood flooring production in 2007.
- In 2007, sawn hardwood production in North America was 27.0 million m³, a fall of 6.9% from 2006, reflecting weak demand in the US, as well as increased competition from China for logs.
- Marginal increases in Russian sawn hardwood production, as well as reduced exports of hardwood logs, are indications that Russian log export taxes may already be working; Russia's important hardwood resource, combined with an 8.7% increase in sawn hardwood exports to Europe and China in 2007, means it is poised to become a global player in the hardwood trade.
- The influence of green building initiatives such as LEED and BREEAM is increasing as architects and builders specify certified temperate hardwoods to meet standards.
- The slow pace of certification in some areas, and increasing concern over illegally traded timber, means the effectiveness of public and private sector green procurement policies can be increased by focusing not just on rewarding the top performers through forest certification, but also by ensuring that uncertified wood does not derive from illegal forest operations.

³⁷ By Mr. Roderick Wiles, Broadleaf Consulting, UK.

Secretariat introduction

Once again the *Forest Products Annual Market Review* benefits from collaboration with the American Hardwood Export Council, and specifically its European Office, which once more selected Mr. Roderick Wiles³⁸, Broadleaf Consulting, to analyse sawn hardwood market developments in the UNECE region. He brings together a broad range of information and a wealth of experience as a specialist in hardwood marketing. Supporting information was supplied by Mr. Rupert Oliver³⁹, Forest Industries Intelligence Limited. Both Mr. Wiles and Mr. Oliver have presented their analyses at the Timber Committee Market Discussions, and they are both members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

We thank Mr. David Venables,⁴⁰ European Director, American Hardwood Export Council (AHEC), London, United Kingdom, for his continuing support of this chapter's production, as well as other collaboration between AHEC and the secretariat. Mr. Venables is also a member of the Team of Specialists and of the UNECE/FAO Forest Communicators Network. He too has spoken at the Timber Committee Market Discussions.

This chapter focuses on temperate hardwoods, although some passages also reference the competition with tropical hardwoods. Readers' attention is drawn to a more detailed analysis of tropical hardwoods in chapter 12.

6.1 Introduction

The downturn in the United States housing market, slowing economic growth in Europe and the US, the credit crunch, and rising manufacturing and energy costs, have all had an impact on the global trade in sawn hardwoods through 2007 and well into 2008. The effect of China as a major global market driver grew further, while hardwood secondary processors maintained their pursuit of less expensive labour around the world and investment and trading in the sawn hardwood sector continued to become increasingly geographically flexible.

³⁸ Mr. Roderick Wiles, Broadleaf Consulting, Milehouse Cottage, Chittlehampton, Umberleigh, Devon, EX37 9RD, UK, tel. and fax: +44 1769 540 092, e-mail: rod@broadleafconsulting.com, www.broadleafconsulting.com.

³⁹ Mr. Rupert Oliver, Forest Industries Intelligence Limited, 19 Raikeswood Drive, Skipton, North Yorkshire, BD23 1NA, UK, tel. and fax: +44 1756 796 992, e-mail: Rupert@sustainablewood.com, www.sustainablewood.com.

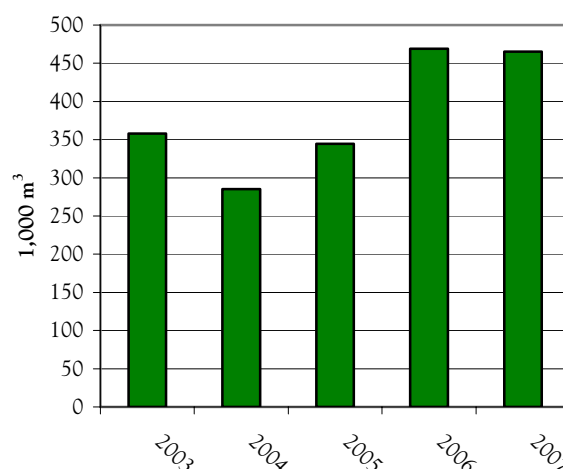
⁴⁰ Mr. David Venables, European Director, American Hardwood Export Council, 3 St. Michael's Alley, London, UK EC3V 9DS, tel. +44 20 7626 4111, fax +44 20 7626 4222, e-mail: David.Venables@ahec.co.uk, www.ahec-europe.org.

Through 2007 and into 2008, China, Viet Nam and neighbouring South-East Asian countries have maintained their expansion of production and exports of hardwood products other than furniture, which has continued to create a significant diversion of hardwood raw materials (both saw and veneer logs) away from traditional processors, as well as increasing competition in export markets for traditional sawn hardwood suppliers. The latest figures show that China exported some 465,000 m³ of sawn hardwood in 2007, which, although down by 1.1% over 2006, confirm a substantial increase over the previous years (graph 6.1.1). China's imports of hardwood logs in 2007 reached a record volume of 13.8 million m³, signalling a rise of 11.3% over 2006, and this was principally driven by its seemingly insatiable demand for raw materials for its massive veneer industry (graph 6.1.2). The drop in sawnwood imports was compensated by higher domestic production from imported logs.

Sawn hardwood production in 2007 across all three UNECE subregions amounted to a total of 47.2 million m³, which marks a decrease of 2.2% over the previous year. A rise of 5.4% in production in Europe, coupled with a rise of 3.3% in the Commonwealth of Independent States (CIS), was offset by a decrease of 6.9% in sawn hardwood production in North America. The increase in European production once again underscores how important the European hardwood resource is becoming to the world marketplace, with temperate hardwood species remaining in high demand throughout the UNECE region and beyond.

GRAPH 6.1.1

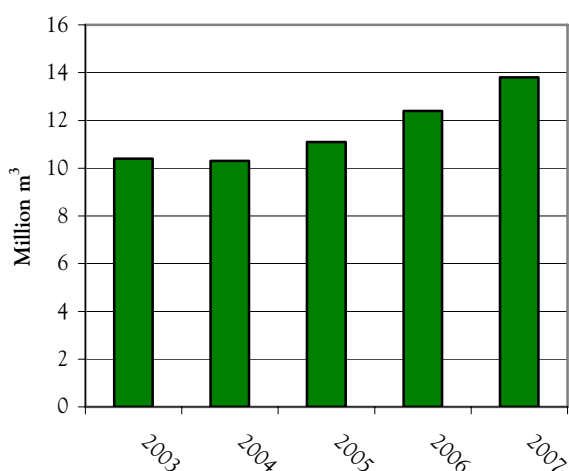
Chinese exports of sawn hardwood, 2003-2007



Source: Global Trade Atlas, 2008.

GRAPH 6.1.2

Chinese imports of hardwood logs, 2003-2007

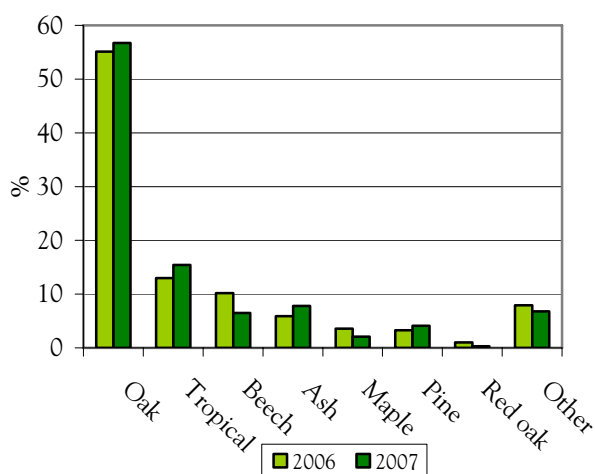


Source: Global Trade Atlas, 2008.

The trend for oak (European and, to a lesser, but growing extent, American white) remains dominant throughout the UNECE region, and the latest figures for European wood flooring production prove this by showing that 56.7% of all wood flooring was made from oak during 2007, an increase of 2.9% over the previous year (graph 6.1.3). In contrast to oak, demand for Europe’s main hardwood species – beech – in the UNECE region remains weak. However, exports of beech logs to China, in particular, have shown sustained and dramatic growth during the past two years, rising to 5.4 million m³ in 2007 from 3.8 million m³ in 2005.

GRAPH 6.1.3

European hardwood flooring species, 2006-2007



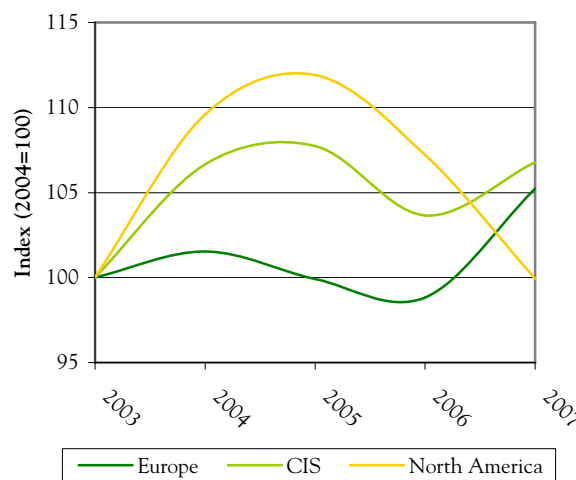
Note: “Other” includes species with less than 3% market share: cherry, birch, eucalyptus, acacia and chestnut.

Source: European Federation of the Parquet Industry, 2008.

Total apparent consumption of sawn hardwood in 2007 in the UNECE region fell by 2.1%, down to 47.0 million m³, from 2006 (graph 6.1.4). A significant decrease in North American consumption of sawn hardwood offset a noteworthy rise in consumption in Europe and a marginal rise in the CIS. The US furniture sector’s significant contraction, coupled with the housing oversupply situation and a difficult mortgage market, has strongly influenced American sawn hardwood production and imports. At the same time, however, sawn hardwood is becoming increasingly important to the building sector in Europe, despite a loss of demand by the region’s decreasing furniture manufacturing sector. There is no doubt that architects and other specifiers are turning towards hardwood as a fashionable and sustainable building and interior finishing material. Furthermore, hardwood flooring production in Europe continues to increase year on year, helping to offset a certain amount of the decline in furniture production.

GRAPH 6.1.4

Consumption of sawn hardwood in the UNECE region, 2003-2007

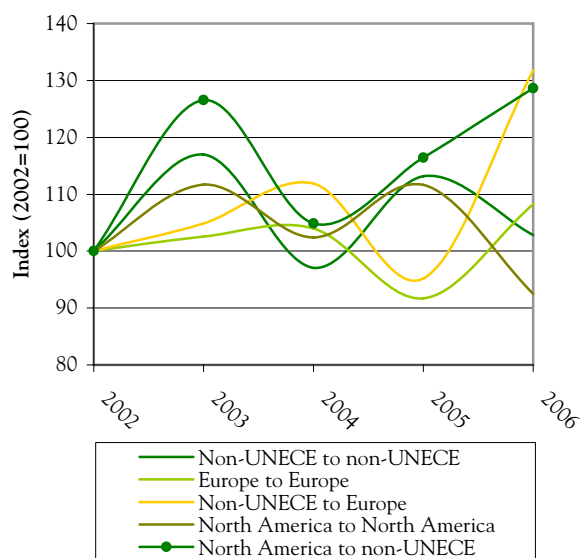


Source: UNECE/FAO TIMBER database, 2008.

Data for sawn hardwood trade flows in the UNECE region are not yet available for 2007, but some of the trends shown below are expected to have continued (graph 6.1.5). The most positive trend was from the non-UNECE region to Europe and this was dominated by tropical sawn hardwood suppliers shipping to European markets. Also experiencing growth was intra-European trade, as well as North American exports to non-UNECE region markets, which would have focused mainly on Asia.

GRAPH 6.1.5

Major sawn hardwood trade flows in the UNECE region,
2002-2006



Note: Corresponding trade flow table in electronic annex.

Source: UN Comtrade/EFI, 2008.

6.2 Europe subregion

Production of sawn hardwood in Europe reached 16.1 million m³ in 2007, a 5.4% increase over 2006 (table 6.2.1). This increase was partly accounted for by a sharp rise in Romania's production of sawn hardwood, which grew 20.1% over 2006 to reach 2.0 million m³. Following severe flooding in large areas of Romania in 2005 and the resultant problems in access to forestlands extending into 2006, production has once again gained momentum. Furthermore, the export of hardwood logs from other European countries to China has increased demand for Romania's sawn beech (and other species). Spain also saw a rise of 21.8% in production, significantly increasing its imports of hardwood logs.

Turkey remained the largest producer of sawn hardwood in Europe, with production reaching 2.4 million m³ in 2007. This volume is significant and has a marked impact on the statistics for the region as a whole. However, the reality is that most of the sawn hardwood produced in Turkey is from low-grade domestic forests, as well as small-diameter logs from plantations, with only a small percentage of output for export. A large part of the plantation resource is poplar, used for packaging in both sawnwood and veneer forms.

TABLE 6.2.1

Production of sawn hardwood in Europe, 2006 -2007
(1,000 m³)

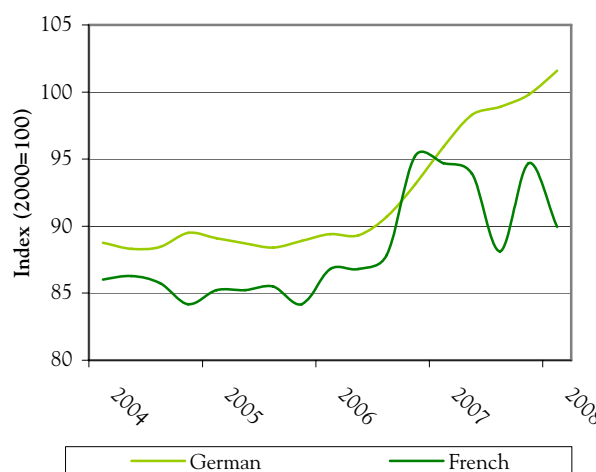
	2006	2007	Change %
Europe	15 305	16 125	5.4
of which:			
Turkey	2 368	2 373	0.2
Romania	1 644	1 974	20.1
France	1 943	1 890	-2.7
Spain	946	1 152	21.8
Germany	1 178	1 142	-3.1
Latvia	1 024	1 038	1.4
EU27	11 068	11 763	6.3

Source: UNECE/FAO TIMBER database, 2008.

Production of sawn hardwood in France continued its steady decline in 2007, while Germany's sawn hardwood production also fell after four consecutive years of growth. Sawnwood prices rose in Germany and after fluctuating in France, turned downwards in 2008 (graph 6.2.1). Some of the underlying reasons for this downward trend are similar to those for sawn softwood; these include fears of a shortage of raw materials and high log prices due to increased log exports to China, as well as lower demand due to reduced expectations in the European housing market, following recent trends in the US.

GRAPH 6.2.1

German and French beech sawnwood prices, 2004-2008



Sources: Centre d'Economie du bois and Statistischen Bundesamt Preise, 2008.

The increase in exports of European hardwood logs to China is causing a major diversion away from European sawmills. In fact, China imported some 553,000 m³ of beech logs and 207,000 m³ of oak logs from Europe in 2007, marking a rise of 69.7% and 3.5% respectively over the previous year. Furthermore, around 457,000 m³ of

China's imports of European beech logs came from Germany, increasing from 285,000 m³ last year. Looking to the future, a combination of the continuing rationalization (downsizing) of western Europe's furniture industries, low demand for beech from the flooring sector and changing consumption patterns among younger consumers can all be expected to influence the sawn hardwood sector, leading to lower production levels.

Unlike beech, demand for oak in Europe remained high and was underpinned by demand in the flooring sector, as well as high demand for barrels from the wine industry. However, the strength of the euro and the weakness of the dollar have meant that some industries have started to use American white oak in place of European oak and, in particular, demand for oak logs in South East Asia has largely come from the US in recent months.

Exports of sawn hardwood from and within Europe grew by 5.3% from 2006 to reach 5.9 million m³ in 2007 (table 6.2.2). This increase was almost entirely accounted for by a significant rise in Croatia's exports, which counterbalanced the declines in exports from Romania and Germany. In particular, a healthy intra-European demand for oak was maintained and Croatia has become a leading supplier of higher grade sawn oak in recent years.

TABLE 6.2.2

Sawn hardwood balance in Europe, 2006-2007
(1,000 m³)

	2006	2007	Change %
Europe			
Production	15 305	16 125	5.4
Imports	7 876	8 007	1.7
Exports	5 628	5 928	5.3
Net trade	-2 249	-2 079	...
Apparent consumption	17 554	18 204	3.7
of which: EU27			
Production	11 068	11 763	6.3
Imports	7 379	7 409	0.4
Exports	4 577	4 567	-0.2
Net trade	-2 801	-2 841	...
Apparent consumption	13 869	14 605	5.3

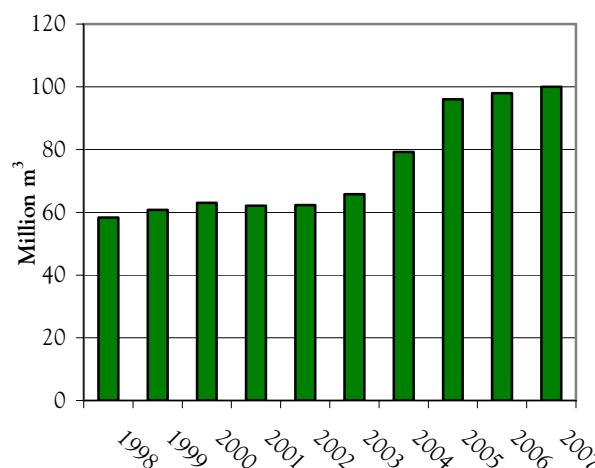
Source: UNECE/FAO TIMBER database, 2008.

Total apparent consumption of sawn hardwood in Europe grew to 18.2 million m³ in 2007, an increase of 3.7% over 2006. While the transfer of processing eastwards and imports of semi-finished and component products into the EU continued to increase, this trend was offset by two key sectors in the EU, where sawn hardwood consumption has been rising. One of the major market drivers in Europe has been hardwood flooring production, which grew substantially in 2007 (graph 6.2.2). Another has been the

relative strength of the European construction sector – despite overall poor economic performance – which has seen a rising interest in specifying hardwood as a building and interior finishing material.

GRAPH 6.2.2

European hardwood flooring production, 1998-2007



Source: European Federation of the Parquet Industry, 2008.

6.3 North America subregion

Production of sawn hardwood in North America was 27.0 million m³ in 2007, a fall of 6.9% from 2006 (table 6.3.1). While there was a decrease of 14.7% in Canadian production, the principal decrease was in the US, which accounts for 94.8% of all North American production (54.3% of UNECE region production). The downturn in 2007 was more pronounced than that of preceding years. The US hardwood industry underwent major restructuring and contraction during 2007, with the rationalisation of numerous hardwood production facilities and sales organizations, as well as a number of sawmill closures. Reduced demand for sawn hardwood in the US domestic furniture and flooring sectors continued to be a major influencing factor, while the overall situation was compounded by the downturn in the US housing market.

TABLE 6.3.1

Sawn hardwood balance in North America, 2006-2007
(1,000 m³)

	2006	2007	Change %
Production	28 997	27 009	-6.9
Imports	2 669	2 333	-12.6
Exports	4 198	3 551	-15.4
Net trade	1 529	1 218	...
Apparent consumption	27 467	25 791	-6.1

Source: UNECE/FAO TIMBER database, 2008.



Source: AHEC, 2007.

Hardwood log prices remained fairly high during 2007, reducing the profitability of the US sawmilling sector. Furthermore, domestic demand for red oak – the mainstay of the industry – declined considerably, causing numerous mills to shift to alternative species or to shut down production altogether. Another major factor reducing the processing of logs by sawmills in recent years, and particularly in 2007, has been the overall increase in exports of US hardwood logs. While exports of logs to Canada have, historically, been high, this trade has now begun to shift to a wide range of export markets all over the world. Total US hardwood log exports reached just under 2.0 million m³ last year and their main destinations (excluding Canada) were Asia and Europe. In fact, exports to North East Asia, comprising China, Hong Kong SAR, Japan, Republic of Korea and Taiwan Province of China, reached a total of 621,927 m³ in 2007, with 419,521 m³ imported by China and marking an increase of 42.0% over the previous year. At the same time, exports of US hardwood logs to the EU reached a volume of 452,953 m³ in 2007, rising by a substantial 65.2% over 2006. Part of the reason for the significant increase in trade has been the low value of the US dollar and the relative high value of the euro, which has made US hardwood logs far more competitive.

Exports of sawn hardwood from the US fell by 12.1% in 2007 to 2.7 million m³. With the exception of South

East Asia, all of the US traditional major markets bought less US sawn hardwood, with Canada down by 9.4% to 833,283 m³, the EU by 10.6% to 646,774 m³, China 22.6% to 499,412 m³ and Mexico 18.8% to 236,729 m³. In contrast, exports to South East Asia (Viet Nam, Thailand, Malaysia, Indonesia, the Philippines, Singapore, Brunei Darussalam, Myanmar and Cambodia) grew by 18.6% to 276,439 m³. The downturn in shipments to China and upswing in exports to South East Asia is indicative of how manufacturing is continuing to shift to countries where labour is most competitive, such as Viet Nam. It also reflects China's increased purchasing of US hardwood logs, rather than sawnwood. This growing trend is symptomatic of the way in which veneer is facing direct competition with sawn hardwood in Asia's furniture and flooring sectors, where more and more products are based on panels or layers, rather than solid wood.

Despite a downturn in both US production and exports of sawn hardwood, the relative importance of export markets remained high in 2007, with 10.7% of sawn hardwood production being shipped overseas. Although significantly higher than a decade ago, when exports accounted for just 7.5% of total production, it is lower than in 2006, when exports reached an all time high, at 11.4% of production.

Not unexpectedly, considering the downturn in the US housing market, imports of sawn hardwood to North America fell by 12.6% to 2.3 million m³ in 2007, having peaked at 4.0 million m³ in 2004. In 2006, this downturn was entirely due to the decrease in Canada's imports of sawn hardwood from the US, while US imports of sawn hardwood actually increased by 3.0%. However, in 2007 the situation was somewhat different. In fact, Canada's total imports of sawn hardwood actually grew last year – by 5.8% to 1.1 million m³ – while its imports from the US fell by 9.4% to 833,283 m³. Canada also imported a significant amount of tropical sawnwood. At the same time, US imports of sawn hardwood fell by 24.4% to 1.2 million m³, with significant decreases witnessed in purchases from Canada (down 41.6% to 481,942 m³) and South America, while imports from Europe and South East Asia remained fairly stable. In particular, decreases were seen in shipments from Brazil, Bolivia and Argentina, from where the US traditionally sources much of the tropical hardwood for its flooring industry, which has contracted significantly due to the overall negative situation in the US housing sector.

6.4 CIS subregion

During 2007, sawn hardwood production reached 4.0 million m³, equivalent to 8.6% of the UNECE region production, which marks a marginal increase over the 8.1% of 2006 (table 6.4.1). Production in the Russian Federation was 2.8 million m³ in 2007. Total CIS production is uncertain due to lack of statistics from some countries. Based on trends and analysis from market commentators in Europe and elsewhere, production of sawn hardwood in both Ukraine and Belarus has almost certainly increased in recent years and was probably in the range of 550,000 to 650,000 m³ in each country in 2007.

Although still low in relation to its hardwood resource, sawn hardwood production in the Russian Federation has increased steadily over the past five years. Indeed, sawn hardwood production is developing in line with efforts to boost overall wood processing in Russia, but the industry is not evolving rapidly. Significant Government incentives, coupled with both public and private investment in the sector, have helped to boost domestic log conversion, but Russia's exports of hardwood logs – both declared and illegal – have continued to increase in recent years, with rising demand from China and other markets. However, 2007 was a pivotal year for the Russian wood sector, with the introduction of the first of a three-phase log export tax. So far, official statistics show that exports of hardwood logs from Russia dropped by 3.4% in 2007 to 14.0 million m³, while its production of sawn hardwood rose by 4.8% to 2.8 million m³. Whether this is a direct impact of the export tariff or an indication of Russia's developing domestic wood processing industry is difficult to tell at this stage. However, it does seem clear that this is the beginning of a long-term trend.

While the picture is certainly changing, for the time being China's demand for hardwood raw materials continues to present a major disincentive to the development of sawn hardwood processing in Russia. In fact, official statistics report that China imported 4.6 million m³ of hardwood logs from Russia last year, up from 3.9 million m³ in 2006 and accounting for one third of all Chinese hardwood log imports. Among those working in the hardwood sector, the widely held view is that the actual volume of Russian hardwood logs shipped to China is much greater than the official figures, possibly as much as double the amount.

TABLE 6.4.1

Sawn hardwood balance in CIS, 2006-2007
(1,000 m³)

	2006	2007	Change %
Production	3 921	4 049	3.3
Imports	166	168	1.2
Exports	1 071	1 169	9.2
Net trade	904	1 001	...
Apparent consumption	3 016	3 048	1.0

Source: UNECE/FAO TIMBER database, 2008.

Demand for sawn hardwood imports from Russia and other CIS markets shows little consistency, with domestic resources, limited secondary processing capacity, and a lack of organization in end-user sectors playing the key roles. As a result, imports of sawn hardwoods by the CIS subregion were low once again last year, amounting to only 168,000 m³ in total. Although reliable statistics are not available, the main sawn hardwood importers in the CIS last year were Kazakhstan, Moldova and Tajikistan, and many of their imports would have been intra-CIS originating from Russia.



Source: AHEC, 2006.

6.5 The 2008 sawn hardwood market

6.5.1 UNECE region-wide

2007 was a year of significant adjustment for the UNECE region sawn hardwood market and early indications are that 2008 will present further challenges. China's role in the global sawn hardwood market is becoming ever more significant. Its burgeoning demand for hardwood logs is increasingly taking raw material away from traditional processors and traditional markets.

Chinese purchase of hardwood logs from all over the UNECE region to maintain feedstocks for its vast veneer slicing industry rose significantly during 2007 and is set to continue to rise during 2008. This trend is having a huge impact on the production and trade of sawn hardwoods throughout the UNECE region. Although China's exports of sawn hardwood decreased in 2007, they remained high and continued to compete directly with sawn hardwoods on the global market from the more traditional suppliers.

As has been referenced in other chapters, environmental issues are becoming an increasingly important determinant of competitiveness in some markets. There has been a noticeable shift in attitudes toward environmental timber procurement in recent years. The slow pace of certification in some areas, combined with increasing concern over the 8-10% of the world's traded timber believed to derive from illegal sources, has led to a growing realization that the effectiveness of public and private sector green procurement policies can be increased by focusing not just on rewarding the top performers through forest certification, but also by "weeding out the bottom", ensuring that uncertified wood does not derive from illegal forest operations that tend to be particularly destructive.

The need for suppliers of all wood products to demonstrate that they derive from legal sources came into sharp focus with passage by the US Congress of an amendment to the Lacey Act as part of the Farm Bill in May 2008. The new legislation means that it is now unlawful in the US to import or trade in timber and its derivatives harvested in contravention of the laws of any country. This new legislation, which carries with it a maximum fine of up to \$250,000 and a sentence of up to five years in prison, provides a strong incentive to US companies to assess and minimise the risk of suppliers delivering wood products from illegal sources. Similarly, in an effort to reduce imports of illegal wood into the EU, the European Commission is now developing a proposal for new legislation that would directly impose a requirement for due diligence with respect to wood purchases on European actors.

While these measures will tend to support those temperate hardwood suppliers able to provide PEFC- or FS-certified wood products, it is also encouraging the development of alternative mechanisms to demonstrate that wood is a low risk in terms of concerns about illegal supplies. For example the American Hardwood Export Council is pioneering an approach based on independent objective research to demonstrate low risk at a regional level. This approach is particularly appropriate to smaller non-industrial forest owners, who, due to fragmented

supply chains and relatively higher unit costs, often struggle to deliver independently certified wood.

EU policymakers continue to invest considerable time and effort into refining the details of public sector timber procurement policies. The governments of the Netherlands, Belgium, the United Kingdom, France, Germany, and Denmark have developed elaborate criteria for central government procurement of timber products. While these differ widely in terms of the variety of mechanisms that will be accepted as evidence of conformity, it is becoming increasingly clear that forest certification of one form or another will ultimately be the best method of assuring continuing access to central government building contracts, at least in Northern Europe.

At the same time, the influence of green building initiatives such as LEED and BREEAM in markets for temperate hardwood products is increasing as concerns with regard to climate change, energy costs and energy security encourage more governments to impose requirements for ratings under these systems, with the focus initially on public sector construction.

The overall impact of government procurement policies and green building initiatives needs to be put into perspective. At present, LEED construction projects are believed to account for no more than around 1% of total construction starts by dollar value in the US. Central government procurement is believed to account for less than 10% of overall timber demand in most European countries. Also, the effectiveness of these policies is undermined by inconsistent application between and within EU Member States. Nevertheless, these measures are taking on new significance as the sharp decline in private sector construction in many key markets, including the US and parts of Europe, has meant that public sector construction projects have become relatively more important. Since the overall market has declined this year, wood suppliers are becoming ever more conscious of the need to accommodate environmental concerns as a way of taking a larger share of a shrinking market.

6.5.2 United States

In 2007, the US sawn hardwood industry faced tough challenges and these are set to continue through the remainder of 2008. Loggers, sawn hardwood producers and end-users have all been hit by the recession. Housing markets remain depressed – new, single-family home sales in March were the lowest since October 1991, and were 40.3% lower in May 2008, than in the same month last year – remodelling activity has slowed, and commercial business is not adequate to keep the entire industry occupied. Consequently, a rebound in demand for

cabinets, flooring, furniture and millwork is unlikely in 2008. Market weakness has made it difficult for anyone in the supply chain to pass along energy and transportation cost increases, which, in some cases, amount to tens of thousands of dollars annually. In addition, truck and oceangoing vessel space shortages have crippled cash flow and caused order cancellations, while bankruptcies are hurting hardwood producers and wood products manufacturers alike.

Market commentators predict that relief appears to be at least 12 months away and that US sawn hardwood producers and sales organizations should operate under the assumption that demand will not improve before mid-2009. In the months ahead, sawmills are likely to continue to align production to weak demand, and it is expected that total sawn hardwood production for 2008 will be around 20% below the level achieved in 2007.

The downturn in domestic demand for sawn hardwood has also prompted many mills to invest more in developing their exports or even to look at export markets for the first time. While some companies have enjoyed success – specifically those producing white oak, which remains in high demand across the globe – it has been hard for others to tap into the trade in well-established markets. Furthermore, this strategy may only be of short-term use, as exports of sawn US species are showing a declining trend, which is not expected to reverse in the immediate future.

Some US companies have adopted the strategy of selling hardwood sawlogs to overseas markets as a way of ensuring a certain level of cash flow. This also eliminates the need to find markets for the lower grades of sawnwood that they cannot export. The result of this, however, has been that hardwood log availability has been under increased pressure and export markets for sawnwood are being undermined.

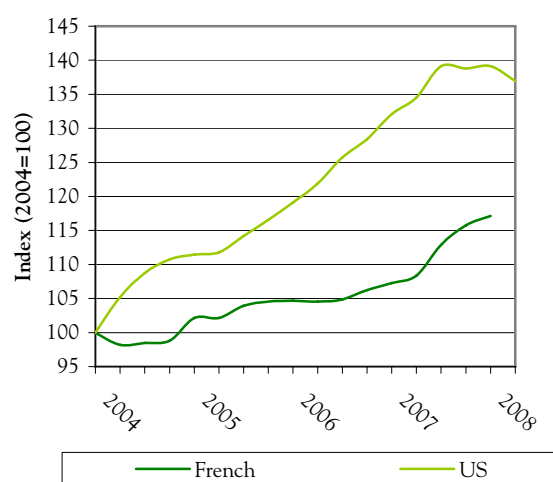
American white oak is now one of the few species keeping the US hardwood industry afloat. With domestic and export demand for almost all other species down, white oak production and exports have become the mainstay of the industry. Some 19.4% of all US sawn hardwood exports were in white oak last year and this trend has continued into the first quarter of 2008 (graph 6.5.1). Since the beginning of this year, in particular, the strength of the euro and weakness of the dollar have also aided this trade, with American white oak often becoming far more affordable than European oak.

American red oak has also benefited from increased global demand, as well as from the current exchange rate situation. Through the first four months of 2008, US exports of sawn red oak remained stable, if not slightly higher than the same period in 2007. With the exception of hickory and tulipwood, this is the only species in which

a decline in exports was not seen during the first part of 2008. Some manufacturers in Asia and Europe have switched to red oak for reasons of appearance and/or price, but future demand for this most important of US species still remains uncertain.

GRAPH 6.5.1

French and US white oak sawnwood prices, 2004-2008



Sources: Centre d'Economie du bois and *Weekly Hardwood Review*, 2008.

6.5.3 Europe

In Europe, the sawn hardwood sector faces many of the same problems as in the US. However, the issues are, as yet, far less pronounced and there remains a level of buoyancy within the hardwood flooring sector, as well as increased specification of sawn hardwoods in construction. There is little doubt, however, that the credit crunch has forced a downturn in the European housing sector, while high inflation and rising energy and food costs are also having a negative impact on demand for furniture, joinery and other sawn hardwood products. Market commentators believe that overall demand for sawn hardwood in Europe will fall significantly during the remainder of 2008 and that this trend could continue well into 2009.

Demand for hardwood flooring in Europe is also likely to decrease over the coming months. Thanks to the continuing and focused efforts of European flooring producers (especially in the areas of quality, innovation and design) and other stakeholders involved, the European Federation of the Parquet Industry reports that the European market for hardwood flooring is currently sound, but that it will start to face some major challenges later in 2008. These include the downturn in the construction sector, ever-increasing and fierce competition (not least from emerging low-cost Asian markets), the growing number of pan-European mergers and takeovers, and market access to wood raw materials.

6.5.4 Russian log tariffs

One other major influencing factor in the UNECE region sawn hardwood market is the recent and planned augmentation of export tariffs on Russian logs, both hardwood and softwood. This has been designed to help boost Russian sawn hardwood production over time and is likely to add to the competition for sawn hardwood market share for other traditional suppliers. Furthermore, it is likely that much of the sawn hardwood eventually produced in Russia will be through joint ventures with foreign investment. With China so dependent on imports of Russian hardwoods, Chinese wood processors are being urged by the Chinese Government to look at the possibility of moving wood processing to Russia. These taxes will also serve to improve global market conditions for other hardwood log exporters.

In April 2008 Russia implemented a further increase in its tariff on unprocessed logs, increasing the tax from 20% of value to 25%, with the minimum tax increasing from €10 per cubic metre to €15. The next stage in this process is a jump in the export tariff to 80% of value, or a minimum of €50 per cubic metre, scheduled for implementation in January 2009. While there is speculation that Russia may delay implementation of this tax, and/or provide exemptions for companies investing in processing projects in Russia, some changes in global forest product markets are already apparent.

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Chapter 7

Markets in Europe and North America experience diverging trends: Wood-based panels markets, 2007-2008⁴¹

Highlights

- The European panel industry had a promising start in 2007, but a disappointing end of year as construction-related demand slowed; 2008 has proven challenging due to increasing costs and regulations as well as concerns for raw material availability.
- Escalating petroleum costs not only add transportation costs, but also raise resin costs, for all manufacturers of wood-based panels.
- North American panel production and consumption were strongly affected by the United States housing collapse, with demand projected to remain weak throughout 2008; the resulting closure of sawmills in the western US and Canada caused raw material constraints for composite panel manufacturers.
- During 2007, the North American structural panel industry closed 11 mills, but opened three, resulting in a net capacity loss of 2 million m³, bringing capacity utilization down to its lowest level since the early 1990s.
- Production of panels within Russia is forecast to increase substantially in 2008, with new production capacity and increasing domestic consumption linked to rising residential construction.
- Lower consumption in the US, together with the weak dollar, led to a 27% drop in panel imports, with the largest drop being OSB imports from Canada; conversely, the weakened dollar helped US panel exports, which rose 6%.
- Europe remained a net exporter of particle board, MDF and OSB, despite increasing competition and the strengthening of the euro relative to the US dollar.
- Recognition of “harvested wood products”, including panels, as carbon stores as measured in the Kyoto Protocol could help to increase their use within green building programmes.
- The California Air Resources Board formaldehyde emission regulations will cause panel manufacturers to modify panel products exported to the US.
- Extra-European plywood imports continued to boom, while lower priced imports coming from China and Brazil are constrained by duties and quotas.

⁴¹ By Dr. Ivan Eastin, University of Washington, US, Ms. Bénédicte Hendrickx, the European Panel Federation, Belgium, and Dr. Nikolai Burdin, OAO NIPIEIllesprom, Russia.

Secretariat introduction

The secretariat sincerely thanks once again the authors of this market analysis on the wood-based panels sector in the UNECE region. Dr. Ivan Eastin,⁴² Director, CINTRAFOR, coordinated the chapter's production and analysed the North American markets. He will present the results of the chapter at the joint UNECE Timber Committee and FAO Forestry Commission Session Market Discussions at European Forest Week on 21-22 October 2008 in Rome.

Ms. Bénédicte Hendrickx,⁴³ Economic Adviser, European Panel Federation (EPF), wrote the European analysis, based primarily on the EPF *Annual Report, 2007/2008* and the *Annual Report, 2007/2008* of the European Federation of the Plywood Industry. Ms. Hendrickx presented the analysis of this chapter in 2007 at the joint Timber Committee and International Softwood Conference Market Discussions. At times the EPF statistics differ from UNECE/FAO TIMBER database statistics because of their 11-country European grouping, versus the 41-country Europe subregion of the UNECE; however the trends are consistent.

Dr. Nikolai Burdin,⁴⁴ Director, OAO NIPIEllesprom, contributed the section on Russian panel markets. Dr. Burdin is the former Chairman of both the Timber Committee and the FAO/UNECE Working Party on Forest Economics and Statistics.

These three specialists have contributed to this chapter for the past few years, and we welcome continued collaboration with them. They are members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

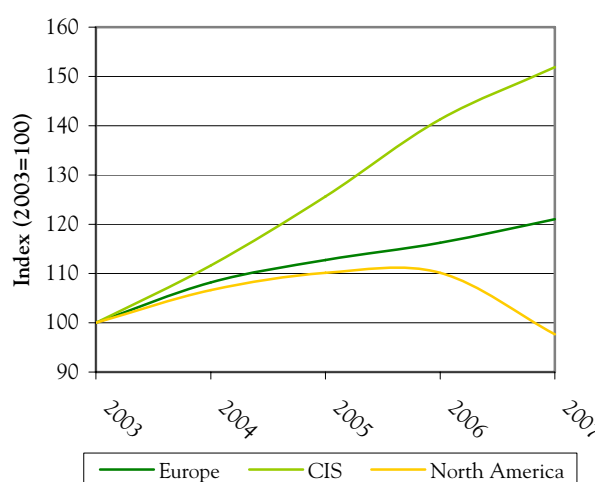
7.1 Introduction

There has been a strong divergence between the wood-based panel markets of Europe and North America. The housing crisis and weak dollar adversely impacted the panel sector in North America, with production and consumption both declining by over 10% (graph 7.1.1.). In contrast, steady economic growth in Europe resulted in increased production and consumption of panels. This positive trend was particularly evident in the CIS region,

and is also applicable to trade. While the same trends are predicted to continue into 2008 in North America and the CIS, European manufacturers face weaker markets in 2008. High energy costs will continue to impact panel manufacturers in the form of higher transportation and resin costs. In addition, increasing competition for wood materials such as sawdust and wood chips will continue to increase wood raw material prices. This trend is exacerbated in North America by the closure of a large number of sawmills that have traditionally been key suppliers of sawdust, woodchips and shavings to the panel industry.

GRAPH 7.1.1

Consumption of wood based panels in the UNECE region, 2003-2007



Source: UNECE/FAO TIMBER database, 2008.

The market outlook was different with respect to international trade in panels. The continued weakness of the US dollar relative to the euro and the Canadian dollar provided US panel manufacturers with a competitive advantage in offshore markets as well as in Canada. The biggest impact of this change has been the sudden decline of Canadian exports into the US, whereas US exports to Canada began to surge in 2007 and have continued to do so into 2008. Increased consumption in the European Union (EU) and CIS regions should translate into a substantial increase in intra-European trade in 2008 (graph 7.1.2).

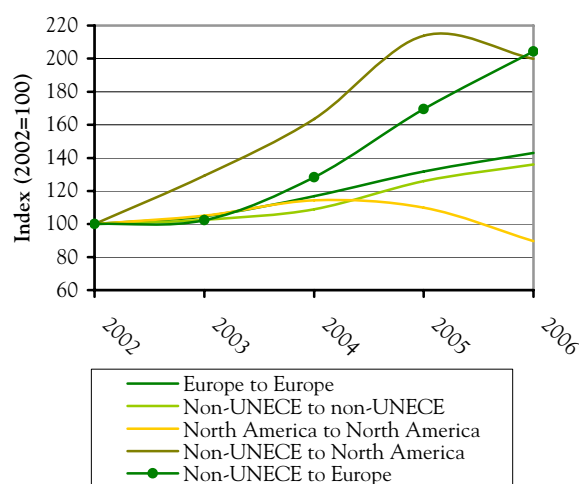
⁴² Dr. Ivan Eastin, Director, CINTRAFOR, University of Washington, Seattle, Washington, 98195, US, tel: +1 206 543 1918, fax: +1 206 685 3091, e-mail: eastin@u.washington.edu, www.cintrafor.org.

⁴³ Ms. Bénédicte Hendrickx, Economic Adviser, European Panel Federation, 24 Rue Montoyer boîte 20, 1000 Bruxelles, Belgium, tel: +32 2 556 25 89, fax: +32 2 287 08 75, e-mail: benedicte.hendrickx@europanel.org, www.europanel.org.

⁴⁴ Dr. Nikolai Burdin, Director, OAO NIPIEllesprom, Klinskaya ul. 8, RU-125889 Moscow, Russian Federation, tel: +7 095 456 1303, fax: +7 095 456 5390, e-mail: nipi@dialup.ptt.ru.

GRAPH 7.1.2

Major wood-based panels trade flows in the UNECE region, 2002-2006



Note: Corresponding trade flow table in electronic annex.

Source: UN Comtrade/EFI, 2008.

7.2 Europe subregion

Overall, 2007 was once again a positive year for European panel producers. The year started on a promising note, although manufacturers faced a weakening market situation throughout the year. During the first months of 2007, construction activity confronted a downturn that affected the furniture industry as the year progressed. In particular, western European countries experienced the side effects of the global macroeconomic deceleration and the financial crisis in the US. In eastern European countries, the construction industry continued to catch up, underpinning demand for panels and furniture. Nonetheless, the worsening macroeconomic situation in western Europe tempered overall European panel demand substantially, particularly during the last quarter of 2007.

European production of panels increased by 2.8% in 2007 while consumption increased by a strong 4.1% (table 7.2.1). Net trade remained positive, with both exports and imports increasing. However, with increasing panel imports, net trade fell by one third. Extra-European imports benefited from the stronger euro, although some exporting countries' shipments were constrained by the duties discussed below.

Total European Union particle board production increased by 3.5% to reach 39.4 million m³ in 2007. This increase can be attributed to previous capacity expansions that became fully operational in 2007. Particle board demand, which surged in 2006, increased at the much slower pace of 2% in 2007, reaching 35.5 million m³. Intra- and extra-European trade, which had increased

markedly during the previous five years, declined substantially in 2007 due to weakening market demand. Nonetheless, Europe remained a net exporter of particle board, with a net trade surplus of nearly 3.9 million m³.

TABLE 7.2.1

Wood-based panel balance in Europe, 2006-2007
(1,000 m³)

	2006	2007	Change %
Production	72 436	74 433	2.8
Imports	31 281	34 396	10.0
Exports	33 929	36 165	6.6
Net trade	2 649	1 769	-33.2
Apparent consumption	69 788	72 664	4.1
of which: EU27			
Production	65 382	66 828	2.2
Imports	28 186	30 848	9.4
Exports	31 979	33 922	6.1
Net trade	3 794	3 074	-19.0
Apparent consumption	61 588	63 754	3.5

Source: UNECE/FAO TIMBER database, 2008.

Production and consumption of medium density fibreboard (MDF) in the EU have been increasing continuously over the last decade. In 2007, MDF production growth was a relatively moderate 2.5%, reaching 12.8 million m³. The production increase was easily absorbed by the market, as EU consumption of MDF increased by 8% in 2007. During the first half of the year demand for MDF was buoyant, as the high level of production activity in the furniture industry generated extra impetus. However, as in the case of particle board, demand for MDF slowed during the second half of 2007, with this trend continuing into the beginning of 2008. The EU continued to show a strongly positive trade balance for MDF in 2007 with a trade surplus of more than 3.4 million m³. However, as a result of the decline in construction activity in the US and the enhanced exports of North American producers, competition in overseas markets intensified.

The European oriented strand board (OSB) industry continued to expand throughout 2007, although the sector was affected by the housing decline in North America as well as by reduced demand in the second half of the year. According to the EPF, representing all European⁴⁵ OSB producers, OSB production increased in line with demand, with both growing by 6%. Production and consumption decelerated relative to previous years, despite the fact that OSB continued to be the strongest

⁴⁵ Belgium, Bulgaria, Czech Republic, France, Germany, Ireland, Latvia, Luxembourg, Poland, Romania, UK

growing segment within the panel market. Capacity increased by 15% and is anticipated to do so again in 2008. In absolute terms, European OSB production increased to more than 4.3 million m³ while the European market share of global OSB production reached 14%. European demand for OSB reached 3.6 million m³, an increase of 6% over 2006. Demand for OSB was much stronger during the first half of 2007. However, due to the weakening of construction activity and the fierce competition from North American OSB producers, demand declined substantially during the final quarter of 2007.



Source: Metsäliitto Cooperative, 2008

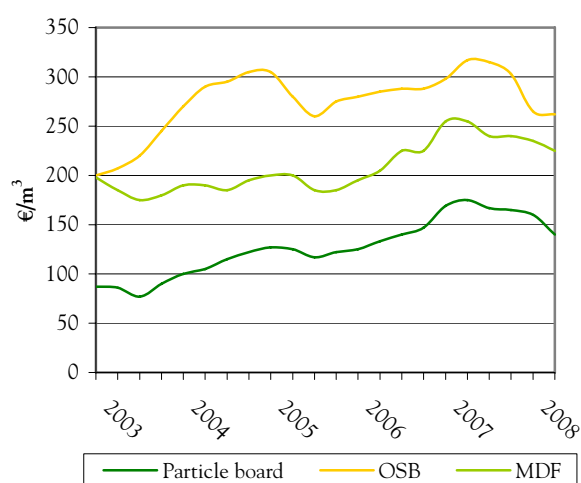
Plywood production continued to grow slowly in 2007 as the sector faced tough competition from overseas producers as well as domestic wood supply constraints. According to the European Federation of the Plywood Industry, plywood production (excluding blockboard) for their members⁴⁶ increased by 1.5% to reach 3.4 million m³ while, in line with previous years, demand increased at a much faster pace of 10%. Intra-European trade intensified though extra-European imports increased by 13.8% to reach 4.8 million m³. Among the primary foreign suppliers, imports from China registered the strongest growth at 38%. As a result, Chinese plywood imports exceeded 1.4 million m³ and China became the EU's largest foreign plywood supplier, despite the fact that the European Commission continued to impose anti-dumping duties of 66.7% on okoumé plywood of Chinese origin. The anti-dumping duties have been in place since 2004, and resulted in the EU importing less Chinese plywood classified under the tropical category and, to an increasing extent, plywood classified as broadleaved. Brazilian plywood imports increased by 18%, making

⁴⁶ Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Greece, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Ukraine.

Brazil the EU's second largest plywood supplier, ahead of Russia. Plywood imports from Russia increased at a more moderate rate of 5%. Plywood exports also recorded an increase, albeit at a lower rate, particularly in overseas markets, where European plywood producers face fierce competition from Chinese and South American producers.

UNECE/FAO monitored EUWID prices and observed that European panel prices for particle board, MDF and OSB rose until mid-2007, and then declined (graph 7.2.1).

GRAPH 7.2.1
European panel prices, 2003-2008



Source: EUWID, 2008.

The relatively positive trends observed in 2007 should be viewed within the context of serious challenges in the near future. Wood material availability improved temporarily in many countries in early 2007, in part due to windthrow from the January storm system Per. However, wood costs remained high. In addition, energy and transport costs increased at a steady pace following the strong upward trend in oil prices. The strengthening euro compared to the US dollar posed an additional challenge for European producers in international markets.

Wood availability, rising energy costs, the log export tariffs being imposed by Russia, and ever more stringent regulations on panel factories and products are the main challenges confronting European panel manufacturers in the near future. On the other hand, increasing recognition of the positive role panel products play in sequestering carbon within the framework of the Kyoto Protocol on climate change should provide a positive impetus for the consumption of panels.

The positive market situation is overshadowed by exceptionally high increases for nearly all cost factors, but

in particular for glues and wood raw material. Wood costs soared in 2005 and 2006 and continued to rise in 2007, increasing an additional 10%. The expansion of the biomass industry continued to drive up wood demand and therefore further tightened competition for wood raw material. Moreover, the general cost levels for raw materials is increasing worldwide. Costs for glues followed the strong upward trend in oil prices experienced in 2005 and 2006 and soared by approximately 20% in 2007, with further cost hikes reported in early 2008. Transport and energy costs followed the same trend. This evolution clearly presents a challenge for companies as they attempt to safeguard their competitiveness now and in the future.

7.3 CIS subregion (focusing on the Russian Federation)

Since the mid-1990s, production of panels in the CIS subregion, and particularly in the Russian Federation, has been increasing steadily (table 7.3.1). In 2007, production of plywood within the CIS region reached 3.1 million m³ (up 5.1%), with Russia contributing 2.76 million m³ to this total, an increase of 5.7% over 2006. More importantly, consumption of plywood within the CIS region increased by 22.3% (28.2% in Russia) relative to 2006, which can be attributed to the strong growth of plywood consumption in residential construction. Further growth in the production and consumption of plywood is expected in the CIS subregion, including Russia, in 2008.

TABLE 7.3.1

Wood-based panel balance in the CIS, 2006-2007

(1,000 m³)

	2006	2007	Change %
Production	11 550	12 401	7.4
Imports	3 481	3 629	4.2
Exports	3 150	3 284	4.3
Net trade	-331	-345	4.2
Apparent consumption	11 881	12 746	7.3

Source: UNECE/FAO TIMBER database, 2008.

There was also strong growth in plywood imports, mainly from China. Much of the increased demand for Chinese plywood imports was driven by the lower price of Chinese plywood relative to other foreign suppliers. Exports of plywood decreased by 4.7% in 2007 and the volume of plywood exports are expected to remain at a similar level in 2008. The major export markets for Russian plywood in 2007 included the US (16.5% of Russian exports), Germany (9.8%), Italy (6.6%), Egypt (6.4%) and the United Kingdom (4.9%).

Production of particle board exceeded 7 million m³ (up 9.1%), with Russia contributing 5.31 million m³, an

increase of 12.5% during 2006. The CIS subregion saw a 5.1% increase in particle board consumption. Exports of particle board from the CIS region grew by 26.5%, including a remarkable 61.8% increase in exports from Russia. The principal countries exporting particle board to Russia in 2007 included Germany, Poland, Belarus, China, and Ukraine. The main export destinations for Russian particle board producers included Kazakhstan and Uzbekistan. The Russian particle board industry is projecting that particle board production, export and consumption in the CIS region will all increase in 2008, while imports are expected to decline slightly, in response to new capacity expansion.

Total production of fibreboard (both hardboard and MDF) in Russia totalled 1.6 million m³ in 2007, including 739,000 m³ of MDF. In 2007, production of fibreboard panels increased by 8.7% relative to 2006, while the growth of MDF output was even greater at 14.8%. It is interesting to note that currently there are new MDF plants being constructed in areas of the CIS region in response to increased demand in the subregion, particularly within the residential construction sector. However, given the current shortage of domestic MDF production capacity, MDF imports are expected to continue rising. In 2007, imports of MDF into the CIS region totalled 958,000 m³ (up 9%) with imports into Russia totalling 676,000 m³, an increase of 13.2% over 2006. In October 2007 the Timber Committee forecast that consumption of MDF within the CIS region would increase to 1.8 million m³ in 2008 (up 23.5%), while in Russia consumption is expected to increase by 8.3%.

7.4 North American subregion

The downward spiral of the US housing market continued into mid-2008, with impacts of record mortgage foreclosures, a slowing economy, falling housing values and huge inventories of existing and new homes sitting unsold in the market, suggesting that the US housing market is not poised for recovery in the short term. Recent housing data show that the new housing inventory stands at 11 months while there is a 10-month inventory of existing homes sitting unsold on the market. This combination of factors will not only suppress new housing starts for the foreseeable future, but will also likely reduce consumer spending on repair and remodelling activities, thus reducing panel demand in the two largest consuming sectors in the US. Single-family housing starts, which fell from 1.8 million in 2006 to 1.36 million in 2007, are forecast to be below 1 million in 2008 for the first time in almost 40 years. Consumption of panels was down almost 11.3% in 2007 (table 7.4.1) and this weak demand for panels resulted in steep price declines (graph 7.4.1). Structural panel consumption in the new housing sector fell from 19.9 million m³ in 2006

to 15.2 million m³ in 2007, and is projected by the American Plywood Association (APA) to be only 11.5 million m³ in 2008 (APA, 2008).

TABLE 7.4.1

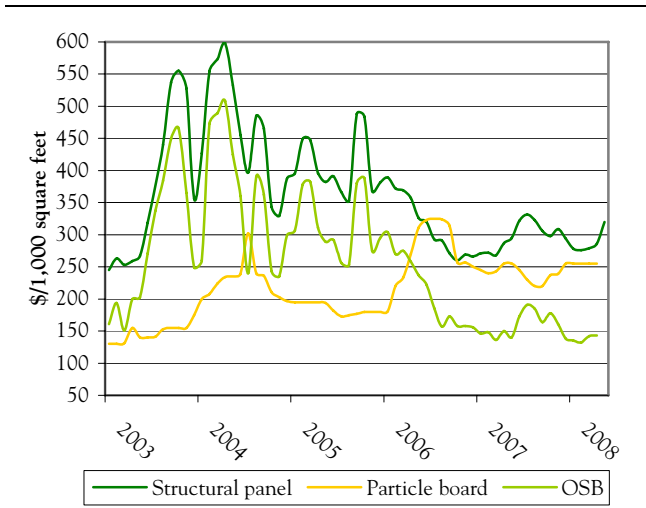
Wood-based panel balance in North America, 2006-2007
(1,000 m³)

	2006	2007	Change %
Production	61 992	55 736	-10.1
Imports	22 935	19 002	-17.1
Exports	15 206	12 895	-15.2
Net trade	-7 729	-6 107	21.0
Apparent consumption	69 721	61 843	-11.3

Source: UNECE/FAO TIMBER database, 2008.

GRAPH 7.4.1

US particle board, OSB and structural panel prices, 2003-2008



Source: Random Lengths, 2008.

Over the past 20 years, downturns in the US economy that have resulted in reduced panel consumption in the new housing sector have often been offset to some extent by increased consumption in the repair and remodelling sector. However, declining housing values have seriously affected homeowners' perceptions of their wealth and economic well-being. For the first time in almost 20 years, the value of existing homes has declined substantially in response to a massive market correction, further responding to the huge run-up of housing values that began in 2000. The Case & Schiller Home Price Index reported that the home price index jumped from 100 in 2000 to 226 in 2006 before the market correction in home prices caused the index to fall to 183 in April 2008. This rapid decline in home prices occurred just after many homeowners had refinanced their mortgages to tap into the equity of their homes that had resulted from the huge escalation in housing values. The combination of higher mortgages and

lower housing values has resulted in a record number of mortgage foreclosures, and homeowners are reluctant to spend significant amounts of money on repair and remodelling projects. Structural panel consumption in the repair and remodelling sector dropped from 7.8 million m³ in 2006 to 7.7 million m³ in 2007 and is projected by APA to drop to 7.6 million m³ in 2008.

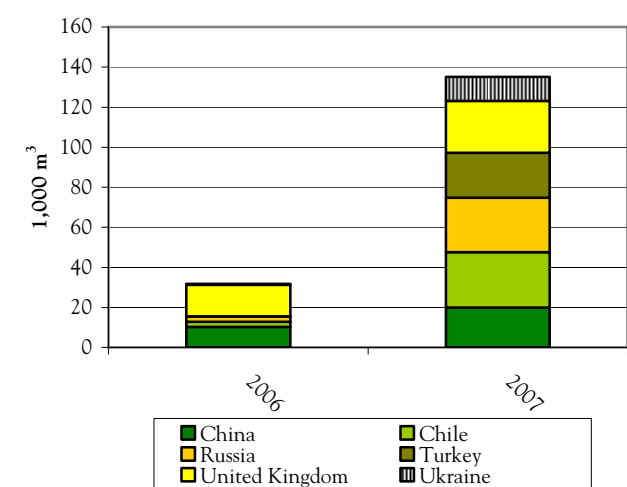
In contrast, structural panel consumption dropped only slightly in the industrial market segment, while it actually increased in the non-residential market. Both of these trends were the results of aggressive marketing efforts of panel manufacturers, especially OSB manufacturers, to expand panel use in these non-traditional market segments.

During the course of 2007, the structural panel industry witnessed the opening of two plywood mills and one OSB mill (all of which were located in the US), as well as the closure of four OSB mills (three in Canada and one in the US) and three plywood mills (all of which were located in the US). The net result of these production capacity changes was the loss of 675,000 m³ of plywood production capacity and the loss of 870,000 m³ of OSB production capacity. Given the weak market in North America, in 2007 structural panel manufacturers recorded their lowest levels of production capacity use since the early 1990's, 86% for both plywood and OSB manufacturers. More ominous for the industry will be the impact of substantial new additions in OSB capacity that are expected to come online in 2008 (estimated at 1.4 million m³), which is forecast to drop OSB production to just 68% of total production capacity in 2008.

The weak demand for structural panels, combined with overcapacity, led to prices for OSB falling to their lowest levels since 2001. In contrast, plywood prices increased substantially during the first half of 2007 before falling slightly during the second half of the year. To a large extent, the stronger performance of plywood can be largely attributed to the fact that only 21% of plywood consumption is due to new home construction in contrast to OSB, where almost two thirds of consumption is in the new home sector.

The combination of a weak US dollar and a weak domestic housing market resulted in a surge of OSB and non-structural panel exports from the US. With domestic demand down substantially, panel manufacturers have been increasingly looking to offshore markets, particularly new and emerging markets. Their efforts to increase exports have been aided considerably by the weakness of the US dollar, which, since 2002, has fallen by 23% against the Japanese yen, by 37% against the euro and by 44% against the Canadian dollar. For example, US exports of panels to new and emerging markets increased by 32.3% in 2007 relative to 2006, reaching 234,000 m³ (graph 7.4.2).

GRAPH 7.4.2
US exports of wood-based panels to growing markets,
2006-2007



Source: USDA Foreign Agricultural Service Online Trade Database, 2008.

The combination of the weak dollar and import tariffs reduced imports of plywood and OSB into the US from 14.6 million m³ in 2006 to 10.4 million m³ in 2007. Softwood plywood imports dropped by over 40%, reaching just 960,000 m³, with imports from Brazil declining by almost two thirds while imports from Canada dropped by 28%. Hardwood plywood imports dropped by about 15% to 3.4 million m³ in 2007, with the largest decreases occurring with imports from China, Malaysia and Indonesia, although substantial decreases were also recorded from Russia and Brazil. OSB imports from all countries declined to zero in 2007 with the singular exception of Canada, which recorded a drop in exports to the US of almost 3 million m³.

Production of non-structural panels (hardboard, MDF and particle board) declined by 6.8% in 2007, continuing a four-year decline that saw production decrease from 17.3 million m³ in 2004 to 14.3 million m³ in 2007. Production decreases were observed for all three product categories: hardboard (down 13%), MDF (down 1.9%) and particle board (down 5.6%). Continued weak demand led to the closure of three particle board mills (representing 540,000 m³ of production) and one hardboard mill (representing 28,000 m³ of production) in 2007. All of these mills were located in Canada and most of the closures occurred late in the year. In addition, one MDF mill located in the US closed in early 2008, representing 212,000 m³ of production. None of these mills has been dismantled and all are officially classified as intact and restorable.

Changes in end-use demand as well as the cost and availability of raw material inputs led to changes in the mix of non-structural panels between 2004 and 2007. The share of total panel production for particle board dropped

from 64.3% to 59.3%, while the share of hardboard declined from 8.2% to 7.6%. In contrast, the production share for MDF jumped from 27.5% to 33.1%. Raw material availability continues to present a challenge to producers of non-structural panels, particularly in the western US and Canada. Much of this shortage is attributed to the closure of sawmills in these regions, which were the major suppliers of wood material inputs for many non-structural panel manufacturers. In addition, as noted above, the entire panel industry has been affected by high oil prices that have resulted in rising transportation and resin costs, with some manufacturers reporting that their resin costs increased by 30-40% between 2006 and 2007.

Imports of hardboard, MDF and particle board, while down in 2007, did not display the significant declines observed for plywood and OSB. Imports of these panels declined by just 14.2%. Most of the decline in MDF imports can be attributed to Canada, while in the case of particle board it can be attributed to Mexico. Exports of panels increased by 24.7%, with virtually all of the increase attributed to increased exports of MDF and particle board into Canada. Particleboard exports to Canada, which jumped to 185,146 m³ in 2007, were a surprising development, since between 2000 and 2006 there had been no US exports to Canada.

On the regulatory front, the California Air Resources Board (CARB) recently placed formaldehyde emissions ceilings on particle board and MDF, as well as on value-added products containing particle board and MDF (e.g. furniture) that are sold or consumed in California. These regulations apply to domestically manufactured products as well as imports. Given the importance and size of the US, and particularly, of the California market, offshore manufacturers of MDF, plywood and particle board (and furniture built using these products) will need to meet these standards in order to maintain market access in California. This regulatory change will certainly result in increased demand for environmentally friendly, low-formaldehyde-emitting resins as well as product testing services, and will likely result in significant cost increases for foreign products that might further erode their cost advantage in the US market. The CARB emission regulations will be enforced in two phases. Phase I will enter into force on January 1, 2009. Phase II for particle board and (thick) MDF will enter into force on 1 January 2011 and Phase II requirements for thin MDF will enter into force on 1 January 2012. This regulation is expected to affect offshore producers much more than North American producers since industry experts feel that North American manufacturers are better positioned to comply with the CARB regulations. Given the fact that the California market represents 10% of panel demand in the US, it is quite likely that all manufacturers of panels will modify their production processes. This development is

particularly relevant since several other states are considering formaldehyde emissions regulations similar to those adopted in California. Finally, it should be noted that while the formaldehyde emissions issue is largely being handled at the state level, the Sierra Club has recently petitioned the Environmental Protection Agency to adopt the CARB regulation as a standard for the nation.



Source: APA, 2007.

In a recent survey of home builders conducted by the Center for International Trade in Forest Products (CINTRAFOR) at the University of Washington, a total of 210 builders were asked questions about their awareness and use of environmentally certified wood. The survey results indicated that overall approximately 40% of the builders reported that they were aware of certified wood, and just over one third (34.5%) of the respondents who were aware of certified wood reported that they had actually used certified wood. With regard to users of certified sawnwood, the average percentage of homes framed with certified sawnwood was just under 50%, and almost 15% of the builders reported that they framed all of their houses with certified wood. These survey results clearly demonstrate that a substantial number of home builders are aware of certified wood and many are already using it to build houses. Finally, a majority of the respondents reported that they expected their use of certified wood to increase over the next three years.

The increased use of certified wood is largely being driven by several factors, including the introduction of green building codes at the national and local levels, the response of builders to environmental concerns within specific communities, and a proactive effort on the part of builders to project a more environmentally conscious image. As a result, it is expected that use of certified wood in residential home construction will expand.

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Chapter 8

Pulp and paper markets peaking amid slowing economy, rising input costs, and erosion of profits:

Markets for paper, paperboard and woodpulp, 2007-2008⁴⁷

Highlights

- In mid-2008, pulp and paper prices were at or near historic peak levels, but global demand conditions were weakening.
- Industry profits were eroded in 2007 and 2008 as sharply higher energy costs led to higher prices for fuel, freight, pulpwood, recovered paper, chemicals, and other inputs.
- Expanding pulp and paper capacity in China is having a huge impact on paper and paperboard markets, and on global competition for wood, recovered paper, and pulp.
- United States net exports of paper and board surged, boosted by the weaker US dollar, while with a strong Canadian dollar net exports and output of paper from Canada declined.
- US recovery of paper for recycling and export of recovered paper reached record levels in 2007, and demand continued in 2008, with recovered paper prices reaching near record levels.
- Rising biofuel production and concern about bioenergy produced from food crops have been drawing industry attention to competition for wood-based biofuels, as well as to relationships among forest practices, food production, climate change and land use changes.
- The Russian Federation continued to experience growth in pulp, paper and paperboard output; however exports fell for the second year in 2007 as consumption continued to rise.
- Integrated forest product biorefinery concepts are being explored in Europe and North America as a means of obtaining optimal future recovery of energy and chemicals as well as conventional paper and pulp products from wood resources.
- In the aggregate, the European and North American demand for graphic papers receded, while the demand for packaging paper and paperboard increased.
- Paper demand increased in Europe but production levelled out as imports increased.

⁴⁷ By Dr. Peter J. Ince, USDA Forest Service; US, Prof. Eduard L. Akim, PhD, Saint Petersburg State Technological University of Plant Polymers, Russian Federation; Mr. Bernard Lombard, Confederation of European Paper Industries, Belgium; and Tomas Parik, Wood and Paper, A.S., Czech Republic.

Secretariat introduction

The secretariat greatly appreciates the continued collaboration with the four authors of this chapter on the pulp and paper market. Thanks to these regular contributors, the *Review* has an overview of paper, paperboard and woodpulp market and policy developments across the UNECE region. Dr. Peter Ince,⁴⁸ Research Forester, USDA Forest Service, deserves special thanks for coordinating the input from the co-authors, as well as analysing the North American developments.

In alphabetical order, we extend our gratitude to the other analysts, beginning with Professor Eduard Akim, PhD,⁴⁹ of The St. Petersburg State Technological University of Plant Polymers and The All-Russian Research Institute of Pulp and Paper Industry, who described developments in the Russian pulp and paper sector. Mr. Bernard Lombard,⁵⁰ Trade and Competitiveness Director, Confederation of European Paper Industries (CEPI), is well placed to analyse trends in western Europe. Mr. Tomáš Parik,⁵¹ Director, Wood and Paper, A.S., highlighted developments in central and eastern Europe.

The European analysis was aided by Mr. Eric Kilby, Statistics Manager, and Ms. Ariane Crevecoeur, Statistics Assistant, both from CEPI. Collaboration with trade associations such as CEPI not only helps with the analysis, but it also helps validate the database for pulp and paper markets. Readers should note that CEPI has a different European subregion than the UNECE. Therefore the authors are careful, when discussing Europe, to indicate whether it is CEPI's 20-countries, the EU27 or the UNECE European subregion of 41 countries. Due to some discrepancies between CEPI and UNECE/FAO definitions, the figures may vary slightly, but the trends remain the same.

⁴⁸ Dr. Peter J. Ince, Research Forester, USDA Forest Service, Forest Products Laboratory, One Gifford Pinchot Drive, Madison, Wisconsin, US, 53726-2398, tel: +1 608 231 9364, fax: +1 608 231 9592, e-mail: pince@fs.fed.us, www.fpl.fs.fed.us.

⁴⁹ Prof. Eduard Akim, PhD, Head of Department, The St. Petersburg State Technological University of Plant Polymers, The All-Russian Research Institute of Pulp and Paper Industry, 4, Ivana Chernykh Str., St. Petersburg, RF-198095 Russia, tel: +7812 53 213, fax: +7812 786 5266, e-mail: akim-ed@mail.ru.

⁵⁰ Mr. Bernard Lombard, Trade & Competitiveness Director, Confederation of European Paper Industries, 250 avenue Louise, B-1050 Brussels, Belgium, tel: +32 2 627 49 11, fax: +32 2 646 81 37, e-mail: b.lombard@cepi.org, www.cepi.org.

⁵¹ Mr. Tomáš Parik, Director, Wood & Paper a.s., Hlina 18, CZ-66491 Ivancice, Czech Republic, tel: +420 546 41 82 11, fax: +420-546 41 82 14, e-mail: t.parik@wood-paper.cz, www.wood-paper.cz.

8.1 Introduction

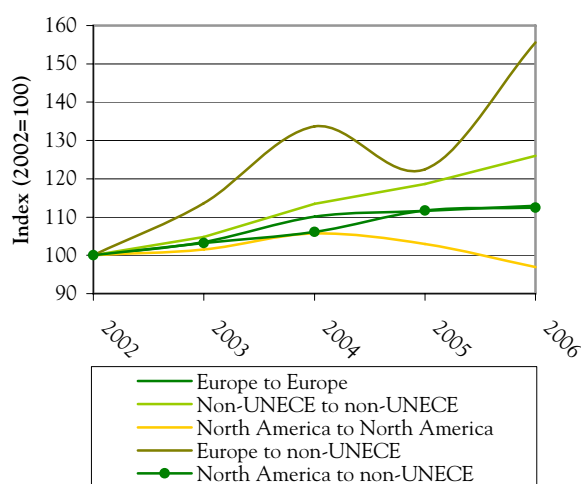
In 2008, the countries of the UNECE region accounted for about 55% of the world's production and consumption of paper and paperboard, and they produce nearly three fourths of the world's woodpulp, used to make paper and paperboard. Europe produces slightly more paper and paperboard than North America but less woodpulp, with European producers relying more on recycled fibre than producers in North America. The United States remains the world's largest producer and consumer of pulp, paper and paperboard. Outside the UNECE region, China is rapidly gaining ground as the second largest producer and consumer of paper and paperboard worldwide. Much of China's rapid growth is based on recycled fibre and imported pulp. Rapid expansion of Chinese pulp and paper production capacity is having a huge impact on paper and paperboard markets, and on global competition for wood, recovered paper, and pulp.

By mid-2008 prices in US dollars had climbed to near historical highs for market pulp and most paper and paperboard commodities, although prices in European and Canadian currencies increased only gradually as those currencies strengthened against the dollar. High prices and strong demands had improved industry profits going into 2007, but higher input costs eroded industry profits by 2008 despite rising product prices. Sharply higher energy prices and higher commodity prices led to higher costs for fuels, chemicals, fibre, and freight. By mid-2008, economic conditions suggested that pulp and paper markets were peaking amid a slowing economy, rising input costs, and erosion of profits.

Paper and paperboard trade flows had expanded in 2006 from Europe and North America to non-UNECE countries, but declined within North America, reflecting disruption of Canadian exports to the US as a result of the stronger Canadian dollar (graph 8.1.1). Meanwhile, trade flows of woodpulp within Europe increased and the trade flow of pulp from North America to Europe declined, reflecting again the negative impact of the stronger Canadian dollar on Canadian pulp exports (graph 8.1.2).

GRAPH 8.1.1

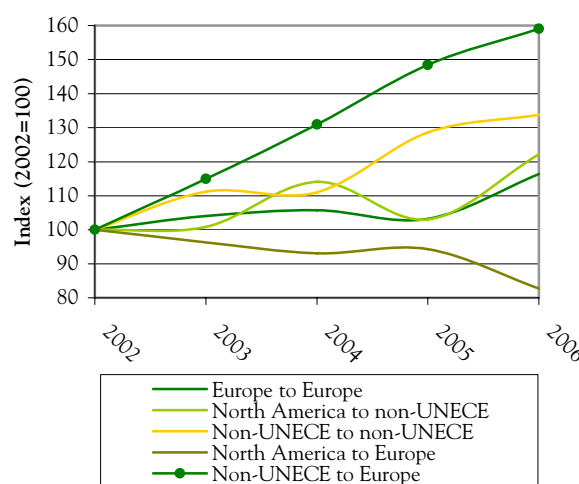
Major paper and paperboard trade flows in the UNECE region, 2002-2006



Note: Corresponding trade flow table in electronic annex.
Source: UN Comtrade/EFI, 2008.

GRAPH 8.1.2

Major woodpulp trade flows in the UNECE region, 2002-2006



Note: Corresponding trade flow table in electronic annex.
Source: UN Comtrade/EFI, 2008.

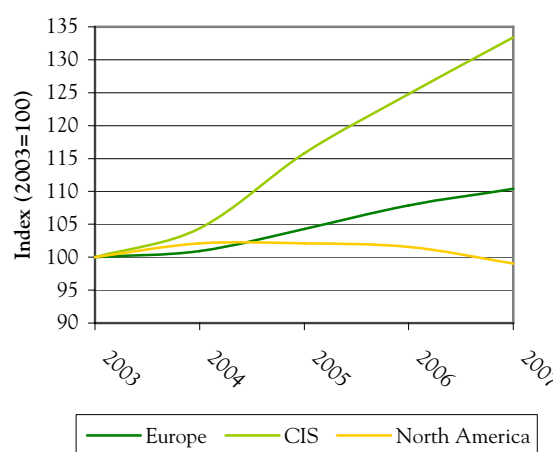
8.1.1 Weaker product demand, tighter fibre supply

Paper and paperboard demand conditions weakened globally in 2008. Global manufacturing conditions became increasingly stressed in 2008 as manufacturers faced record increases in average input prices and a slower growth outlook, according to the JP Morgan Global Report on Manufacturing (JPMorgan Chase, 2008). Fears of a slowing economy deepened in June 2008 as the Organization for Economic Cooperation and Development (OECD) in Paris slashed its forecast for global economic growth, citing sharply higher oil and commodity prices and cooling housing markets, projecting growth in OECD's 30 member countries slowing to 1.8% in 2008 and 1.7% in 2009, down from January forecasts of 2.3% and 2.4%. Growth in the US was projected to be slower (just 1.2% in 2008 and 1.1% in 2009). Demand for paper, paperboard and woodpulp closely follow GDP developments.

Paper and paperboard consumption indices for UNECE regions show higher growth rates over the past five years in the CIS region than in Europe or North America (graph 8.1.3), but the CIS region still consumes far less than Europe or North America. Slower growth in consumption was generally apparent in 2007, and preliminary data in 2008 indicate a slowing global economy and a slowing growth in demand for paper and board.

GRAPH 8.1.3

Consumption of paper and paperboard in the UNECE region, 2003-2007



Source: UNECE/FAO TIMBER database, 2008.

Despite weaker global demand, tighter fibre supply conditions were apparent globally in 2007-2008, with higher prices for market pulp and recovered paper, and also higher pulpwood prices in many regions. Higher fuel prices contributed directly to higher pulpwood harvest and transport costs. Higher ocean freight costs and enormous demands for imported fibre in China contributed to higher prices for woodpulp and recovered paper. Export tariffs on pulpwood from the Russian Federation were scheduled to increase significantly. Expanded wood pellet production resulted in expanded

competition for wood residues, while the decline in housing construction and sawnwood production in North America since 2005 have generally reduced wood residue supply. The apparent connection between biofuel production and food prices (e.g. higher corn ethanol production and higher corn grain prices) and the expansion of biomass energy production drew attention to potential future competition for wood fibre resources in biofuels for transport. Meanwhile, in both Europe and North America, integrated forest product biorefinery concepts are being explored as a future means of obtaining optimal recovery of energy and chemicals, as well as conventional products, from wood resources.

8.2 Europe subregion

8.2.1 European trade impacted by strong euro

Paper and paperboard consumption in the European subregion grew by 2.3% in 2007 to 100.4 million metric tons (m.t.), while a smaller increase in consumption (1.7%) was observed for the EU countries (table 8.2.1), and CEPI member countries⁵² also saw a smaller increase in demand (+1.2%). There was stagnation in European production of paper and board during 2007 compared with 2006 as net trade declined sharply for European producers.

TABLE 8.2.1

Paper and paperboard balance in Europe, 2006-2007
(1,000 m.t.)

	2006	2007	Change %
Production	108 344	108 298	0.0
Imports	60 255	65 629	8.9
Exports	70 502	73 559	4.3
Net trade	10 247	7 930	-22.6
Apparent consumption	98 097	100 368	2.3
of which: EU27			
Production	101 791	101 846	0.1
Imports	55 304	59 897	8.3
Exports	66 958	70 041	4.6
Net trade	11 654	10 144	-13.0
Apparent consumption	90 137	91 702	1.7

Source: UNECE/FAO TIMBER database, 2008.

The strength of the euro versus the US dollar but also versus other currencies during 2007 has heavily impacted trade developments. The strong euro has lowered profit margins on exported volumes and has increased the

pressure from imports to the European markets. The euro has gained 23% over the US dollar during the last two years, as was noted in chapter 3.

8.2.2 Growth in European paper production slows down

Growth in European paper and paperboard production flattened out at 0% growth in 2007 (table 8.2.1 above), and production of paper and paperboard by CEPI countries increased by only 0.4% in 2007. This represented another record level of annual production by CEPI countries, but relatively slower growth. Output of paper and board by CEPI countries has increased on average by 2.8% per annum since 1991 and by 1.6% per annum since 2000. With paper production capacity of CEPI countries at 110 million m.t. (down by 0.6% in 2007), the apparent operating rate for 2007 was 93.2%, 0.9 points higher than in 2006 (CEPI, 2008). This is a relatively high capacity utilization rate and helps explain why prices for paper and paperboard commodities remained relatively high in 2007-2008.

Production decreased in 2007 in the graphics sector but rose in packaging, sanitary and specialty paper grades. Similar trends occurred in North America, where demand has declined sharply for newsprint. The trends reflect shifts in graphic paper demands, such as higher growth in advertising expenditures for electronic media than print media, and changes in paper usage in offices and homes associated with electronic information technology. Overall output of graphic paper grades in CEPI countries fell by 0.6%. Production of newsprint fell by 1.5% to 10.8 million m.t., the lowest output since 2003. For the packaging sector, production increased by 0.4% among CEPI countries. The majority of this increase was in carton boards, where production rose by 1.8%. Output of case materials fell by 0.3%. Since only tonnage variations are being measured, it should be noted that these volumes are also affected by the continuing trend towards light-weighting (lower standard basis weights of paperboard products).

8.2.3 European paper consumption increases but so do imports

European paper and paperboard consumption increased by 2.3% (table 8.2.1 above) in 2007, while consumption in CEPI countries rose by 1.2%, reaching 90.1 million m.t., a record level. Imports to CEPI countries from non-CEPI countries increased to 5.1 million m.t. (+22.7%). Imports from Asia saw a rapid increase of 95.1% in 2007 and accounted for 13.4% of imports. Despite this increase in imports, CEPI countries maintained an overall positive trade balance in paper, with net exports of 12.4 million m.t. in 2007 (although net trade dropped from 13.5 million m.t. in 2006).

⁵² CEPI countries include: Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, the Netherlands and the United Kingdom.

In CEPI countries there was an increase in consumption of graphic grades of only 0.2% in 2007 when compared to 2006, and imports of graphic grades from outside CEPI countries rose by 32.0%, whereas exports to countries outside CEPI increased by only 0.1%. Consumption of newsprint by CEPI countries decreased to 10.4 million m.t. in 2007 (-4.6%). Demand for packaging grades increased by 1.8% compared to 2006. Demand for sanitary and household grades grew by 3.6%.

8.2.4 European pulp production decreased by 0.5%

Woodpulp production declined by 1.0% in 2007 for Europe as a whole (table 8.2.2). Among CEPI countries, output of pulp fell by 0.5% in 2007. Total European output of both integrated and market pulp in 2007 was 44.2 m.t. (table 8.2.2), and was 43.5 million m.t. among CEPI countries. Although overall pulp exports and imports increased within Europe (table 8.2.2), the exports of pulp from CEPI countries to countries outside the CEPI region fell to 2.1 million m.t. (-5.2%), with Asia representing the principal destination (59.7%).

TABLE 8.2.2

Woodpulp balance in Europe, 2006-2007
(1,000 m.t.)

	2006	2007	Change %
Production	44 609	44 164	-1.0
Imports	19 735	20 111	1.9
Exports	12 770	13 054	2.2
Net trade	-6 966	-7 057	1.3
Apparent consumption	51 574	51 222	-0.7
of which: EU27			
Production	41 687	41 347	-0.8
Imports	18 471	18 759	1.6
Exports	11 980	12 272	2.4
Net trade	-6 491	-6 488	-0.1
Apparent consumption	48 178	47 834	-0.7

Source: UNECE/FAO TIMBER database, 2008.

Apparent consumption of pulp in Europe declined to 51.2 million m.t. (-0.7%), and among CEPI countries fell slightly, to 49.6 million m.t. (-0.1%). Imports of pulp to CEPI countries fell to 7.8 million m.t. (-1.3%), with primary sources remaining Latin America (50.1%) and North America (38.9%), although imports from Canada became less attractive due to the stronger Canadian dollar.



Source: Finnish Forest Industries Federation, 2008.

Pulpwood supplies in Europe tightened, with increased competition for wood from the energy sector and subsidies for renewable energy production. Meanwhile, the Government of Russia decided that all timber destined for export (except birch of less than 15 cm diameter) would be subject to export duties as of July 2007 (see section 8.3.3). This has resulted in higher wood costs for the European pulp and paper industry – particularly for northern European countries – and decreasing wood trade volumes. It could ultimately have effects similar to an export ban, and is therefore a subject of serious concern for the European industry.

8.2.5 Utilization of recovered paper increased 1.4%

Consumption of recovered paper has continued to increase in Europe. Utilization was up in CEPI countries by 1.4%, reaching 49.6 million m.t. in 2007. Apparent collection of recovered paper increased, by 3.6%, to 58.2 million m.t. Exports of recovered paper to countries outside CEPI reached 9.6 million m.t., with 91.7% of this being sent to Asian markets. Within Asia, China was the principal destination, primarily because of a huge expansion in papermaking capacity in 2007. Woodpulp represents 41.6%, and recovered paper 42.7%, of the fibre used in papermaking in CEPI countries.

8.2.6 Eastern European entrance to European Union presents opportunity and challenge

Almost all of the countries of eastern Europe have entered the EU in recent years, and a number of countries in eastern Europe have been members of CEPI for some time, including the Czech Republic, Hungary, Poland,

and Slovakia. For these countries, EU membership appears to attract capital investment but also threatens overly broad EU policies and regulations.

Countries in eastern Europe have cost advantages in terms of energy, fibre and labour, as well as a growing demand for pulp and paper products. There are, of course, also threats to further development, such as distance to major markets, weak infrastructure, and capital availability. Existing capacities in these countries are still focused on exports. Most countries in eastern Europe are experiencing rapid appreciation of their local currencies. Together with globally increasing energy prices, the currency appreciation puts pressures on costs and significantly decreases export profit margins. This suggests the need to focus more on local markets, not only for economic reasons, but also because of the emerging ecological and social aspects of the industry.

The wood export tariffs from Russia currently have little influence on eastern Europe due to several local windthrow calamities that have boosted local supplies of pulpwood and wood chips. Nevertheless, a “domino effect” can be expected if the Nordic countries shift their demand for roundwood to other nearby countries outside of Russia.

As eastern European countries remain attractive to new businesses, the pulp and paper industry in some locations could begin to experience competition for labour and other pressures on infrastructure. Nonetheless, the pulp and paper sector within the region has clearly not yet reached its maximum potential.

8.2.7 *EU political developments related to pulp and paper*

At the EU level, the year 2007 was dominated by political discussions about climate change and bioenergy. In January 2008, an Energy and Climate Change package was issued by the European Commission. The package seeks to have the EU reduce greenhouse gases by at least 20%, and increase to 20% the renewable share of energy consumption, by 2020, as agreed by EU leaders in March 2007. Discussions have been ongoing since then, particularly on ways to raise the various targets and on the issue of burden sharing.

Implementation of the Emission Trading Scheme (ETS) in the EU has affected and will significantly affect the entire European pulp and paper industry, which will have to reduce emissions to meet the more restrictive emissions cap and support the corresponding costs. Direct and indirect effects of emission trading on the European pulp and paper industry can be expected, including purchase of CO₂ allowances and increased prices of energy and raw materials. Total cost of the ETS Directive for the European pulp and paper industry would be at a

minimum €2 billion per annum according to CEPI. The ambitious targets set by the Council of Ministers in March 2007 regarding the share of renewable energy (20% by 2020) will further increase the demand pressure on wood and woody biomass for biofuels. Recent studies have shown that wood supply will have to be substantially increased to meet the future demand (Steierer, F. and Fisher-Ankern, A., 2007).



Source: Finnish Forest Industries Federation, 2008.

WTO negotiations maintained their focus on trade liberalization. At the global level and in the context of the Doha Round, the Government of Canada tabled (in October 2007) a proposal for a sectoral agreement that would reduce the tariffs on forest products. This proposal can be considered as an attempt to extend the 1994 Uruguay Round agreement to other countries as far as pulp, paper and paper products markets, as well as wood products and furniture markets are concerned. This proposal has been supported by Hong Kong S.A.R., New Zealand, Singapore, Switzerland, Thailand and the US. It could lead to further trade liberalization in the sector following openings since 2004 of the pulp and paper markets of several developed countries, including the EU countries.

The International Council of Forest and Paper Associations (ICFPA) has focused attention on issues related to biofuels, forest practices and land use. At a recent meeting of ICFPA and FAO in South Africa, attention was drawn to the intricate relationships among forest practices, food production pressures, liquid biofuel

production and land-use choices. It is likely that climate change and policies related to its reduction will also impact the availability, accessibility, stability and utilization of food. It has been anticipated that the energy and climate change situation could lead to resource-based conflicts at the national and international levels and to increased pressure on existing forests. The members of ICFPA underlined the critical role of sustainable forest management in addressing these issues.

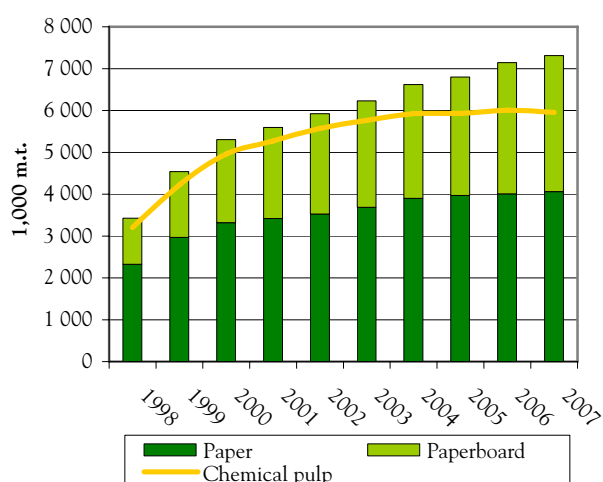
8.3 CIS subregion, focusing on Russia

8.3.1 Russia and the CIS subregion experience slower growth

In 2007 and the first half of 2008, Russia continued to experience growth in pulp and paper output (graph 8.3.1). However, the growth in Russia's paper and paperboard output has been slower in recent years than earlier in the decade, at 2.3% in 2007, 2.8% in 2006, and 1.7% in 2005, compared with 6.8% in 2004. Production in the CIS subregion increased even less in 2007, by 1.5% (versus 4.2% in 2006), rising to 8.7 million m.t. (table 8.3.1). Demand for pulp and paper products increased in Russia from 2004 to 2007 and into the first half of 2008. In 2007-2008, the Russian pulp and paper sector continued to expand its production of pulp, paper and paperboard, particularly the output of paperboard for packaging. However, during 2007, Russia's total output of pulp (both pulp for paper and paperboard and market pulp) decreased by 0.9%, while output of market pulp increased by just 1.6%. Russia's output of paper and paperboard increased by 2.3%, including a 4.2% increase in output of paperboard.

GRAPH 8.3.1

Production of pulp, paper and paperboard in the Russian Federation, 1998-2007



Sources: Goscomstat of the Russian Federation, PPB-express, and author's data interpretation, 2008.

TABLE 8.3.1

Paper, paperboard and woodpulp balance in the CIS, 2006-2007
(1,000 m.t.)

Paper and paperboard	2006	2007	Change %
Production	8 612	8 737	1.5
Imports	2 393	2 634	10.1
Exports	2 979	2 790	-6.3
Net trade	586	156	-73.4
Apparent consumption	8 026	8 581	6.9
Woodpulp			
Production	7 129	7 076	-0.7
Imports	191	229	19.9
Exports	1 920	1 901	-1.0
Net trade	1 729	1 672	-3.3
Apparent consumption	5 400	5 404	0.1

Source: UNECE/FAO TIMBER database, 2008.

8.3.2 Russian balance of trade

Although the tonnage of Russian pulp, paper and paperboard exports greatly exceeds the tonnage of imports, the trade balance in value has continued to deteriorate, as Russia continues to expand imports of higher value paper products. The annual trade deficit in paper and paperboard has been negative since 2001, and in 2007 it was more than \$1.6 billion. Since 2006, there has been a negative trade deficit not only in paper and paperboard, but also in pulp and paper products as a whole. The higher value of imports of paper and paperboard as compared to their exports is mainly due to the fact that Russia is importing rather expensive products, such as high quality materials for containers and packaging, coated paper, and tissue, whereas less expensive commodity products such as newsprint and kraft linerboard are being exported.

8.3.3 Russian export tariffs on roundwood

In February 2007, the Russian Government signed into law Resolution 75 with new levels of export taxes on roundwood, including pulplogs, for 2007-2011. Tariffs on softwood rose to €15 per m³ in April 2008. The export tariff on sawlogs is expected to increase to the prohibitive level of €50 per m³ in 2009 and to be applied to birch pulpwood in 2011. Significant quantities of birch pulpwood are currently exported to Finland, and these future export tariffs, if enacted, will undoubtedly disrupt the trade. Duties on roundwood exports were a focus of the talks about Russia joining the WTO and preparation of a new EU – Russia Agreement.

8.4 North America subregion

8.4.1 Capacity declining but prices near historic highs

North American paper and paperboard production and consumption both declined in 2007, but net exports increased substantially (table 8.4.1). Growth in US paper and paperboard demand was sluggish, but US prices for most paper, paperboard and woodpulp commodities were at or near historic highs. The US price indices for paper, paperboard and woodpulp have generally increased since 2002 as the exchange value of the US dollar has generally declined (graph 8.4.1).

TABLE 8.4.1

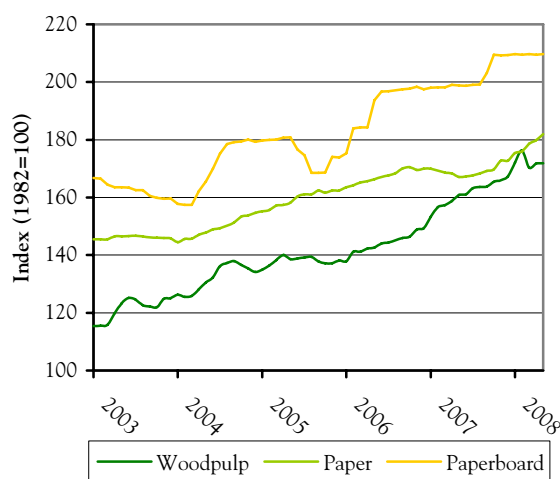
Paper and paperboard balance in North America, 2006-2007
(1,000 m.t.)

	2006	2007	Change %
Production	102 506	101 939	-0.6
Imports	19 419	17 803	-8.3
Exports	23 844	24 103	1.1
Net trade	4 426	6 300	42.3
Apparent consumption	98 080	95 639	-2.5

Source: UNECE/FAO TIMBER database, 2008.

GRAPH 8.4.1

US monthly price indexes for woodpulp, paper, and paperboard, 2003-2008



Source: US Department of Labor, Bureau of Labor Statistics, Producer Price Indexes, 2008.

8.4.2 Trade responds to shifts in currency values

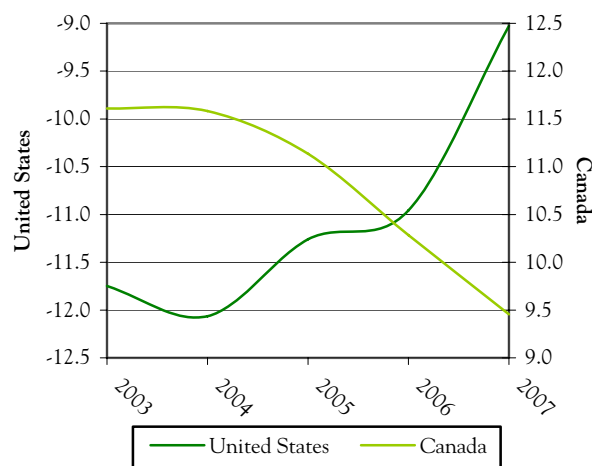
Net exports increased for US pulp and paper producers in 2007-2008, while net exports deteriorated for Canada (graph 8.4.2). Canada continued to be a large net exporter and the US a large net importer, but

Canadian net exports of graphic papers have declined by over two million m.t. since 2003, while US net exports increased by several million m.t. Capacity rationalization in Canada was underway, as the strong Canadian dollar plus higher input prices weakened competitiveness of Canadian pulp and paper firms. Conversely, US imports of graphic paper products declined as a percentage of domestic consumption quantity. In general, the weaker US dollar favoured increased US exports and decreased US imports of pulp, paper and paperboard products.

Pulp, paper and paperboard producers in both the US and Canada had to contend with higher costs for energy, chemicals, fibre, and freight, which have eroded profit margins over the past year. Product prices (in US dollars) continued to increase from 2007 into the first half of 2008, but production costs escalated at a higher rate, resulting in diminished profits. Lack of capacity growth and mill closures kept excess capacity in check and, combined with the weaker US dollar and higher input prices, generally forestalled erosion in US dollar pulp and paper prices, despite sluggish demand.

GRAPH 8.4.2

US and Canadian graphic paper net trade, 2003-2007
(Million m.t.)



Source: UNECE/FAO TIMBER database, 2008.

8.4.3 Graphic paper demands recede while other demands increase

Newsprint production and consumption in North America continued its downward spiral. US newsprint consumption has fallen every year since 2002, from an average of around 675,000 m.t. per month in 2003 to less than 500,000 m.t. per month in early 2008 (Newspaper Association of America, 2008). The decline is associated with declining newspaper circulation and a structural shift in advertising expenditures from newspapers to electronic media. After reaching an all-time high of 6.8

million m.t. in 2000, US newsprint capacity has declined by 29% to just 4.8 million m.t. in 2007, a capacity level last seen in 1980 according to the American Forest and Paper Association (AF&PA).

Printing and writing paper grades have also begun to experience erosion of demand in North America, primarily for uncoated free sheet paper, although not as steep as the decline in newsprint. Total US printing and writing paper capacity has been declining at an average annual rate of 1% since 2000 to 23.0 million m.t. in 2007, according to AF&PA. The largest category of printing and writing paper, uncoated free sheet, experienced the largest share of US capacity contraction, declining 3.1% in 2007 to 11.8 million m.t., with an average annual decline of 2% since 2000, according to AF&PA.

On the other hand, capacity increases were reported in the US for unbleached kraft paper (up 2.3% in 2007), bleached packaging and converting paper (up 4.4%), linerboard (up 1.9%), and bleached paperboard (up 3.2%), according to AF&PA. Tissue paper capacity declined slightly in 2007 and corrugating medium capacity declined by 2.8%, but both product categories were projected to make up losses with capacity increases in 2008, according to AF&PA.

8.4.4 Woodpulp, pulpwood, and recovered paper trends

US market pulp exports and prices surged upward in 2007-2008, while US imports declined, as US competitiveness was boosted by the weaker US dollar. Consequently, market pulp capacity expanded in the US by 3.8% in 2007 to 9.7 million m.t., reversing a declining trend. Market pulp capacity was projected to continue increasing in 2008 and 2009, according to AF&PA. The ongoing capacity expansion includes both bleached softwood and bleached hardwood kraft pulp.

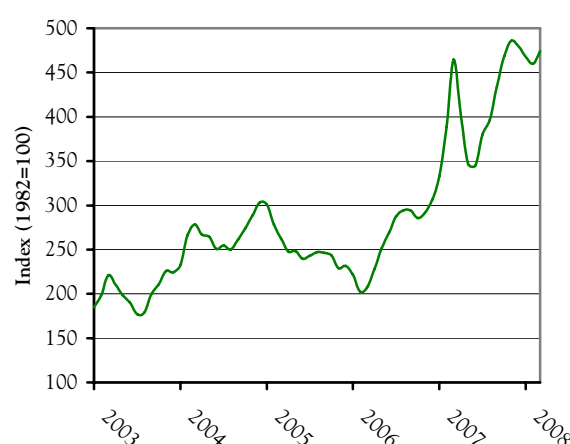
North American delivered pulpwood prices in most regions edged upward in 2007-2008, with higher diesel fuel costs resulting in generally higher pulpwood harvesting and transport costs. In addition, since 2006 the impact of the housing downturn on North American sawnwood and plywood production has reduced the supply of mill residues, which has led to higher pulp chip prices in regions that depend on mill residues for the majority of pulpwood supply, such as in the western US and Canada.

The 2007-2008 trends in US recovered paper markets reinforced patterns that have been observed since the late 1990s, in general, higher recovery of paper for recycling, and higher exports of recovered paper, but lower domestic utilization. US paper recovery for recycling climbed to a record 49 million m.t. in 2007 or just over 56% of US paper consumption, according to AF&PA. US exports of

recovered paper also jumped by 14%, to a record 18 million m.t. in 2007, and by 26% in the first quarter of 2008 relative to the first quarter of 2007, primarily driven by booming exports to China. The booming Asian demand, coupled with higher freight costs, contributed to substantially higher US prices for recovered paper in 2007-2008. For example, the price index for old corrugated containers, a major category of recovered paper, has more than doubled since 2006 (graph 8.4.4), and has approached historic peak levels in 2008.

GRAPH 8.4.4

US price index for recovered paper, 2003-2008



Note: Recovered paper price for old corrugated containers.

Source: US Department of Labor, Bureau of Labor Statistics, Producer Price Indexes, 2008.

8.4.5 Potential future competition for wood from biofuel

The US Energy Independence and Security Act of 2007 (see chapter 9 for details) includes the mandatory Renewable Fuel Standard, which requires expanded production of "advanced biofuels", meaning, specifically, fuel made from cellulosic biomass (such as wood). According to the leading trade association of US ethanol producers (the Renewable Fuels Association), the US ethanol industry is rapidly developing and expanding the basket of feedstocks available for ethanol production, and focusing specifically on cellulosic biomass. In general, it is likely that pulp and paper industry attention will be drawn increasingly toward topics such as future sustainability of fibre supply amid competition for wood from biofuel.

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Chapter 9

Record fossil-fuel prices drive wood-energy markets:

Wood-energy markets in the UNECE region, 2007-2008⁵³

Highlights

- In mid-2008, oil prices rose to all time highs, well above the \$100 per barrel mark, reaching \$145 in July, further fuelling interest in renewable energy.
- The European wood-pellet market continues to grow, although the setbacks due to heavy price fluctuations in recent years have been troublesome for the industry.
- The Russian wood-pellet sector suffered from slow market development in western Europe, but large production increases are predicted in the years to come.
- The export-oriented Canadian wood-pellet industry continues to grow, although high shipping rates have made wood pellets transported across the Atlantic less competitive.
- The perceived lack of sustainable production of first generation biofuels is a highly controversial topic, especially in light of the recent surge in world food prices, which gives more impetus to wood-based energy.
- Concern about biofuel production based on food crops such as corn and wheat has boosted wood-based energy, including second generation biofuels e.g. as cellulose ethanol.
- In 2007 and early 2008, cellulosic ethanol development accelerated, with 40 production plants worldwide in various stages of planning or construction.
- Most of the proposed cellulosic ethanol plants are located in the United States, where the US Department of Energy has started a large grants programme with the objective of making cellulose ethanol cost competitive by 2012.
- While the energy debate highlights electricity and transportation fuels, space and water heating make up perhaps the majority of energy demand in the UNECE region.

⁵³ By Dr. Bengt Hillring, Swedish University of Agricultural Sciences (SLU), Mr. Olle Olsson, SLU, Dr. Christopher Gaston, FPInnovations-Forintek Division, Dr. Warren Mabee, University of British Columbia, Dr. Kenneth Skog, USDA Forest Service, Mr. Henry Spelter, USDA Forest Service and Dr. Tatjana Stern, SLU.

Secretariat introduction

At its fifth conference in Warsaw, in November 2007, the Ministerial Conference for the Protection of Forests in Europe adopted a resolution on "Forests, wood and energy", recognizing the role of forests in mitigating climate change, and in increasing the security of energy supplies through forest biomass, wood-processing residues and recovered wood. The resolution acknowledges the competition between the energy and wood-processing sectors and calls for more comprehensive information on wood resources and consumption as a basis for policy decisions.

Wood energy is the most important source of renewable energy in the UNECE region. Therefore, decisions to mitigate climate change or diversify energy portfolios trigger an increased demand on wood fibre for energy. Hence, this chapter takes into consideration the growing cross-sectoral orientation of the wood energy issue. In addition to reviewing wood-energy markets, the chapter provides an overview of relevant political decisions from other sectors that are or will be influencing wood-energy developments.

In its work on wood energy and future wood potentials to fulfil both energy and wood industry needs, the secretariat recognizes rising cross-sectoral interactions, and is working to improve cooperation and communication with other sectors. In cooperation with the International Energy Agency, the secretariat issued the first regional in-depth assessment of sources and uses of wood energy in 2006. In 2008 the secretariat is conducting the second edition of the Joint Wood Energy Enquiry to assess the developments in the sector since 2006.

The secretariat again expresses its appreciation for the coordination of this chapter to Dr. Bengt Hillring,⁵⁴ Associate Professor, Swedish University of Agricultural Sciences (SLU). Dr. Hillring has regularly contributed to UNECE/FAO energy market work, and previously led the Team of Specialists on Recycling, Energy and Market Interactions. We thank Mr. Olle Olsson,⁵⁵ Ph.D. student, SLU, who worked with all of the co-authors, and who wrote the European section. Dr. Hillring and Mr. Olsson are members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

Production of this chapter was made possible thanks to the Swedish Ministry of Industry, Employment and

Communications, which provided the necessary financial support for this chapter. This contribution was coordinated by Mr. Peter Blombäck, Head, International Division, Swedish Forest Agency. Mr. Blombäck is the Vice-Chairman of the FAO European Forestry Commission, and we owe him special thanks for this vital support.

Once again we benefited from the Canadian analysis by Drs. Warren Mabee,⁵⁶ Research Associate, Forest Products Biotechnology, University of British Columbia, and Christopher Gaston,⁵⁷ National Group Leader, Markets & Economics, FPInnovations-Forintek Division. Both experts on wood energy markets are based in Vancouver, British Columbia.

We appreciate the update of the US analysis by Dr. Kenneth Skog,⁵⁸ Project Leader, Economics and Statistics Research, USDA Forest Service, Forest Products Laboratory. Dr. Skog was joined by Mr. Henry Spelter,⁵⁹ Research Scientist, Economics and Statistics Research, USDA Forest Service, Forest Products Laboratory. Mr. Spelter was previously an author for sawnwood and panel chapters of the *Review*. And we again thank Dr. Tatjana Stern,⁶⁰ Associate Professor, SLU, who contributed information for the Russian section.

9.1 Introduction

With oil prices now above the previous inflation-adjusted price records from the early 1980s, reaching an all-time high of \$145 per barrel in July 2008, there is renewed focus on using wood for energy. The construction of new combined heat and power plants, electricity-generation plants and the co-firing of biomass

⁵⁴ Dr. Bengt Hillring, Associate Professor, Department of Energy and Technology, Swedish University of Agricultural Sciences (SLU), P.O. Box 7032, SE-75007 Uppsala, Sweden, tel: +46 1867 3548, fax: +46 1867 3800, e-mail: Bengt.Hillring@et.slu.se, www.et.slu.se.

⁵⁵ Mr. Olle Olsson, M.Sc., Department of Energy and Technology, SLU, P.O. Box 7032, SE-75007 Uppsala, Sweden, tel: +46 1867 3809, fax: +46 1867 3800, e-mail: Olle.Olsson@et.slu.se, www.et.slu.se.

⁵⁶ Dr. Warren Mabee, Research Associate, Forest Products Biotechnology, University of British Columbia (UBC), 4043-2424 Main Mall, Vancouver, British Columbia, Canada V6T 1Z4, tel. +1 604 822 2434, fax +1 604 822 9104, email warren.mabee@ubc.ca, www.ubc.ca.

⁵⁷ Dr. Christopher Gaston, National Group Leader, Markets & Economics, FPInnovations-Forintek Division, 2665 East Mall, V6T 1W5 Vancouver, Canada, tel. +1 604 222 5722, fax +1 604 222 5690, e-mail gaston@van.forintek.ca, www.forintek.ca.

⁵⁸ Dr. Kenneth Skog, Project Leader, Economics and Statistics Research, USDA Forest Service, Forest Products Laboratory, One Gifford Pinchot Drive, Madison, Wisconsin 53726-2398, USA, tel. +1 608 231 9360, fax +1 608 231 9508, email: kskog@fs.fed.us, www.fpl.fs.fed.us/econ.

⁵⁹ Mr. Henry Spelter, Research Scientist, Economics and Statistics Research, USDA Forest Service, Forest Products Laboratory, One Gifford Pinchot Drive, Madison, Wisconsin 53726-2398, USA, tel. +1 608 231 9380, fax +1 608 231 9592, email: hspelter@fs.fed.us, www.fpl.fs.fed.us/econ.

⁶⁰ Dr. Tatjana Stern, Associate Professor, Department of Energy and Technology, Swedish University of Agricultural Sciences (SLU), P.O. Box 7032, SE-75007 Uppsala, Sweden, tel: +46 18 67 1922, fax: +46 1867 3800, e-mail: Tatjana.Stern@et.slu.se, www.et.slu.se.

with coal, often following government policy leads, can be expected to produce a surge in demand for wood, which can only increase competition for raw material.

One of the challenges facing the authors, and indeed all commentators on wood energy, is the absence of reliable data on wood consumption and supply. This is an issue on which the secretariat has undertaken important initiatives to improve data quality and availability, as is explained at the end of the chapter. An added complication is the speed with which the wood-energy supply and demand situation is changing.

There is a growing international trade in wood for energy in the form of both wood chips and processed wood fuels, and in particular, wood pellets, an area in which both demand and supply are expanding. In this rapidly developing market, supply and demand have not always kept pace with one another. This was the case in the winter of 2005/2006 when a sustained cold spell in Europe pushed demand to such an extent that pellet prices rose steeply before falling back slightly. In spite of this, demand continues to grow.

Many of the new developments taking place will depend almost entirely on continued intercontinental trade (especially from North America to Europe). As shipping costs continue to rise steeply, one can only speculate as to how this will impact the developing trade in wood for energy. With oil prices showing no sign of weakening, and with continuing concerns over both the security of energy supplies and the effects of burning fossil fuels on global warming and climate change, the demand for wood seems set to keep increasing.

9.2 Europe

9.2.1 Policies driving markets

9.2.1.1 EU renewable energy policies by 2020

Developments in wood-energy markets, particularly in Europe, have been driven by policies agreed upon at the EU level. The draft proposal for a Directive “on the Promotion of the Use of Energy from Renewable Sources” was a milestone in renewable energy policy in general, and thus for wood energy in particular. Binding targets for the share of renewables in total energy in each EU Member State are defined in this proposal, ranging from 10% for Malta to 49% for Sweden (see graph 2.2.1 in chapter 2). Countries are requested to develop energy action plans by 2011, which should include biomass action plans.

Sustainability criteria for biofuels and other bioliquids are demanded by the draft EU Directive. While some criteria have been proposed through the Directive, such as a 35% greenhouse-gas emissions (GHG) savings

compared with fossil fuels, specific criteria are currently under development by the European Commission and member States (see also chapter 2). The requirements for a sustainability scheme for energy uses of biomass other than bioliquids and biofuels will be analysed by the European Commission from 2010 onwards.

9.2.1.2 Space heating consumes 50% of energy

In policy discussions on energy and climate issues on national as well as international levels, heating energy needs have been overshadowed by the focus on electricity and transportation fuels. However, space and water heating make up a large part, probably the majority, of energy demand in the UNECE region. Space and water heating also constitute a large and growing cost for households. Approximately 75% of the total energy consumption in buildings is used for space and water heating, according to the International Energy Agency (IEA, 2007). “The share of heat in the global demand is probably greater than 40%, possibly higher than 50%” (Philibert, 2006).

Moreover, while much of the future development of electricity and transportation relies heavily on technology development, many of the renewable solutions in the heating market require relatively low levels of technology. For this reason, the heating market is something of a “sleeping giant” in energy and climate discussions. Wood energy plays a dominant role in terms of renewable heating and it is expected to continue to do so in the foreseeable future. About 95% of the renewable heat that is produced comes from biomass, according to the IEA (2007). The bulk of this biomass is wood. The EU and Member States have enacted policies to improve energy efficiency both in new buildings and in renovation of existing buildings.



Source: CMS Energy, 2008.

In a 2007 IEA report, policy schemes for promotion of renewable heat are evaluated with policy instruments divided into four categories: “carrots” (financial incentives), “whips” (regulatory measures), “guidance” (information and training) and “market-led” initiatives. For biomass heat, the authors highlight Sweden, Denmark, Canada and New Zealand, respectively, as good examples of successful national policies in each category. The report also includes a survey of the cost-effectiveness of different national biomass heat-promotion schemes. While the outcome of the report is said to be only a “coarse indication of policy effectiveness”, it may still be worth noting some of the results (IEA, 2007).

According to the IEA report, Germany and Canada are examples of countries that have achieved fairly strong development in biomass heating with relatively small governmental investments in subsidies or other incentives. On the other hand, Norway, Ireland, and the Netherlands seem to have achieved only small growth in biomass heating despite relatively large subsidies. Finally, Denmark and Sweden have invested heavily in biomass-promotion schemes that have also resulted in stronger diffusion of biomass heating. While these results are preliminary, they appear to demonstrate that heavy subsidies alone do not result in more biomass heat. The ways in which policy measures are constructed and implemented are equally or even more important for a particular promotion scheme to be successful.

9.2.2 Market developments

According to Vinterbäck (2008), global pellet production now amounts to about 9 million tons, mostly, but not entirely, from wood, and over 3 million tons are traded internationally. It has been estimated that about 60% of global pellet use is for small- and medium-scale burning units (stoves, household boilers and small district heating plants) and 40% is for large-scale consumption, including large district heating plants and power plants (Rakos, 2008a). It is interesting to note that the proportion of total production that is internationally traded (i.e. about one third) is considerably higher than that of coal, i.e. 15% (US Department of Energy, 2007). Furthermore, a large proportion of the wood pellet trade is not only international, but also intercontinental, with large streams flowing particularly from North America to Europe, as well as to Asia.

It has been forecast that by 2010, global pellet production will reach about 16 million tons, a rate of growth of over 30% per year, 12 million of which will be consumed in Europe. It is also estimated that about one third of European consumption will consist of imports from Canada (Vedelsparre, 2006). For the longer term,

some analysts believe that in 2020, world wood pellet demand will amount to as much as 150 million tons (Rakos, 2008b).

International trade channels for pellets are evolving quickly (table 9.2.1). Not surprisingly, countries with smaller forest industries, such as Belgium, Denmark and the Netherlands, rank high among the importers. Wood pellet consumption, especially in Belgium and the Netherlands, is dominated by large energy utilities that co-fire wood pellets with coal in power plants.

The Intelligent Energy Europe programme (IEE)⁶¹ launched the Pellets@tlas project in January, 2007. The objectives of the three-year project are to develop and promote transparency of the European fuel pellets market as well as facilitate pellets trade (European Pellet Centre, 2008). It should remove market barriers, mainly information gaps, but also local supply bottlenecks, production surpluses and uncertainties in quality assurance management. Other goals are to contribute to the implementation of future European legislation, provide detailed market data on wood pellets, such as current prices, and quantities and qualities available in Europe, and to support market participation by making market information available within a real-time European Pellets Atlas.

TABLE 9.2.1

Top five wood pellet importers and exporters, 2007

	1,000		1,000
Exporters	tons	Importers	tons
Canada	1 000	Netherlands	1 400
Germany	650	Denmark	750
Austria	420	Belgium	400
Estonia	300	United States	300
Russia	250	Sweden	300

Notes: Indicative figures. Exports calculated as production minus consumption. Imports calculated as consumption minus production.

Source: Vinterbäck, 2008.

It is interesting to take note of the relatively high Austrian wood-pellet exports, which are primarily directed to Italy. Italy’s wood-pellet consumption has boomed in recent years, with wood-pellet stoves becoming popular in northern areas of the country, in part due to government policies and incentives. The Italian wood-pellet stove market is not only the largest in Europe, but the high demand has also pushed Italian wood pellet prices to €300/ton, higher than in any other country in the UNECE region (Vinterbäck, 2008). Light heating oil is subject to full taxation in Italy, making Italy the most expensive market in Europe for heating oil (€1.46/litre when

⁶¹ www.ec.europa.eu/energy/intelligent.

purchasing over 2,000 litres, as of May 2008)⁶². The extremely high prices for fossil fuels provide indirect incentives for Italian consumers to switch to convenient and less expensive substitute fuels, such as pellets.

Together with being among the top countries in wood pellet imports, Sweden is also the world's largest producer and consumer of wood pellets (Vinterbäck, 2008).

Norway, in which bioenergy development has yet to reach the levels of its Nordic neighbours, is soon to have one of the largest wood-pellet plants in the world. The Norwegian company BioWood Norway AS will invest the equivalent of €55 million in a new pellet plant with an annual capacity of 450,000 tons of pellets or 2 terawatt hours (TWh). The investment is expected to be finished in 2010 and the strategic location offers the possibility for export to other countries (Energy report, 2008).

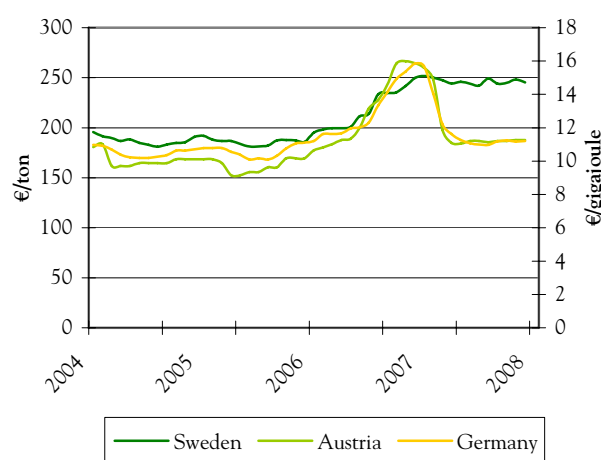
While cold weather and increased oil prices led to high pellet demand and high pellet prices in Europe in the winter of 2005/2006, the ensuing winter of 2006/2007 was unusually warm and pellet sales in "all major markets" in 2007 were estimated to be about 50% of sales in 2006 (Rakos, 2008a). This turbulence appears to have caused a shift in the markets (graph 9.2.1). Previously, the wood-pellet prices in Sweden, Austria and Germany had seemed to follow each other rather steadily. However, after the price hikes there was a significant difference between those countries and Sweden. German and Austrian wood-pellet prices dropped by 25% in the spring of 2007 and remained just below €200/ton throughout the winter of 2007/2008. Swedish wood-pellet prices experienced a much smaller drop after the rapid increase, however, and have since remained stable at a level just below €250/ton.

This implies that while wood-pellet markets are to a large extent dependent on general energy price development (e.g. the high price of crude oil), there are additional factors to consider when studying pellet price development. Supply constraints and especially domestic energy policy play an important role. In this instance, it might be worth noting the difference in taxes on fossil fuel alternatives to pellets in the respective countries (graph 9.2.2).

Wood pellets are attracting considerable attention from policymakers and industry, resulting in outstanding growth rates for this young commodity. Nevertheless, in comparison to the entire wood-fibre supply and usage, the "processed wood fuels", including pellets and briquettes account for only about 1% of the fibre going into energy production (UNECE/FAO "Wood resources availability and demands – Part I", 2007).

⁶² www.bmwa.gv.at/BMWA/Service/Benzinpreismonitor/EU_Bruttopreise_HeizoelLeicht.

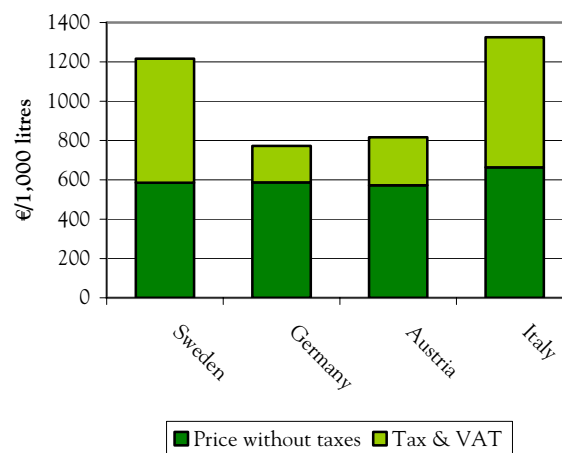
GRAPH 9.2.1
Wood-pellet prices in Europe, 2004-2008



Note: Pellet prices for household consumption.

Sources: ÄFAB, DePV and ProPellets, 2008.

GRAPH 9.2.2
Heating oil prices 2008



Note: Prices for March, 2008.

Source: European Commission Oil Bulletin, 2008.

9.3 Russia

Russia is a country with vast energy resources when it comes to oil, coal and natural gas. The Russian bioenergy sector, on the other hand, is in the early stages of development. Despite the fact that Russia has the world's largest forest resources, its domestic use of bioenergy is low, estimated at only about 1% of total primary energy supply (IEA, 2008).

9.3.1 Market developments

If the expected increase in global wood-pellet demand is to be met with corresponding supply, it seems likely

that Russia, with its enormous raw material potential, will become a major player on the world wood-pellet market.

At present, however, the Russian pellet industry could be said to be in a state of recovery after some recent hardships, closely related to the aforementioned turbulence on the European pellet market. Since the majority of Russia's wood-pellet production is export-oriented, with Europe being the principal destination, this turbulence was a severe blow to the Russian pellet industry. Russian pellet prices (FOB St. Petersburg) dropped from €125/ton in December, 2006 to €80-90/ton in the spring of 2007. Consequently, the Russian wood-pellet production of 900,000 tons for 2007 projected in last year's *Review* was not met. Estimates instead point to a total production for 2007 of about 500,000 tons (Ovsyanko, 2008).

Despite these recent setbacks in Russian wood-pellet industry development, the industry's future looks promising, with several new factories planned. The most spectacular project is a proposed 500,000 ton per year pellet production plant in Siberia (Ovsyanko, 2008). As the winter of 2007/2008 was relatively warm, and since prices had been adjusted downwards during the previous year, Russian analysts expected no crisis in the spring of 2008 (*ibid*). Spiralling transportation costs were causing concern for pellet producers and exporters in mid-2008.

9.4 North America

9.4.1 Policies driving markets

9.4.1.1 Canada

In 2006, two biofuel targets were announced by the Government of Canada. By 2010, ethanol consumption is targeted to be 5% of gasoline usage (on an energy basis), which will require approximately 3.1 billion litres of this biofuel. By 2012, biodiesel consumption is targeted to be 2% of diesel usage (on an energy basis), or approximately 517 million litres. These targets anticipate annual growth in gasoline use of approximately 0.25% per year, and annual growth in diesel use of approximately 0.37% per year; however, as of the time of writing in May 2008, expected growth in gasoline and diesel use has not been revised to reflect the potential impacts of high oil prices.

At the time that the Government announced these targets, the aggressive push to produce gasoline from agricultural crops received broad support. With skyrocketing food prices, however, political consensus in favour of biofuels seems to be declining within the federal Government. The Canadian programme for biofuels is

valued at about CAD\$2.2 billion⁶³, which makes it the government's most expensive "environmental" programme (Curry and Carmichael, 2008). The opposition Liberal Party has completely changed its position on biofuels, going from a call to double federal ethanol targets (made in 2007) to suggestions that the biofuel programme be terminated.

Canadian legislation to regulate biofuels, as described by these targets, is attached to Bill C-33: An Act to Amend the Canadian Environmental Protection Act of 1999. This Act has been before the Canadian House of Commons since December, 2007. At the time of writing, the Act has not been passed, but is expected to be passed with some modifications. Most importantly, all three opposition parties wish to include a clause forcing a review of the environmental and economic impacts triggered by the 5% ethanol target after just one year, i.e. in 2009.

The backlash against agriculturally-based biofuels may serve to provide an additional impetus to improving wood-based biofuels. The Canadian Government has funded a programme called *ecoEnergy for Biofuels*, which is designed to reduce the GHG emissions resulting from fuel use, encourage greater production of biofuels, accelerate the commercialization of new biofuel technologies, and provide new market opportunities for agricultural producers and rural communities. This programme will invest up to CAD\$1.5 billion over nine years to boost Canada's production of biofuels, including wood-based biofuels. Essentially, *ecoEnergy for Biofuels* will provide an incentive for every litre of renewable fuel produced, at profitability margins of \$0.29/litre for ethanol (nine years guaranteed), and \$0.32/litre for biodiesel (first year only). The incentive payments are conditional upon completion of environmental assessments. The *ecoEnergy for Biofuels* programme is currently accepting applications through Natural Resources Canada (*ecoEnergy for Biofuels*, 2008).

Canadian companies working to develop technologies that will allow wood to be used as a feedstock for liquid biofuel production can also apply for funding for technology development through an agency called Sustainable Development Technology Canada (SDTC). The CAD\$550 million Tech Fund was set up by SDTC to support late-stage development and pre-commercial demonstration of clean technology solutions, including second-generation biofuels. SDTC has also created the CAD\$500 million NextGen Biofuels Fund, designed for technology providers to increase their chances of market success by scaling-up their technology to full-size, demonstration-scale plants (SDTC, 2008).

⁶³ The Canadian dollar (CAD) and the US dollar were close to parity at the time of writing.

9.4.1.2 United States

Aggregate wood use for US energy production has been relatively constant over the last several years, but has been increasing from modest levels in electricity production. Wood use for biofuels could potentially increase significantly as industries develop to meet the revised Renewable Fuels Standard (RFS) to provide advanced biofuels that have been established by the Energy Independence and Security Act of 2007. The effect of the RFS on wood use will depend upon the cost and availability of wood as opposed to agricultural feedstocks and the competitiveness of wood-based biofuel technologies. There is also the possibility that Renewable Fuels Standards in some States will increase wood-fuelled electric power production (see discussion in the 2007 Review).

The Energy Independence and Security Act of 2007⁶⁴ sets a new higher RFS for biofuel use, which begins at 34 billion litres (9 billion gallons) of biofuels in 2008 and increases to 136 billion litres (36 billion gallons) in 2022. If the 2022 target level of biofuels were all ethanol, the energy content would be about 18% of the energy content of motor gasoline consumption in 2007. Beginning in 2009, specific amounts must be provided from advanced biofuels (biofuels not made using corn), which include cellulosic biofuel and biomass-based diesel. The RFS calls for 0.4 billion litres (0.1 billion gallons) of biofuel from cellulosic feedstocks in 2010, increasing to 61 billion litres (16 billion gallons) in 2022. Corn-based ethanol does not count towards meeting the RFS after reaching 57 billion litres (15 billion gallons) of production.

To provide a sense of the extent to which wood use may increase to meet the RFS standard in 2022, assume the 61 billion litres (16 billion gallons) of cellulosic biofuels are produced at the rate of 333 litres per dry ton (80 gallons per dry ton) of biomass and therefore require about 181 million dry tons of biomass. If one quarter of the 61 billion litres of cellulosic biofuels production uses wood, this wood usage could be 20% higher than the US wood harvest in 2006, or about 45 million tons of wood for biofuels compared with 225 million dry tons of wood harvest in 2006. The “Billion Ton Supply” study identified 151 million dry tons of currently non-merchantable wood that is potentially available for bioenergy/ biofuels, with the potential for increases over time (Perlack et al., 2005). Only a portion of this wood biomass would be available at cost-competitive prices. Biomass sources identified include logging residue, fuel load reduction treatments in forests, other removals (e.g. land clearing), mill residues, and urban wood residues.

Additional amounts of wood biomass could be supplied from short rotation woody crops on agricultural land. There are restrictions on the sources of wood that can contribute to meeting the RFS. To qualify, biofuels made using wood from forests can only draw wood from “planted trees and tree residue from actively managed plantations on non-federal land”; “slash and pre-commercial thinnings from non-federal forestlands”; and biomass obtained adjacent to buildings or infrastructure at risk from wildfire. Wood from tribal land would qualify; however, wood from most federal land would not.

A key concern about biofuels development has been the life-cycle reduction in GHG emissions to produce corn (maize) ethanol and advanced biofuels as compared with gasoline. The RFS requires new corn-ethanol plants to provide a 20% reduction in GHG emissions compared with gasoline and requires cellulosic biofuel technologies to provide a 60% reduction. Wood-based biofuels may have an advantage in comparison to some other cellulosic feedstocks because wood biofuels may achieve large GHG emission reductions relative to some other cellulosic biofuels – as much as 89% (Wu, Wang and Huo, 2006). There is also recognition that the degree of GHG reduction associated with a particular feedstock could be strongly influenced by the impact of feedstock development on land-use change because land use change could result in carbon emissions.

The US wood-based biofuels industry is in early, largely experimental stages, with its economic viability yet to be proven (which is also the situation in other countries). To further the national goal of making cellulosic ethanol cost-competitive by 2012, the US Department of Energy (USDOE) undertook a major grants programme in 2007 as part of more than \$1 billion in funding for multi-year biofuels research and development projects.



Source: J. Bolles, 2007.

⁶⁴ See Title II of the Act: <http://thomas.loc.gov/cgi-bin/bdquery/z?d110:h.r.00006>.

The first funded projects consisted of six commercial-scale plants using various feedstocks and employing near-term commercial processes. Two of these were planned to be supplied with wood only (table 9.4.1) (USDOE, 2007). On average, these commercial-scale biorefineries will input 700 tons of non-food based feedstock per day, with a yearly output of approximately 75-110 million litres.

The second funding wave involved seven small-scale demonstration-type facilities whose purpose is to verify the feasibility of integrated operations at a reduced size with diverse feedstocks using novel processing technologies. These biorefineries will operate at a level equivalent to about 10% of a full-scale commercial plant (USDOE, 2008). The input of these demonstration

facilities will be approximately 70 tons of feedstock per day, with an estimated yield of 10 million litres. Combined, the seven selected biorefinery projects are expected to receive up to \$200 million in USDOE funding. When federal funding is combined with the industry cost share, more than \$634 million will be invested in these projects from 2008 to 2012. Negotiations between the selected companies and the USDOE are underway to determine final project plans and funding levels. Funding beyond 2008, however, is subject to appropriations from the US Congress.

Of the five USDOE supported biofuels plant projects that use wood (commercial and demonstration), three use biochemical conversion, and two use thermochemical conversion.

TABLE 9.4.1

US cellulosic ethanol and other fuel producing plants scheduled for construction, 2008-2011

State	Feed stock	Tons per day	Processes	Product	Litres per ton	Million litres per year	Start-up date
Kansas*	A	363	Gasification/fermentation	Ethanol	330	43	2008
Florida*	A	699	Gasification/fermentation	Ethanol	313	79	2010
California*	W	635	Chemhydrol/fermentation	Ethanol	313	72	n.a.
Iowa*	A	907	Enzymhydrol/fermentation	Ethanol	355	114	2011
California	A	363	Proprietary- n.a.	Ethanol	371	47	n.a.
Missouri	W	181	Hi temp Pyrolysis	Diesel	709	46	2009
Kentucky*	A	91	Enzymhydrol/fermentation	Ethanol	n.a.	4	2010
Missouri*	A	64	Bio & thermomechanical	Ethanol	n.a.	9	2009
Idaho*	A	635	Enzymhydrol/fermentation	Ethanol	296	68	2010
Colorado*	W	64	Biochemical	Ethanol	n.a.	9	2009
Tennessee	S	n.a.	Hydrolysis/fermentation	Ethanol	n.a.	19	2009
Michigan	W	n.a.	Hydrolysis/fermentation	Ethanol	n.a.	151	n.a.
Oregon*	A&W	64	Biochemical	Ethanol	Na	9	2010
Georgia*	W	1089	Gasification/reforming	Ethanol/Methanol	472	185	2011
Maine*	W	n.a.	Hydrolysis/fermentation	Ethanol	n.a.	8	2010
Wisconsin*	W	64	Gasification/reforming	Diesel	n.a.	9	2009
Minnesota	W	n.a.	Hydrolysis/biochemical	Ethanol	n.a.	38	n.a.
Louisiana	A	n.a.	Enzymhydrol/ferment	Ethanol	296	5	2008
Wyoming	W	n.a.	Enzymhydrol/ferment	Ethanol	n.a.	6	2008

Notes: A = agricultural. W = wood. S = switchgrass. "Enzymhydrol" refers to hydrolysis-using enzymes. "Reforming" refers to reforming of synthetic gases to synthetic fuels. * = those plants that have received DOE grants. n.a. = not available. Ton = 1,000 kg. oven-dry weight (all moisture removed).

Sources: USDOE 2007, 2008 and announcements of company projections.

9.4.2 Market developments

9.4.2.1 Canada

Rapid growth in European wood-fuel-pellet consumption has triggered similar growth in pellet production in North America, especially in Canada, with most of it slated for export to the EU. Canada is the leader among the exporting countries, and (along with Russia) the country often seen as the future "Saudi Arabia of pellets" (Flynn, 2008). However, local markets for fuel pellets for home and institutional heating are beginning

to emerge in some areas, a development that could eventually put pressure on supplies for export.

There are now 26 pellet mills in Canada, with another three under construction and at least six in the planning stage; this represents a gain of seven new facilities since last year's report. New facilities continue to take advantage of the mountain pine beetle outbreak currently under way in British Columbia and Alberta, although there is an estimated 3.5 million tons of sawdust, shavings and bark produced by the forest-products industry across Canada available for pellet or

energy production. The newest facility, opened in the summer of 2007 in Houston, British Columbia, is one of the largest pellet mills in the world, with a capacity in excess of 100,000 tons per year.



Source: University of Northern British Columbia, 2008.

The availability of enormous volumes of mountain pine trees killed by beetles represents a huge resource that could be utilized for pellet production. However, ambitious plans to realize large-scale pellet production from these resources have not yet materialized. Domestic consumption of wood pellets is still low in Canada, which means that Canadian production remains geared towards producing exports for European markets, with sales to Germany, Sweden, Denmark, and other EU members. However, recent rises in shipping rates have made pellet transport to Europe more expensive and will be a significant factor in determining future development in Canada. Recently in Canada there has been significant interest in exploring opportunities to use pellets in the domestic market, particularly for commercial heating applications (Rakos, 2008b).

9.4.2.2 United States

In 2007, wood biomass use for energy in the US was 2,283 petajoules (2.2 quadrillion Btu or quads), or approximately 220 million m³. Aggregate use has been relatively constant since 2001, but short of the recent high of 2,848 petajoules in 1985. For several years, wood biomass has accounted for about 3% of US energy production (USDOE, 2008b). Other sources of biomass account for an additional 1% of energy production. Wood energy consumption has declined steadily as a share of all renewable energy consumption, from 45% in 1981 to 32% in 2007. Since about 2000, wood biomass use for energy has been estimated to be relatively constant in residential, commercial and industrial uses, but increasing from a relatively low level in producing electricity. Electric power production from wood has increased from 137 petajoules in 1990 to 200 petajoules in 2007. The Energy Independence and Security Act of 2007 has set

targets for biofuel production using non-corn feedstocks through 2022, which could result in substantial use of wood to make biofuels.

9.5 UNECE/FAO strives for reliable information

A major challenge in many countries when dealing with wood energy and wood energy markets is weak or non-existing information and statistics. This is mainly due to the fact that up to now wood energy was mainly used in households and small-scale applications (wood use from gardens, logging residues, etc); thus trade was often unrecorded in national and international statistics. With the increasing importance of renewable energy in general, and wood energy as the most important renewable energy source in particular, attention is drawn to these unreported quantities of fuelwood. On an international level, efforts were made to improve data availability on wood energy by conducting the Joint Wood Energy Enquiry by UNECE, FAO, IEA and the European Commission in 2006. A new enquiry is being carried out with results expected in October, 2008.

In 2008 a first study on “wood resource availability and demands” was conducted by UNECE/FAO and partners (Mantau et al, 2008, UNECE/FAO, 2008). It comprehensively assessed all different sources and uses of wood (for the wood-processing industry and energy generation) based upon the best available data in EU/EFTA countries. Results show that in 2005, 42% of all wood fibre was used for energy generation, ranging from below 1% in Cyprus to 87% in Denmark. Results of the study, as well as other data collection efforts, are further discussed in the wood raw materials chapter.

Striving to further improve data in particular on wood energy, experts on forest-sector statistics met at the workshop on National Wood Resource Balances in March 2008⁶⁵. Among the principal conclusions was the need for empirical research, including household and business surveys, to further improve wood energy statistics.

The second part of the study on “wood resource availability and demands” assesses future developments in wood demand and supply, analysing EU renewable energy targets and their interaction with the forest sector (UNECE/FAO, 2008). Assuming a remaining high share of wood energy compared with other renewable energy sources, the consumption of wood fibre for energy generation would equal the volume used by the wood processing industries in 2010. In 2020 significantly more

⁶⁵ “Empirical data gathering on current sources of wood supply and use, focusing on wood energy”, Geneva, Switzerland 31 March – 1 April 2008.

than half of all wood fibre would then be used for energy generation. Essential for these forecasts are the real economic and technical potentials of future wood supply, the development of wood-processing industries in Europe, the overall development of renewable energies, and whether the achievements of the renewable energy targets are met.

9.6 Longer-term outlook – biomass to liquid biofuels

As the demand for renewable and sustainable fuel continues to grow, the flaws of the first generation of biofuels have become increasingly apparent. Corn ethanol and palm-oil biodiesel are only two examples of biofuels that may not be as sustainable as was initially expected (see policy chapter 2). As was discussed in last year's wood energy chapter, palm-oil plantations in southeast Asia could in fact mean an increase in GHG emissions rather than a remedy for climate change, and similar arguments have been advanced about the lack of sustainability regarding corn ethanol production.

Furthermore, grain prices in general have risen markedly since 2007, which has caused a slump in conventional (first generation) biofuel development, at least in the UNECE region⁶⁶. Many planned ethanol factories, e.g. wheat-based projects in Sweden and factories based on corn in the US, have been postponed due to raw material price hikes (USDA, 2007 and Ethanol Statistics, 2008). Also, many commentators connect the current worldwide surge in food prices to the increased production of biofuels. There is currently considerable research and development being undertaken on biodiesels and on cellulosic ethanol.

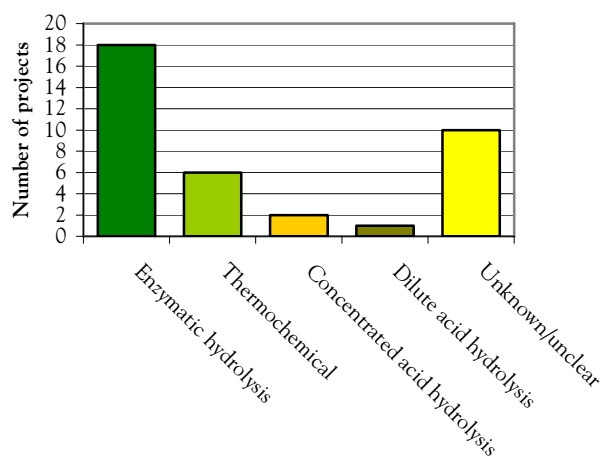
Cellulosic ethanol does not compete with food production and it has further advantages compared with conventional (sugar or starch) ethanol production. However, there are of course caveats, the most serious is that it is significantly more problematic to produce ethanol from cellulose than from sugarcane, corn or wheat. The fibrous and rigid chemical structure of cellulose is what makes production of cellulosic ethanol more intricate and, hence, more expensive (Environmental and Energy Study Institute, 2006).

While there are currently no commercially viable cellulosic ethanol production plants in operation, about 40 cellulosic ethanol plants are in various stages of planning and construction globally, with 31 located in the US (Ethanol Statistics, 2008). It is estimated that by 2020, annual global cellulosic ethanol production could reach 50-100 billion litres (Ethanol Statistics Monthly Market Review, 2008).

While cellulosic ethanol is often presented as being comprised of one single production method, it is important to remember that there are several ways to produce ethanol from cellulosic raw materials. Present technologies use a number of different biological, chemical and thermochemical processes either alone or in combination. Since cellulosic ethanol production is still in the initial stages of commercialization, it is too early to determine which technology combination will become dominant in the future (graph 9.6.1).

GRAPH 9.6.1

Global technology usage in current cellulose ethanol projects, 2008



Source: Ethanol Statistics Monthly Market Review, 2008.

Even though cellulosic ethanol will help to avoid the food-for-fuel discussion to the extent that the feedstock is grown on land unsuitable for food production (which is not always the case), it will nevertheless increase competition for raw material in the forest sector. For example, one proposed cellulosic ethanol project in northern Sweden has already been postponed due to raw material constraint issues. The idea behind the project was to construct a plant where cellulosic ethanol would be produced with forest residues (e.g. tops and branches). But it became clear that there was no available technology to produce ethanol from such low-grade cellulose, but only from pulpwood. Therefore, the Swedish forest industry, SCA, left the project for fear of raw material competition with existing industries (Chemicalnet.se, 2008)⁶⁷.

In terms of second generation biomass to liquid (BTL) fuels, synthetic biodiesel offers advantages over first-generation fuels in that it does not compete for land with

⁶⁶ E.g. Brazilian sugar cane ethanol production has fared better from the turbulence surrounding ethanol in the recent year.

⁶⁷ For more information on cellulose ethanol, see the North American sections of this chapter.

food crops and a variety of raw feedstock can be used, ranging from wood-processing co-products to poorer-quality trees and agricultural residues. In Germany, Choren Industries GmbH opened the world's first commercial BTL plant in April 2008. Choren, in which Royal Dutch Shell, Daimler and Volkswagen all have a minority stake, expects to produce 18 million litres of biofuel annually, using 65,000 tons of wood (dry weight) from forest residues and wood waste. In 2012 Choren is planning to run another plant producing up to 250 million litres of biodiesel, consuming one million dry tons of biomass. How this will develop in the future will depend on the ability to reduce the production costs, estimated currently at one-euro per litre. Nonetheless, this development holds considerable promise.

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Chapter 10

Green building drives construction market and forest certification: Certified forest products markets, 2007-2008⁶⁸

Highlights

- From 2007 to 2008, the world's certified forest area grew by 8.8%, reaching 320 million hectares, which is 8.3% of the global forest area, and 13.4% of the managed forest area.
- While the rate of increase in forest area certification has been slowing since 2006, chain of custody (CoC) grew by 50% in 2007, attaining 12,600 certificates worldwide in 2008.
- Green building systems are helping to drive certification in the construction market in the United States and Europe.
- Western European countries have certified more than 50% of their total forest area, North America more than one third, but Africa and Asia only 0.1%.
- Approximately 80-90% of the world's certified forest is located in the northern hemisphere, where two thirds of the world's roundwood is produced; more than half (57%) of the certified forest is in North America.
- Canada and the US continue leading the UNECE region in hectares of forest area certified, while Australia and Brazil have the most certified area outside the UNECE region.
- In the tropical region, 40% of the certified forest remains under certification schemes that are not certified by independent third parties.
- Globally the United Kingdom, the US and Germany have the most CoC certificates, while outside the UNECE region, Japan, China and Brazil are top ranked.
- Green purchasing policies and public procurement policies remain key drivers for certified forest products (CFPs) and forest certification.
- Double certification by multiple schemes is increasing as the wood and paper industries achieve better market access.
- The most prominent market benefits for CFPs are market access and brand image; price premiums for CFPs are an exception in Europe and North America.

⁶⁸ By Mr. Florian Kraxner, International Institute for Applied Systems Analysis; Dr. Catherine Mater, Mater Engineering; and Dr. Toshiaki Owari, University of Tokyo.

Secretariat introduction

The market developments and policy drivers for CFPs are analysed in this chapter. Governmental and organizational procurement policies, as well as those of trade associations, often call for certification as a means to assure that their paper and wood products are derived legally from sustainably managed forests. The UNECE Timber Committee and the FAO European Forestry Commission initiated reporting on CFP markets and certification of forest management in 1998. To support the reporting process they set up an officially nominated Network of Country Correspondents on Certification and Certified Forest Products Markets. The authors of this chapter surveyed the entire network this year to elicit information for this chapter.

We thank those country correspondents who responded in a timely manner, which enables us to incorporate their contributions into the chapter analysis. This source of information is particularly important since there are currently no official statistics for trade in CFPs. The FAO/UNECE Working Party on Forest Economics and Statistics in 2006 confirmed the fact that CFPs do not feature in the Harmonized Commodity Description and Coding System maintained by the World Customs Organization. Unless otherwise attributed, all estimates and opinions in this chapter are based upon the authors' interpretations.

The chapter will provide a basis for an exchange on CFP markets at the joint Timber Committee and European Forestry Commission Market Discussions on 21-22 October 2008. Another basis for the discussions will be country-market statements in which Governments will be requested to report on certification market developments and public-procurement policies for wood and paper products and their impacts on sustainable forest management (SFM) and timber markets. The central theme of the discussions will be green building systems' impacts on the forest sector, and exploration of systems for building more environmentally friendly and energy-efficient buildings that have requirements for certified wood. These can be either a facilitator of trade or a barrier, depending on the availability of CFPs and the green building system regulations.

Mr. Florian Kraxner,⁶⁹ Research Scholar, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria, led the production and wrote most of this chapter. Mr. Kraxner is a member of the UNECE/FAO Team of Specialists on Forest Products

⁶⁹ Mr. Florian Kraxner, Expert in certified forest products markets, International Institute for Applied Systems Analysis, A-2361 Laxenburg, Austria, tel: +43 2236 807 233, fax: +43 2236 807 599, email: kraxner@iiasa.ac.at, website: www.iiasa.ac.at/Research/FOR.

Markets and Marketing. Dr. Catherine Mater,⁷⁰ President, Mater Engineering, Ltd. and Senior Fellow, The Pinchot Institute, Corvallis, Oregon, US, contributed to the North American analysis. Mr. Kraxner and Dr. Mater have presented CFP markets at the Timber Committee Market Discussions. We once again thank Dr. Toshiaki Owari,⁷¹ University of Tokyo, for his perspective on Asian CFP markets. The chapter was reviewed by Dr. Ruth Nussbaum,⁷² Director, ProForest, UK.

10.1 Introduction

The UNECE region's CFP markets have been analysed in a chapter of the UNECE/FAO *Forest Products Annual Market Review* each year since 1998. This year's chapter provides an in-depth statistical overview of the market and trade of CFPs. Special focus is placed on the topic of "green building", and the chapter also concentrates on policy-related aspects of certification in the forest sector. CFPs bear labels demonstrating, in a manner verifiable by independent bodies, that they come from forests that meet standards for SFM. Consumers may find labels on furniture and wood products, while manufacturers can verify the sources through the certification scheme's chain-of-custody (CoC) procedures. A section of this chapter looks into non-independently or non-third-party certified forests by systems such as the Indonesian Ecolabelling Institute⁷³ (LEI). The section also briefly discusses national certification schemes such as the Malaysian Timber Certification Council⁷⁴ (MTCC). Their CFPs are important since they are imported into the UNECE region. Process certification schemes such as ISO⁷⁵ 14001 are not included in this comparative analysis. The chapter continues to focus on certification systems based in the UNECE region.

While attempts are made to be impartial and objective, certification and CFP markets remain controversial within the forest sector. There is certainly

⁷⁰ Dr. Catherine Mater, President, Mater Engineering, Ltd, 101 SW Western Boulevard, Corvallis, Oregon 97333, US, tel: +1 541 753 7335, fax: +1 541 752 2952, e-mail: Catherine@mater.com, website: www.mater.com.

⁷¹ Dr. Toshiaki Owari, Lecturer, Forest Business and Management, University Forest in Hokkaido, Graduate School of Agricultural and Life Sciences, University of Tokyo, Yamabe, Furano 079-1561, Japan, tel: +81 167 42 2111, fax: +81 167 42 2689, e-mail: owari@uf.a.u-tokyo.ac.jp.

⁷² Dr. Ruth Nussbaum, Director, ProForest, South Suite, Frewin Chambers, Frewin Court, Oxford, UK, OX1 3HZ, tel: + 44 1865 243439, e-mail: info@proforest.net, website: www.ProForest.net.

⁷³ <http://www.lei.or.id/english/index.php>.

⁷⁴ <http://www.mtcc.com.my>

⁷⁵ <http://www.iso.org>

not consensus that certification is necessary. As noted in the analysis in section 4, the costs of certifying and maintaining certification on forestlands can be perceived as relatively high. This is especially the case when double certification by more than one system is needed to access different markets. When there are no price premiums for CFPs, as is common, the certification costs are absorbed by forest owners. The costs of CoC are borne by owners, as well as by the entire supply chain. Hence, there can be controversy when costs cannot be directly covered through higher prices. The weak markets and prices in 2007 and mid-2008 have further exacerbated the situation.

If costs exceed revenues, who benefits from certification and CFPs? Approximately 15 years ago when certification of SFM began, forest owners, including Governments and forest products companies such as retailers, regarded the initial costs as normal “start-up”. They assumed that the costs would be recaptured in the medium term. However, after 15 years without consistent or significant price premiums, there must be other benefits of certification that provide an incentive to bear the costs. For some forest industries, the certification costs are significantly less than advertising, and thus certification is a part of their corporate responsibility programme.

Section 4 presents the market drivers and benefits as summarized from the survey of the UNECE/FAO Certification Network. For example, market access is extremely important to penetrate environmentally oriented retailers and consumers. Corporate responsibility drives companies and their trade associations to promote environmental awareness and thereby opens markets for their products. Another reason may be to sell to Governments and organizations whose procurement policies specify CFPs. In summary, despite the lack of direct financial benefits, the indirect benefits justify certifying and marketing CFPs for some forest owners, manufacturers and retailers.

10.2 Forest management certification

10.2.1 Certification systems and forest area certified

By May 2008, the area of independently certified forest worldwide totalled 320 million hectares (ha), approximately 8.3% of the world's total forest area (3.9 billion ha (FAO, 2007)) (graph 10.2.1). This means a gain in certified area of approximately 26 million ha during the period from May 2007 to May 2008.

Since the first forest management certification in 1997, the certified forest area has increased every year,

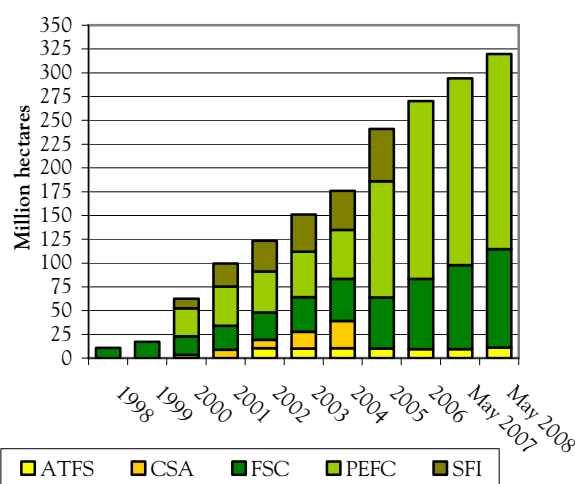
mainly due to the following principal systems within the UNECE region:

- ATFS, American Tree Farm System;
- CSA, Canadian Standards Association Sustainable Forest Management Program (endorsed by PEFC in 2005);
- FSC, Forest Stewardship Council;
- PEFC, Programme for the Endorsement of Forest Certification schemes, formerly known as the Pan European Forest Certification System; and
- SFI, Sustainable Forestry Initiative (endorsed by PEFC in 2005).

PEFC endorsed CSA and SFI in 2005. CSA and SFI cover the most certified forests in North America and their products can bear the PEFC label. Adding 76.7 million ha of CSA forests and a further 60.4 million ha of SFI-certified forests means that the PEFC umbrella totalled 205.3 million ha of certified forest area worldwide (as of May 2008).

GRAPH 10.2.1

Forest area certified by major certification schemes, 1998-2008



Notes: As of May 2008, approximately 2.6 million hectares have been certified by more than one scheme (mostly FSC and PEFC). These are not deducted from any scheme – the graph therefore shows a slightly higher amount of total forest area certified than exists in reality. FSC = Forest Stewardship Council; PEFC = Programme for the Endorsement of Forest Certification schemes; CSA = Canadian Standards Association Sustainable Forest Management Program (endorsed by PEFC in 2005); SFI = Sustainable Forestry Initiative (endorsed by PEFC in 2005); ATFS = American Tree Farm System.

Sources: Individual certification systems, the Canadian Sustainable Forestry Certification Coalition and author's compilation, 2008.

PEFC is a global umbrella organization for the assessment and mutual recognition of national forest certification schemes developed in a multi-stakeholder process. Globally, the organization has issued certificates for “SFM and the protection of forests’ functions for present and future generations” in 17 countries, 3 of which three are outside the UNECE region. PEFC was launched in 1999 and its Council currently consists of 33 member countries, of which 7 are outside the UNECE region. Currently, 24 (including 3 outside the UNECE) certification systems are endorsed by PEFC (Slovenia joined in August 2007 and Poland and Estonia in February 2008) and another 13 (4 outside UNECE region) national certification schemes are undergoing the PEFC endorsement process (including Belarus, Cameroon, Gabon, Latvia, Malaysia and the Russian Federation). PEFC runs three Promotion Initiatives with offices in Japan, Beijing and London.

FSC listed a total of 103.5 million ha of certified forest in May 2008. FSC is an international association of members consisting of a diverse group of representatives from environmental and social groups, the timber trade and the forestry profession, indigenous people's organizations, corporations, community forestry groups, and forest product certification organizations. Its certificates are linked to a label that “assures that products bearing it originate from forests managed to meet the social, economic and ecological needs of present and future generations”. Currently, FSC certificates are issued for SFM in 79 countries, 28 of which are outside the UNECE region. The certification scheme was officially launched in 1992 and has local offices (national initiatives) in 46 countries around the world.

ATFS forms the third major certification system of North America, accounting for 11.1 million ha certified forest area. Certification of tree farms through ATFS, under the oversight of the American Forest Foundation, is the oldest and largest voluntary, third-party verification process in the US. Since 1941, ATFS has been certifying the practice of sustainable forestry. Through the “power of private stewardship” an ATFS certificate assures “sustaining forests, watersheds and healthy habitats”. Currently, the ATFS system includes nearly 600 certificate holders in 45 states of the US. The American Forest Foundation, supported by SFI, has submitted the ATFS for PEFC endorsement where the system is currently undergoing recognition processes. Officially, the ATFS and SFI labels are already mutually recognized, which will allow for quicker endorsement negotiations with PEFC, which are expected to be finalized in August 2008.

Approximately 1.6 million ha in Europe (mostly in Sweden, Finland and Germany) and another 1 million ha

in North America (in Canada and the US) are double certified. This trend towards “double certification” or “dual certification”, i.e. the certification by two or multiple third-party schemes simultaneously for the same forests and the same products, originates from the desire by the forest industry for mutual recognition by the major certification schemes. For some forest owners and companies, double certification facilitates marketing to different CFP market segments (Purbawiyatna and Simula, 2008). Nevertheless, full or partial recognition between FSC and PEFC is not anticipated in the near future due to remaining controversies to be resolved.

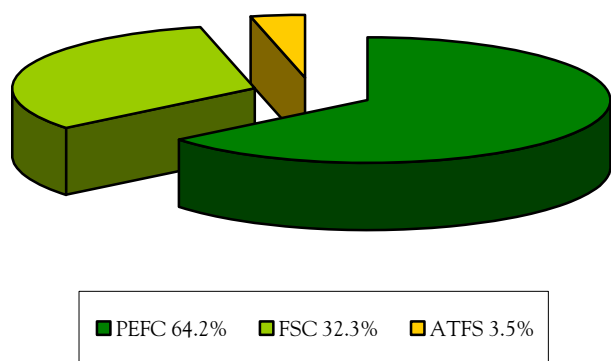
The Technical Commission of National Standardisation of Portugal, an independent body which ensures the representation of all forestry stakeholders, produced a gap analysis in 2007 between the Portuguese Standard for Sustainable Forest Management Systems of PEFC and the FSC standards. The Commission has started to work towards a possible harmonization between both standards. PEFC aims – through its mission and objectives – to provide a framework for the development and mutual recognition of national or sub-national forest certification schemes. By doing so, to date PEFC has achieved mutual recognition (endorsement) globally of 24 (national) certification systems. Outside the PEFC umbrella, full mutual recognition exists, for example, between two North American certification systems, the SFI under the PEFC umbrella and the ATFS. Consequently, under the SFI system, ATFS-certified (raw) material is considered equivalent to SFI-certified material, and vice versa.

10.2.2 Share of forest area certification

In terms of share of certified forest area, the market is clearly divided (graph 10.2.2). Due to the endorsement of SFI and CSA under PEFC, the number of major international certification schemes has been reduced to two, FSC and PEFC. The PEFC umbrella is the largest scheme with respect to forest area – it accounts for slightly less than two thirds (64.2%) of the area certified globally. However, the umbrella scheme had a reduction of a 3% share of the total certified area, compared to the previous survey period (May 2006 - May 2007). With a share of 32.3%, FSC is the second largest scheme. The ATFS share remained stable at 3% of the certified area worldwide. When ATFS and some other large national schemes are endorsed by PEFC, the past year's loss in share could be regained within the following year.

GRAPH 10.2.2

Share of certified forest area by the three major schemes, 2008



Notes: If a forest has been certified to more than one standard, the respective area has been counted in each of the certifying schemes involved. Total certified forest area in this graph therefore shows a higher amount – approximately 2.6 million hectares more – than exists in reality. Information valid as of May 2008.

Sources: Individual certification systems, Forest Certification Watch, the Canadian Sustainable Forestry Certification Coalition and author’s compilation, 2008.

10.2.3 Geographical distribution of certified forest area and certification systems

Within the UNECE region, North America has the largest area of certified forest, as it has had during the last five years (graph 10.2.3). Canada now has 138.7 million ha of certified forest, and the US 42 million ha. After a slowdown in the growth rate during the previous review period (May 2006 – May 2007), Canada and the US display an increasing growth rate of 9% and 14% respectively. More than half of PEFC-certified forest and almost one quarter of FSC-certified area were in Canada. Hence the growth is due to an incremental increase in both prevalent certification systems. In the US, mainly PEFC and ATFS contributed to the growth in the certified forest area.

Finland ranks third in the world and is the first European country in certified hectares of forestland. However, it had a slight reduction of 6.7% in PEFC-certified forest area. Some protected forest areas that had almost no harvesting were removed from the certified area, which now totals 21.1 million ha.

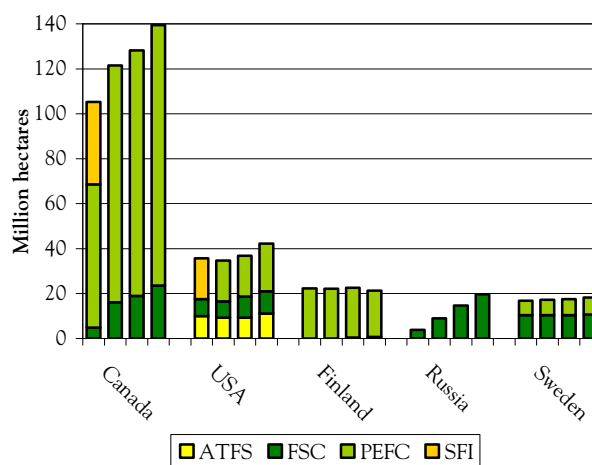
Russia, now ranking fourth after having overtaken Sweden, in 2009 could become third. Even though the growth rate in Russia slowed by half compared with the previous survey period, 34% is still the highest growth rate among the top-ranked countries within the UNECE region. The certified area in Russia is now 19.7 million

ha, and as of mid-2008 is certified only by FSC. However, PEFC may endorse a Russian scheme later in 2008.

Both major certification systems in Sweden demonstrated a slight increase in their certified forest area (17.1 million ha). However, the overall growth rate was slightly negative after the correction of the overlap from double certification. This, and the steep increase in Russia, led to a lower rank than during the previous review period. The slowing growth rates seem to be a western European trend, as most of the countries following the top five – such as Germany, Norway and Poland – reported negative growth rates, ranging from -2% to -24%.

GRAPH 10.2.3

Five countries’ certified forest area, within the UNECE region, 2005-2008



Notes: Bars for each country represent years from 2005 to 2008. The graph contains no overlap from double certification. Information valid as of May 2008.

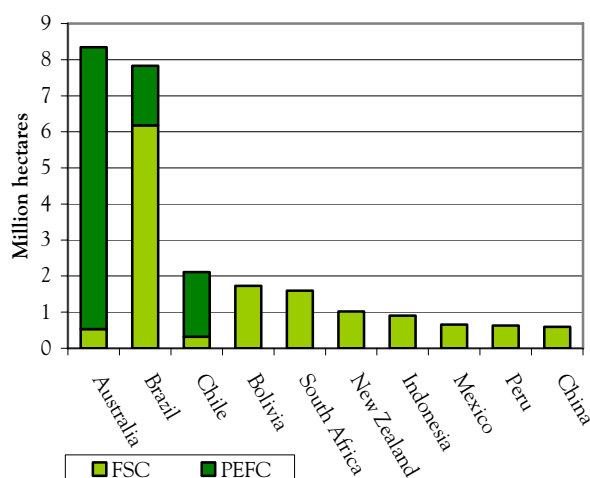
Sources: Individual certification systems, country correspondents, Forest Certification Watch, Canadian Sustainable Forestry Certification Coalition, author’s compilation, 2008.

Outside the UNECE region, the country ranking for certified forest area is clearly led by Australia and Brazil. Australia has certified 8.3 million ha, of which more than 90% is by PEFC. Brazil accounts for 7.8 million ha, of which almost 80% is certified by FSC (graph 10.2.4). In the global ranking, Australia would rank sixth and Brazil seventh. In sub-tropical and tropical areas, FSC has issued most of the certificates, totalling approximately 4 million ha in Africa, Latin America and Asia.

Most countries inside and outside the UNECE region choose a single certification scheme. Australia, Canada, Finland, France, Germany and Norway, are clearly dominated by PEFC or PEFC-endorsed systems. In Brazil, Poland and Russia, FSC is the predominant system. Sweden and the US have several schemes certifying almost equal amounts of forest.

GRAPH 10.2.4

Certified forest area in ten countries outside the UNECE region, 2008



Notes: The graph contains some overlap from double certification. Information valid as of May 2008.

Sources: Individual certification systems, country correspondents, Forest Certification Watch, Canadian Sustainable Forestry Certification Coalition and author's compilation, 2008.

10.2.4 Certified forest, total forest and the wood market

Although the certified forest area in some countries in western Europe is slightly declining, more than half (54%) of the total forest area is certified (graph 10.2.5). This is the highest share when comparing the regions, followed by North America, with more than one third (39%). Apart from western Europe and North America, Oceania (4.8%) and eastern European countries and CIS (2.7%), as well as Latin America (1.6%) exceed 1% of their total forest area under certification. However, Africa and Asia, with their vast forest areas, still show at most 0.5%.

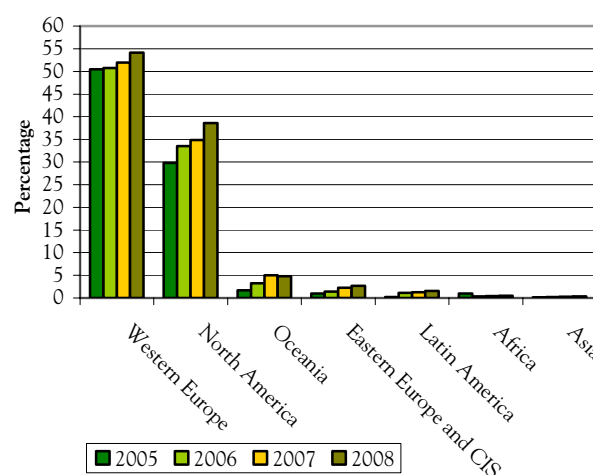
The rate of increase in percentage of certified area to the total forest area – if positive at all – is relatively small in all regions. The steepest increment rate since 2005 features North America – its share in the relative certified area grew by some 30% over the last four years. During the present review period (May 2007 to May 2008), western European countries faced an average growth rate of approximately 5% (10% since 2005).

The low shares in Africa and Asia also mirror statistical developments or the non-extension of their certificates. Some African forests experienced delays in gaining certification, or have not had their certificates extended, due to mismanagement or other problems. However, two national certification schemes in Africa and one in Asia are undergoing PEFC endorsement processes that may boost the share upon successful endorsement.

One general reason for the rather marginal overall increase, for instance in the case of Europe, is that the commercial forest areas in these countries are mostly certified, and significant further certification can be realized only by double certification. However, dual certification will not be visible in the statistical calculations.

GRAPH 10.2.5

Certified forest as a percentage of total forest area, by region 2005-2008



Notes: The forest area is based on FAO's *State of World's Forests 2007* data, excluding the category "other wooded land". Eastern Europe includes only non-EU countries. CIS is the Commonwealth of Independent States. Information valid as of May 2008.

Sources: Individual certification systems, Forest Certification Watch, the Canadian Sustainable Forestry Certification Coalition, author's compilation, 2008 and FAO, 2005.

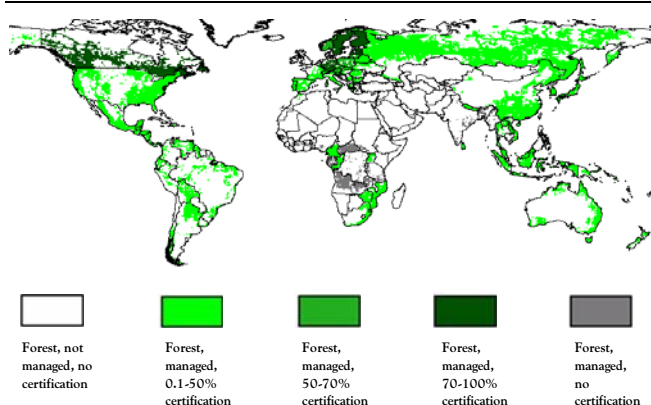
To date it is still a rather complex and multi-levelled procedure to obtain exact data on global forests, including their total area, productivity and detailed shares by function and use. While FAO has universally applicable definitions, some countries do not record data pertaining to their certified forests with the same classifications. The best available data on global forest resources is nonetheless provided by FAO, from which the 8.27% share of third-party certified forest area – relative to the global forest area – is derived. As certification is also seen as a market tool and hence will be applied in most of the cases on managed forest(s), this calculation needs to be improved and the certified area calculated in relation to the actual "managed forest" area by country.

FAO data, together with data published by the certification schemes, have been combined with Human Influence and Footprint Indices (including human population pressure, human land use and infrastructure, and human access) by the Center for International Earth

Science at Columbia University⁷⁶. This enables compilation of the geographic area of forest under management and human influence (figure 10.2.1). The four colours in the legend indicate the different intensity, with up to 100% certification indicated in dark green. The intermediate green colour represents 50-70% certification. White indicates that these areas either have no certification or have no forest cover at all. The grey-shaded area indicates that the managed forests have no certification.

FIGURE 10.2.1

Certification intensity of forest area under management, 2008



Notes: Forest area certified relative to the forest area under management by countries. It is assumed that managed forest is at least 55% influenced by human activity. The human influence map was taken from CIESIN (2002). As of May 2008.

Sources: ATFS, 2008, FSC, 2008, PEFC, 2008, authors' compilation 2008, Kindermann et al., 2008, FAO/FRA, 2005, CIESIN 2002.

The map shows that countries with managed forests tend to have certification. The highest certification of managed forests is in central and northern Europe, Canada and the US. The greatest potential for more certification by international systems exists in the other forested regions, especially the grey-shaded areas, most often in Africa and the Indian sub-continent, as well as some forests in central and southeast Asia, the Near East and South America.

Assuming that approximately 2.3 billion ha of the world's total forest area of 3.9 billion ha are under management, or at least under active human influence (Kindermann et al., 2008), the certified share among managed forest totals approximately 13.4%. This percentage is approximately 60% higher than when compared with the total global forest area (3.9 billion ha), and is more realistic in terms of a market assessment.

There is a need to more accurately calculate the production of CFPs as the current data situation is not satisfactory with regard to managed forest and certified products deriving from certified forest area.

The potential roundwood supply from the world's certified forests in 2008 is estimated at approximately 416 million m³. This is approximately 8% more than reported in the previous review period (table 10.2.1).

This potential production equates to slightly more than one quarter of the world's production of industrial roundwood, or slightly less than half of the industrial roundwood production of North America and western Europe, where 84% of certified forests are situated. Concerning roundwood production from certified forest area, the UNECE region's average annual removals on forests available for wood supply are multiplied by the percentage of the region's certified forest area. According to the UNECE/FAO definition, roundwood is composed of industrial roundwood and fuelwood; however, the latter was not considered in this estimate.

10.2.5 Certification systems in tropical countries

Globally, approximately 2% of the forest area is certified by national systems rather than the previously analysed international certification systems. However, most of the tropical countries are lacking any kind of national or third-party certification scheme. FSC is the most prevalent scheme in the southern hemisphere, especially in the tropical region. Although the southern hemisphere produces one third of the world's roundwood, most of this is used locally as fuelwood. By 2007, FSC had a share of approximately 60% in the tropics. Additionally, Malaysia's MTCC had certified some 28% of the total area certified in the tropics, Indonesia's LEI had a share of 6% and the Dutch Keurhout system in Gabon and Malaysia also totalled 6%. PEFC has the smallest share (4%) of the systems active in the tropical countries, and was mostly plantations. However, PEFC is the only other major international independent certification scheme, in addition to FSC, in the tropical forests (graph 10.2.6).

The market shares of the systems are undergoing a rapid change, which is not necessarily the case for the total forest area certified in the tropics, as indicated in section 10.2.3. By endorsing CERFLOR⁷⁷, a national Brazilian system, PEFC became active in tropical countries. The Malaysian MTCC is also undergoing the accreditation process with PEFC, which would result in an increased tropical share by PEFC.

⁷⁶ CIESIN: http://www.ciesin.columbia.edu/wild_areas/

⁷⁷ Brazilian Program of Forest Certification - Cerflor

TABLE 10.2.1
Global supply of roundwood from certified resources, 2006-2008

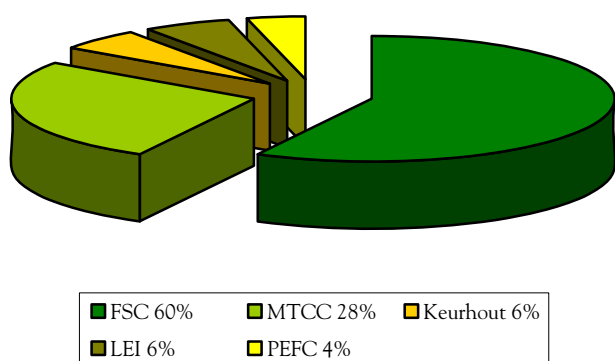
Region	Total forest area (million ha)	Total certified forest area (million ha)			Total forest area certified (Percentage)			Estimated industrial roundwood produced from certified forests (million m ³)			Estimated industrial roundwood from certified forests, from global roundwood production (percentage)		
		2006	2007	2008	2006	2007	2008	2006	2007	2008	2006	2007	2008
North America	470.6	157.7	164.2	181.7	33.5	34.9	38.6	201.8	210.1	232.5	12.7	13.2	14.6
Western Europe	155.5	78.9	80.8	84.2	50.7	52.0	54.1	162.5	166.4	173.4	10.2	10.5	10.9
CIS	907.4	13.0	20.6	24.6	1.4	2.3	2.7	2.3	3.6	4.3	0.1	0.2	0.3
Oceania	197.6	6.4	9.9	9.4	3.3	5.0	4.8	1.6	2.5	2.4	0.1	0.2	0.1
Africa	649.9	2.1	2.6	3.0	0.3	0.4	0.5	0.2	0.3	0.3	0.0	0.0	0.0
Latin America	964.4	11.1	12.1	15.0	1.1	1.3	1.6	1.9	2.1	2.6	0.1	0.1	0.2
Asia	524.1	1.1	1.6	2.0	0.2	0.3	0.4	0.5	0.7	0.8	0.0	0.0	0.1
World	3 869.5	270.3	291.8	319.9	7.0	7.5	8.3	370.8	385.7	416.4	23.4	24.3	26.2

Notes: The reference for forest area (excluding "other wooded land") and estimations for the industrial roundwood production from certified forests are based on FAO's *State of the World's Forests 2007* data. Concerning roundwood production, the subregions' annual roundwood production from "forests available for wood supply" is multiplied by the percentage of the regions' certified forest area (i.e. it is assumed that the removals of industrial roundwood from each ha of certified forests is the same as the average for all forest available for wood supply). However, not all certified roundwood is sold with a label. 2008 includes May 2007 through May 2008, and 2006 and 2007 are also from May to May. "World" is not a simple total of the regions.

Sources: Individual certification systems, Forest Certification Watch, the Canadian Sustainable Forestry Certification Coalition, 2008, FAO, 2005 and authors' compilation. Information valid as of May 2008.

GRAPH 10.2.6

Certified tropical forests by system, 2007



Notes: Shares of certification systems (third-party and non-third-party) in the tropical region. As of 2007.

Sources: Based on data from FSC and national systems elaborated by Indufor. Modified after Purbawiyatna and Simula, 2008.

10.3 Chain of custody certification

10.3.1 Recognition of and demand for CFPs

Some major European wood-producing countries such as Austria, Finland, Germany, Sweden, as well as Canada, have already reached 70-100% certification of their managed forests. This means that the entire production of roundwood in these countries could bear a certification label from one of the major certification systems. This assumption is supported in the table above. However, due to low consumer awareness and frequent resulting lack of demand by final consumers, lack of sufficient CoC certification down the production chain, as well as low incentives for producers (i.e. no clear market advantage such as price premiums), the vast majority of these products – as in previous years – has been marketed without reference to certification. Nevertheless, some countries reported an increase in awareness of certification. Especially after targeted campaigns (e.g. the "Strike a blow for FSC" campaign), awareness of certification and SFM could be rising steeply. In Denmark, for example, FSC carried out a survey of Danish municipalities in May 2008, after having presented FSC certified hammers and toolkits containing a variety of FSC products and information to mayors, purchasers, politicians and employees. Of the 200

respondents, recognition of the FSC label and knowledge about FSC increased to 65% from just 5% in 2005 (FSC Denmark, 2008). Also FSC Netherlands and FSC Switzerland reported a 67% and 56% (respectively) (prompted) recognition of the FSC label. The UK reported 23% unprompted recognition of the FSC label, especially from respondents under 25 years of age.

Downstream industries do not usually need commodity products to be certified; hence, the potential supply of CFPs exceeds demand in many markets, especially for PEFC-certified CFPs. However, CFPs are increasingly appearing on the shelves of do-it-yourself and business-to-business retailers. FSC CFPs from tropical wood such as garden furniture are often found in department-store chains in western and central Europe.

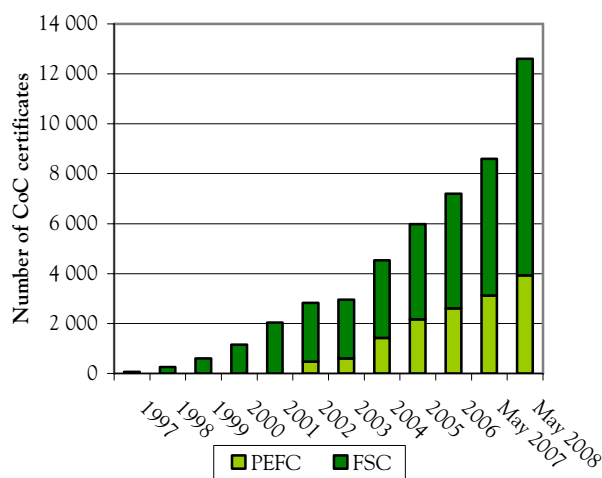
CFPs remain difficult to quantify due to the lack of official figures and trade classifications. The fundamental issue of independent, compatible and accurate data collection and management as a tool for reliable market assessment is stressed in most scientific and policy-level meetings. So far, only estimates – such that by FSC Netherlands to have a share of 17% in the domestic wood products market (2007) - can be found in the literature. Nonetheless, one practical tool for describing market characteristics and development of CFPs in business-to-business markets is the number and type of CoC certificates, which serves as a crucial market indicator.

10.3.2 Supply of CFPs

Since 1997 there has been more rapid growth in CoC certificates than in forest management certificates. A gain of 4,004 certificates means that the highest growth occurred during the past year. By May 2008 the number of certificates worldwide totalled 12,604, of which two thirds (68.8%) were by FSC and approximately one third (31.2%) by PEFC (graph 10.3.1).

Using the total number of CoC certificates issued per country as an indicator for business-to-business demand for CFPs, within the UNECE region the UK (1,878 certificates) took over the lead from the US (1,636 certificates). The other major holders of CoC certificates, of which most are FSC-certified, have also experienced a spurt in growth in 2008 (graph 10.3.2).

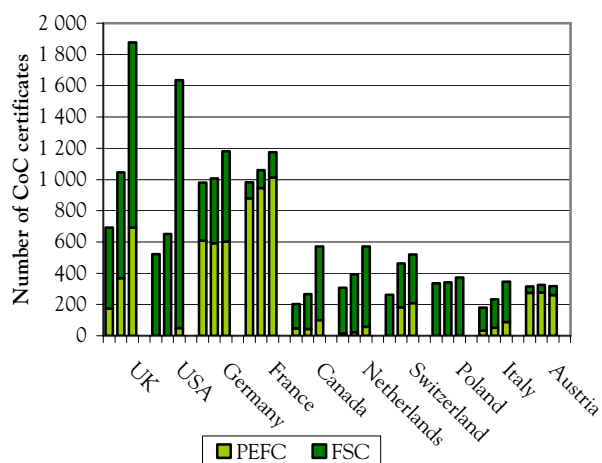
GRAPH 10.3.1
Chain-of-custody certification trends worldwide,
1997-2008



Notes: The numbers denote CoC certificates irrespective of the size of the individual companies or of volume of production or trade. Information valid as of May 2008.

Sources: FSC and PEFC, 2008.

GRAPH 10.3.2
Chain-of-custody certificate distribution within the UNECE
region, 2006-2008



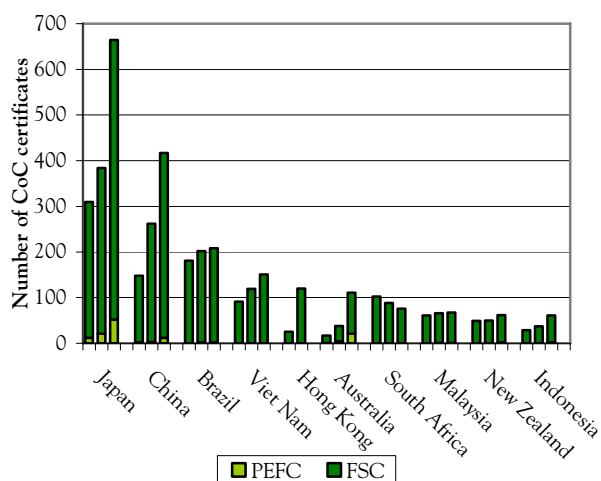
Notes: Bars for each country represent years from 2006 to 2008. Countries with fewer than 300 CoC certificates are not shown. The numbers denote CoC certificates irrespective of the size of the individual companies as of May 2008.

Source: FSC, PEFC and authors' compilation, 2008.

In countries outside the UNECE region, almost all companies holding a CoC certificate obtained these certificates from FSC. As in the previous survey periods, Japan leads with 664 certificates (graph 10.3.3). At an increasing rate of more than 85% annually, Japan almost doubled the CoC certificates issued during the present review period (May 2007 - May 2008). This positions Japan fifth behind the UK, US, Germany, France and Canada in the global ranking. Similar to the past year, Japan is followed by China (417 certificates), Brazil (208 certificates) and Viet Nam (151 certificates).

GRAPH 10.3.3

Chain-of-custody distribution outside UNECE region, 2006-2008



Notes: Bars for each country represent years from 2006 to 2008. The graph only includes countries with 60 or more CoC certificates. The numbers denote CoC certificates irrespective of the size of the individual companies as of May 2008. As of May 2008, neither SFI, CSA nor ATFS have CoC certificates.

Sources: FSC, PEFC and authors' compilation, 2008.

New among the top 10 economies with most CoC certificates outside the UNECE is Hong Kong SAR (120 certificates), which, together with Australia (111 certificates) showed the highest relative growth. South Africa, with 76 certificates, is the only African top-10 country and simultaneously, the only ranked country that has lost certificates since 2006. Malaysia, New Zealand and Indonesia are rated eighth, ninth and tenth – between 61 and 67 certificates each. Out of the ten countries highlighted, six are from Asia. This important market growth for CFPs in Asia has been illustrated in recent years by the dominant positions of Japan, China and Viet Nam.

Yuan and Eastin (2007) surveyed experiences and perceptions of the FSC CoC certified companies in China. Out of the 200 certified companies, 41 usable

responses were obtained. Results indicated that the US was the most important source of certified wood raw materials for Chinese wood products manufacturers, followed by New Zealand, Brazil, and European countries. Europe and the US were the two biggest export markets for certified wood products, in which the large DIY chain stores are important customers. Certified companies perceived positively that certification was helpful in entering new export markets, maintaining existing markets, and enhancing their competitiveness and public image.

Brazil and other Latin American countries are rapidly increasing their CFP production and exports. Most companies outside the UNECE export their CFPs to North America and Europe due to lack of domestic markets.

10.4 Policy issues

Most of the following information comes from a survey conducted in May 2008 of the officially nominated UNECE/FAO Network of Country Correspondents on Certification of Sustainable Forest Management and CFPs (the Certification Network). The Certification Network was established by the UNECE Timber Committee and the FAO European Forestry Commission to provide an objective source of country information on certification and CFPs for this annual chapter, and for other UNECE/FAO market analyses.

10.4.1 The impact of green building policies on CFP markets

10.4.1.1 Green building standards and CFPs

Buildings have a profound effect on the environment, since they account for considerable usage of land, energy and water. Depending on the varying subregional construction practices, buildings consume a considerable amount of wood.

There are green building systems and standards operating in approximately 15 countries globally. Some of these schemes require, recommend or approve the use of either FSC or PEFC CFPs, such as schemes in Canada and the US (e.g. the Leadership in Energy and Environmental Design (LEED) system) and the green building schemes in the UK. It should be noted that systems such as LEED, which require and allow only one certification scheme, in this case FSC, have been criticized by holders of other systems' CoC certificates. European countries with green building systems include the UK, the Netherlands, Germany and Italy. Outside the UNECE region, green building standards exist in Japan, Singapore and Australia. Most of the standards aim mainly at energy efficiency and bring together a vast array

of practices and techniques to reduce and ultimately eliminate negative impacts of buildings on the environment and human health. Additionally, the different standards often emphasize taking advantage of renewable resources, e.g. using sunlight, or (certified) wood for construction.

The environmental impact of buildings is often underestimated, whereas the perceived costs of building green are overestimated. A survey by the World Business Council for Sustainable Development finds that costs for green building are overestimated by 300%. Key players in real estate and construction estimate the additional cost at 17% above conventional construction, more than triple the true average cost difference of approximately 5% (World Business Council for Sustainable Development, 2008).

10.4.1.2 Green building in Europe

Compared with North America, the situation of CFPs in the construction sector for green building in Europe is quite divergent among countries. The survey of the UNECE/FAO Certification Network indicated that green building is not yet a major topic in some countries with a high share of forest area certification such as Norway, Finland and Luxembourg. One of the reasons may be that due to the high share of certification, the use of certified wood in the construction (housing) market is self-evident. Consequently, green building is concentrating on topics such as energy efficiency rather than just on the use of certified timber.

Switzerland, Slovenia, the Czech Republic and Liechtenstein have a relatively well established CFP market in the do-it yourself retail sector. Activities are under way to strengthen the role of certification in the construction sectors of these countries. In Switzerland, the "Minergie" standard is equivalent to the LEED standard in the US and requires certified wood (Minergie-Eco). In the Czech Republic, a competition for green building focusing on sustainability and energy efficiency should draw attention to this market. In Switzerland and Liechtenstein, certified wood is promoted and specified in the planning and contracting processes for public buildings.

Germany and the UK reported that certified timber is becoming established as a kind of quality assurance mechanism. Many products in the construction sector are starting to carry certification labels. Nevertheless, the private green building sector has only a minor share in the construction sector, mainly due to the low level of interest of private homeowners in certified wood products. In both countries, the current public procurement policies are starting to have an impact on

the preferred use of certified wood, which is also expected to raise interest in the private sector.

Similarly in France, where even though the use of wood in house construction is currently rather low (10%), the goal is to increase that share to 12.5% by 2010. Certification plays a certain role only in the construction of wooden (log) houses or in high-quality environmentally friendly constructions. A clear link to green building exists in public procurement policies, which require all wood used in public construction to be certified or to be from guaranteed sustainable origins by 2010.



Source: Homestead Timber, 2008.

Belgium, Denmark, Germany and the Netherlands have similar initiatives. Certification in the construction sector is of increasing significance, which is highlighted by the increasing number of CoC certified companies in the building industry. This trend is expected to increase due to the public purchase policy being established in 2008 by the Government of the Netherlands, which is completely based on the SFM process. Both major certification schemes are active regarding green building in the Netherlands. FSC expanded its market share by increasing the number of agreements with housing associations, banking organizations, municipalities, and building companies (86 partners signed the FSC covenant agreeing only to use FSC products), accompanied by many promotional actions throughout the year.

Italy appears to be especially active in the construction and green building sector, although, the potential of forest certification in the building sector, though high, is still mostly unrealized. Around 5.3% of FSC-certified national companies are directly connected with this sector by producing value-added CFPs such as doors, windows frames and flooring. Moreover, timber trade and sawmills are indirectly connected to the same

sector, adding another 18% of all certified companies. Also, the potential for PEFC certification could be relevant considering that the largest part of PEFC timber on the market is primary processed material (e.g. sawn softwood) which could be suitable for structural components of buildings. Despite the demand for certified wood in the national building and construction sector being still low, there are positive signals such as the construction of the headquarters of the most import bank dealing with ethical financing in Italy (Banca Etica) in Padova. This positive example is expected to set trends in the public and private construction sector – together with initiatives such as “Sistema casa Fiemme”, a network of 25 companies from the Fiemme Valley, engaged in green building and using FSC certified wood from local forests, which has also successfully passed earthquake testing in Japan.

Projections by Assolegno (National Association of Forest and Wood Industries) indicate that in coming years the percentage of wood used in construction could grow from 0.4% to 5%, i.e., from 1,600 to 16,000-20,000 buildings per year.

In the Italian public sector, recent laws support green building and energy savings in the construction sector. These laws are aligned with EC Directive 2002/91 on compulsory energy certification for buildings, and include tax reductions for green building and energy savings. Officially, there is no link between green building and certification in Italy as yet, but in some certified forest areas in northern Italy, the local administrations have recommended certified wood for its buildings.

The process for establishing the Green Building Council in Italy, a body in charge of supporting the LEED Programme in Italy and developing LEED standards at national level, was initiated in 2007. It addresses the issue of encouraging environmentally responsible forest management by requiring use of a minimum of 50% of FSC-certified forest products.

10.4.1.3 Green building in North America

Despite the slump in US construction in 2007-2008, the US market for building “green” is growing. In 2007, with the introduction of LEED certification for residential construction, the markets have notably increased. According to a 2007 study released by McGraw-Hill Construction on consumer attitudes and preferences for remodelling and buying green homes, the market for green homes was less than 1% of the total construction market in 2005 and worth almost \$2 billion. In large part due to the increase in energy costs, green building construction is now projected to reach \$20 billion by 2010. The report states that 66% of US homeowners are aware of green building, and in 2007 almost 40% of home

remodelling met green building requirements. By May of 2007, LEED initiatives were being undertaken in 22 states – all focused on government and institutional construction. In April 2008, the US Green Building Council announced that one new school a day is registering for LEED certification. In the Pacific Northwest, energy-efficient homes are reported to be a bright spot in a depressed real estate market. Environmentally certified homes are being sold at a 10.5% premium on a square metre basis and are spending 24% less time on the market before being sold than non-certified homes. From September 2007 to March 2008, 20% of all home sales in Seattle were environmentally certified by one of three programmes, LEED for Homes, Built Green or Energy Star.



Source: Christian & Son Inc, 2008.

In 2008, LEED for Homes began on a national basis. The LEED for Homes Rating System assigns points for green features such as energy efficiency, enhanced indoor air quality, water efficiency, and sustainable use of materials – including FSC-certified wood. The LEED Building Council reported that one third of the 1,200 certified buildings were rated as such because of their use of certified wood. In 2006, NAHB reported that 50% of builders were focusing their attention on green building issues. By March of 2007, NAHB was predicting that 40-50% of homes built in 2010 would be green certified, while other projections estimated 10% by that time. In January 2007, Green Building Media released results of a survey of 250 residential builders across the US, stating that 51% of homebuilders reported that buyers were willing to pay a premium of between 11-25% for green-built homes. By May of 2008, almost 700 homes in 31 states across the US had been LEED-certified, with 12,000 additional homes registered for certification in the near future. More importantly, and possibly an indication of the market “staying power” for LEED-certified homes,

only 17% of the certified homes are classified as custom homes in the market. Forty-two per cent of certified homes were “spec” (production homes constructed to the specifications of builders rather than homeowners), and 37% were homes built for the affordable housing market.

The green building boom is expanding to Canada from the US. Due to a great deal of attention by the media, some provincial governments are establishing green building standards for government buildings. Hence, each year green building is playing a larger role in the Canadian construction market.

A major driver of development in Canada is the number of green building systems that recognize certification under the Canadian Green Building Council, which follows the lead of the US Green Building Council (LEED standard) and continues to award points for CFPs, but only for FSC-certified products. However, the Council is currently re-assessing all other certification standards and how they might be included in the future. BOMA Go Green (Green Globes Canada) already includes all forest certification standards for credits in their programme.

The Canadian Home Builder’s Association has also shown interest in green building standards, and commissioned a study on the major certification systems used in Canada and the impact of the US Green Building Council preference for FSC-certified wood in its LEED standard. Results from this study argue against restrictions to single certification systems in Canada’s home building sector because builders would be unreasonably denied recognition for environmentally sound construction based on other SFM wood, which could mislead customers into thinking that homes built with other SFM wood are not environmentally sound (Canadian Home Builder’s Association, 2008).

Certified wood products provide the building sector and consumers with the assurance that a product comes from a well-managed and legal source. This is a message that builders, architects and others can pass on to the end user. As a result, these groups are increasingly specifying certified wood products – especially in the value-added sectors of windows, doors, and beams. On the other hand, there is little awareness of forest certification in the residential sector because there is little demand for certified products. Homes are often built with wood from certified forests without the knowledge of the consumer. As a result, few residential builders specify certified products.

While forest certification, certified products and chain-of-custody continue to gain traction with architects and builders, these have not yet been incorporated into current building codes either at the national or provincial levels. However, positive examples include the

Government of Quebec, which passed a bill in December 2007, with articles that specifically address the issue of certification. This has enabled the Minister to make certification mandatory on public land for any company with harvesting rights. In addition, British Columbia’s (BC) bill for 2008 included measures to address climate change, reduce greenhouse gas emissions, and increase the energy efficiency of buildings through the development of green provisions for the BC Building Code. This is seen as an important move, since credible forest certification also contributes to carbon sequestration and thus has a link to the important contribution being made by green buildings on the climate change front.



Source: Stora Enso, 2008.

Additionally, BC’s government insists that all new government structures, including schools and government buildings, be built according to leading green building rating systems currently available in North America (LEED or equivalent). It has also adopted a Wood First policy to help promote the use of sustainably managed BC wood products in construction.

10.4.1.4 Green building in Asia

The green building movement is gaining ground among Asian countries as well. Current members of the World Green Building Council include India, Japan, and Taiwan Province of China. China, Hong Kong SAR, the Republic of Korea, Philippines and Viet Nam are not yet members of the Council, which is still in the early stages of development (World Green Building Council, 2008).

The Indian Green Building Council has adopted the LEED rating system for India (Indian Green Building Council, 2008). The Council launched LEED India for New Construction and for Core & Shell in 2007. Like the US, LEED India only allows credits for using FSC-certified wood. By March 2008, more than 160 buildings had been registered under the LEED system (Confederation of Indian Industry, 2008).

The Japan Sustainable Building Consortium has developed the Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) in Japan (Japan Sustainable Building Consortium, 2008). CASBEE includes four assessment tools corresponding to the building lifecycle: CASBEE for Pre-Design, New Construction, Existing Buildings, and Renovation. Among the expanded assessment tools for specific purposes, CASBEE for Homes (Detached Houses) was launched in September 2007. CASBEE allows a higher rating in using wood from thinning forests, wood from sustainably managed forests (following the guidelines by the Japan Forestry Agency), and domestic softwood. The use of locally produced wood is also rated positively. Unlike the LEED system, CASBEE is not selective in its choice of forest certification programmes. As of March 2008, 24 skyscrapers with a floor space of 1.5 million m² were CASBEE-certified. Several major local governments, including those of Nagoya, Osaka and Yokohama, require building owners to report the CASBEE's result when they construct new buildings. By September 2007, more than 2,000 reports had been submitted to the local governments.

The Chinese Ministry of Construction published the Evaluation Standard for Green Building in June 2006, which is also similar to LEED. The Ministry assesses the energy performance of buildings based on the standard, and issues the appropriate certification (Hong et al., 2007). The Green Olympic Building Assessment System (GOBAS), published in 2003, is another green building rating system, which is modelled primarily on Japan's CASBEE. Among resources and environmental impacts involved, energy consumption and system performance are the most important elements of GOBAS (Nakahara and Shimizu, 2007). Ten Chinese building projects were certified under the LEED, with another 53 projects registered by April 2008 (US Green Building Council, 2008).

10.4.2 CFP market drivers and constraints

10.4.2.1 Driving factors in North America

Widespread and increasing concern for the environment is a principle driving factor for CFPs. Companies and their trade associations want to demonstrate their corporate responsibility, both social and environmental, through a commitment to forest certification, in order to send a clear signal to their customers. Market pressure by environmental NGOs also remains a driving factor. The pulp and paper industry in the US remains the key driver of forest certification in that country for both forest area certified and production facility CoC certifications.

An additional driving factor is likely to be the June 2008 extension to the Lacey Act, which makes possession of

timber obtained, traded or sold illegally, even where the illegal act was outside the US, a criminal offence in the US.

10.4.2.2 Driving factors in Europe

A principal driving force is the demand of business-to-business markets, such as the strong demand by the retail sector for paper and newsprint in France and Switzerland. Governmental and organizational procurement policies are stimulating CFP demand. In the private sector, companies and trade associations are under pressure to demonstrate that their timber is from legal and sustainable sources. FSC runs intensive promotion campaigns, which are seen as a driver for certification in some countries, such as the Netherlands. In Italy, both major certification systems are active in promotional and educational events, while strong growth of PEFC certification was reportedly due to strong political and financial support by local governments.



Source: Finnish Forest Industries Federation, 2008.

10.4.2.3 Factors constraining CFP markets in North America

Cost is a major limiting factor for either SFM certification of forest management or CoC certification, especially when market benefits are perceived to be limited. The complex process is perceived to be costly to establish and to maintain. The absence of marketing leads to a lack of consumer awareness and demand. Some stakeholders view the exclusive promotion of one certification system – especially in some procurement policies and green building systems – as a major factor limiting the choice of supply.

10.4.2.4 Factors constraining CFP markets in Europe

In Europe, lack of information and the absence of consumer awareness about forest certification and CFPs is a major limiting factor. In addition to lack of knowledge of final consumers, certification is not widely known by private forest owners, small companies and lower levels of government. One negative factor is the direct and indirect costs of certification and especially dual certification by both FSC and PEFC, such as in Switzerland. The request for certified timber on the Dutch market resulted in higher prices for tropical hardwoods because of limited supply.

10.4.3 Market benefits through forest certification

10.4.3.1 Market benefits in North America

The chief benefit for CFPs is improved market access, especially to green building markets. FSC appears to achieve price premiums in Canada, especially for value-added products. For some companies, certification has become a necessary cost of doing business. Some companies benefit from brand recognition and their reputations are enhanced when certified raw materials are used.

10.4.3.2 Market benefits in Europe

While many countries reported that market benefits are small or nonexistent, there are some countries receiving a market benefit in terms of market access, for example, retailers in Switzerland. As in North America, value-added products seem to gain some price premiums and in Portugal there is also a premium for certified roundwood. However, overall, consumers are not willing to pay more for certified products. Certification facilitates gaining contracts when Governments have public procurement policies specifying CFPs, such as in Italy. In addition, certification is often a good marketing tool, enabling branding for commodity products.

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Chapter 11

Global trade slump means trouble for producers: Value-added wood products markets, 2007-2008⁷⁸

Highlights

- Value-added wood products imports by the largest consuming countries continued to increase in 2007, with the major exception of United States imports, which declined after several record-breaking years.
- Global increases in raw material and other manufacturing costs, including transport costs, are changing the furniture manufacturing scene, since many lower-cost producers are also forced to either make productivity investments or stop producing.
- Profiled wood and builders' joinery and carpentry imports dropped to the lowest level in years in the US due to the slowdown in housing construction.
- Latin American profiled wood producers have been forced to scale down production and are now waiting to decide whether to close for good or begin exports to the US again if the market turns soon.
- The medium-term forecast for profiled wood and builders' joinery and carpentry products is positive; however, supply side restrictions in some producer regions leave open the question whether imports will continue growth.
- Engineered wood products, e.g. glulam beams, I-beams and laminated veneer lumber (LVL), which are dependent upon new residential construction, had downturns in 2007, despite continued strength in their use in non-residential applications.
- Engineered wood products are expected to benefit from the North American green building movement because they use fewer forest resources to manufacture products that span longer distances, with fewer pieces carrying the same loads as sawnwood, and they can be competitive with concrete and steel.
- The World Furniture Confederation was founded in September 2007 in Shanghai, China, all major furniture producer regions have joined to further develop cooperation and protect their common interests.

⁷⁸ By Mr. Craig Adair, APA – The Engineered Wood Association, US, Mr. Tapani Pahkasalo, Indufor Oy, Finland, and Dr. Al Schuler, USDA Forest Service, US.

Secretariat introduction

The previous chapters covered the primary wood products market sectors, which may be transformed in secondary processing into value-added wood products (VAWPs), including engineered wood products (EWPs). Thus, these further-processed products are an indication of the demand side of the primary products previously analysed. Both temperate and tropical VAWPs production and trade are often driven by national and trade association policies to earn greater returns than are available from commodity primary products. Increasing imports of VAWPs by UNECE region countries indicate that the policies are working.

This chapter is divided into two sections. The first describes developments in these market sectors: furniture and joinery products (specifically builders' joinery and carpentry and profiled wood). To indicate trends, the analysis focuses on the countries with the highest trade value. The second section analyses developments in EWPs. When production is integrated within a company, some of the production of primary products is not accounted for in statistics; however, this chapter provides an indication of production and consumption through the trade statistics.

The analysis is available thanks to the continuing collaboration with the three authors. Mr. Tapani Pahkasalo,⁷⁹ Forest Economist, Indufor Oy, analysed the VAWPs in the first part. His analyses are presented at a number of international forums, including the Timber Committee Market Discussions. He is a member of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing and was formerly a marketing assistant on the *Forest Products Annual Market Review*. Mr. Pahkasalo was on assignment in China in early 2008, and the analysis benefits from his insights.

The section on EWPs is once again authored by Mr. Craig Adair,⁸⁰ Director, Market Research, APA–The Engineered Wood Association, and Dr. Al Schuler,⁸¹ Research Economist, USDA Forest Service. These two authors also contributed to the construction analysis in chapter 3. Dr. Schuler is a member of the UNECE/FAO Team of Specialists on Forest Products Markets and

Marketing. The EWP analysis focuses on North America, as similar production and trade statistics are not available yet for other regions. The sound use of wood is an objective of the UNECE Timber Committee and FAO European Forestry Commission, and EWPs are a means of making better use of wood to fit existing and new needs.

11.1 Introduction

Demand for VAWPs is derived from housing construction, home repair and remodelling (R&M), and from home decoration; this includes both public procurement and private consumption. VAWPs are also called “further-processed products”, and in the tropical-timber chapter in the *Review*, “secondary-processed products”. VAWPs utilize significant amounts of primary forest products, such as sawnwood (both softwood and hardwood) and wood-based panels.

Global consumption of the most important VAWP – furniture – continued growing, albeit with some difficulties in the major consumer markets. The value of international furniture trade continues escalating consequently, while production becomes more dispersed globally. New consumption centres are also developing in emerging market economies, although the consumption levels, measured in absolute value or per capita, are still relatively low compared with the UNECE region.

Some 30% of world furniture is produced by major furniture-manufacturing companies and the rest by small or mid-sized companies. China continues as the leading furniture-exporting country, but is now facing a period of slower growth and possible rationalization of the furniture industry. Consolidation and concentration of Chinese furniture manufacturing is evident since the cost pressures are becoming too difficult for the smallest or least modern producers. Section 11.2.1.2 further explores this situation.

The US housing slump is strongly impacting the builder's joinery and carpentry (BJC) and profiled wood import markets. Demand from the R&M sector has not been sufficient to offset the lower demand due to fewer housing starts. Imports by the US dropped significantly as a result of poor demand, while European countries imported more than ever. The tight wood supply in some producer regions is causing additional cost pressures, added to increased energy and transportation costs.

EWP markets are also suffering in North America from the slowdown in housing starts. The three EWPs analysed in this chapter, glulam timber, I-beams and LVL, experienced a downturn in 2007, and are forecast to continue to contract in 2008 (APA, 2008). Markets for non-residential uses of EWP were more buoyant.

⁷⁹ Mr. Tapani Pahkasalo, Forest Economist, Indufor Oy, Töölönkatu 11 A, FIN-00100 Helsinki, Finland, tel. +358 9 684 01115, fax +358 9135 2552, e-mail: tapani.pahkasalo@indufor.fi, www.indufor.fi.

⁸⁰ Mr. Craig Adair, Director, Market Research, APA–The Engineered Wood Association, P.O. Box 11700, Tacoma, Washington, USA 98411-0700, tel. +1 253 565 7265, fax +1 253 565 6600, e-mail: craig.adair@apawood.org, www.apawood.org.

⁸¹ Dr. Al Schuler, Research Economist, Northeast Forest Experiment Station, USDA Forest Service, 241 Mercer Springs Road, Princeton, West Virginia, USA 24740, tel. +1 304 431 2727, fax +1 304 431 2772, e-mail: aschuler@fs.fed.us, www.fs.fed.us/ne.

11.2 Imports of value-added wood products in 2006 and 2007

11.2.1 Wooden furniture imports in major markets

11.2.1.1 Furniture market developments

Global furniture production, wood and non-wood, amounted to some \$300 billion in value in 2007 and global exports have passed the \$100 billion limit (CSIL Milano, 2008). The five largest furniture-importing countries, in order of decreasing imports, are the US, United Kingdom, Germany, France and Japan. Total import value of wooden furniture by the largest importers grew by 2.2% from 2006, to amount to a total of \$34.2 billion in 2007. Import growth had been slowing since 2003, and in 2007 the largest importer, the US, experienced a drop of 3.5% in the value of imported wooden furniture. Imports to Germany and Japan were flat compared with the previous year. Only imports to France and the UK experienced continued double-digit growth.

Asia strengthened its position as a leading supplier region to the US market, while practically all other suppliers lost market share; in dollar terms the imports from Asia were lower compared with the previous year. This demonstrates the weakness of US markets in 2007 and 2008. In all other markets Asia increased its market share. In Germany and France the share is still under 20%, where intra-European imports dominate, but in the UK the Asian imports will soon reach the level of European imports. For the Japanese market, Asian exporters strengthened their lead position, reaching 83% of imports (graph 11.2.1 and table 11.2.1).

Production costs have surged all over the world, including in the Asian low-cost countries. Energy price increases are global phenomena, transport and chemical prices have risen for largely the same reasons, and labour prices have increased due to rapid economic growth in many areas. For example, in Malaysia the price of rubberwood, used commonly in furniture production, has surged due to increased demand for rubber used in rubber latex production (ITTO MIS, 2008). Wood prices have reacted to the increased demand, whereas the supply is tighter than before.

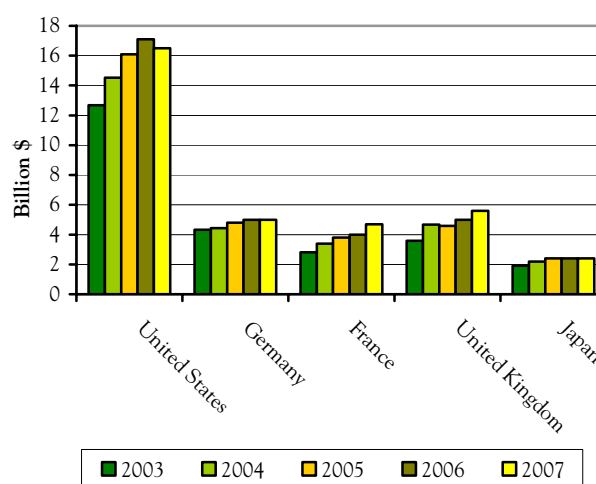
Buying local, greener and more sustainable furniture are now higher priorities for American consumers than previously (AHFA, 2008). The old adage, "cost does matter", still holds true, although quality requirements are increasing and more attention is being paid to design and individualism, and even customized furniture, as some customers become wealthier.

Some price premiums are being paid for local quality brands, but overseas producers have been able to improve their levels of quality over the years and designs are quickly imitated. Consequently, quality and design will not become long-lasting competitive edges for UNECE region furniture manufacturers; solutions including customization with short delivery times, increased cooperation throughout the value chain, and some environmental attributes need to be further explored.

Although new housing construction and larger houses are major drivers for furniture demand, in a recent study in the US, some 35% of respondents said they would add more furniture to their existing homes if they had the money (Roper, 2008). Some 44% of the respondents of the study indicated they would spend more on furniture in 2008 than in 2007 because of changes in life stages (e.g. retirement or children). Therefore, even if housing construction does not begin to recover soon, furniture spending may increase due to demographics and consumer preferences provided households have sufficient funds to make the desired purchases. A continued economic downturn would naturally curb some of the necessary or planned consumption. Restrictions to credit will constrain consumer spending in all segments of the economy.

GRAPH 11.2.1

Furniture imports for the top five importing countries, 2003-2007



Sources: Eurostat, Japanese Ministry of Trade and Customs, USDA Foreign Agricultural Service and US International Trade Administration, 2008.

TABLE 11.2.1

Furniture imports for the top five importing countries, 2006-2007*(Market shares in percentage, and values in US dollars)*

	United States		Germany		France		United Kingdom		Japan	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Exporting regions										
Asia	65.8	67.1	13.1	15.5	16.8	17.0	40.0	44.4	82.9	83.4
North America	16.4	15.2	0.2	0.2	0.4	0.5	2.2	1.6	1.5	1.3
Europe	10.0	10.6	85.5	82.9	79.3	79.1	54.9	51.3	15.4	15.1
Latin America	7.5	6.9	0.6	0.8	2.5	2.3	2.2	2.0	0.0	0.0
Others	0.3	0.2	0.8	0.6	1.0	1.1	0.6	0.7	0.1	0.1
Total imports in billion \$	17.1	16.5	5.0	5.0	4.0	4.7	5.0	5.6	2.4	2.4
Of which furniture parts, billion \$	2.1	2.2	1.0	1.2	0.6	0.8	0.8	0.9	0.5	0.5

Sources: Eurostat, Japanese Ministry of Trade and Customs, USDA Foreign Agricultural Service and US International Trade Administration, 2008.

11.2.1.2 The Chinese furniture industry

Since overtaking Italy, China has consolidated its position as the largest furniture exporter, causing debate and anxiety, including trade disputes, in the UNECE region countries. The phase of rapid, sometimes even uncontrolled, expansion is coming to an end and a period of rationalization will evidently follow. Feasibility of further investments will need to be considered more carefully on company levels while the markets are undergoing a (healthy) corrective movement. The Chinese Government has withdrawn some economic incentives from industry to prevent the sector from overheating, which, combined with other factors, has led to a complicated situation for the Chinese furniture industry.

The following issues dominate Chinese market developments (*China Wood Monthly*, 2008):

Anti-dumping duties. The US Department of Commerce imposed anti-dumping duties ranging from 2.3% to nearly 200% on Chinese bedroom furniture in mid-2004, as reported in the *Review* in previous years. These anti-dumping duties have had a strong effect on several Chinese manufacturers and some of them were forced out of business since some companies had focused 100% on export markets.

Inefficiency in production processes and logistics management. Several Chinese companies have been operating inefficiently but have still enjoyed a good profit margin thanks to the extremely favourable market situation. A tightened market is cutting into excess profits and the least effective and least productive manufacturers are suffering from lack of investment, outdated manufacturing processes, and increased transportation costs. The companies would need to invest to enhance quality, improve efficiency and raw material utilization, and boost their productivity. However, it appears that not all companies were in business for the long term.

Shortages of wood supply. Wood-supply shortages have worsened in China due to increased demand in other Asian countries, logging bans in natural forests in China, severe snow damage to large forest areas within China in early 2008, and increased Russian roundwood export taxes. This has elevated roundwood prices within China to a record level since pulp, wood-based panels, flooring and sawmill industries all compete in part for the same raw material. Expensive raw material prices have added to other increased production costs.

Lack of marketing and design. There is a low level of brand recognition and many manufacturers produce furniture only for other labels; this means that others capture the greatest benefits and suppliers are easily changed. Since the manufacturers are small, they do not possess the resources or knowledge to significantly strengthen their brands. Design and R&D work is not carried out on a large scale; rather, manufacturers concentrate on imitating designs from other companies. Moreover, the manufacturers are not in control, or always even aware, of their distribution channels but instead depend entirely on agents or just one large buyer.

Many companies in China have gone bankrupt already and some are relocating to more favourable geographical locations, both within China and in neighbouring countries. Many production costs are lower and raw materials are more readily available elsewhere than in southern China, where the industry is now concentrated. This difficult situation will lead to closure of the least dynamic companies and deepened industry consolidation of the remaining companies in coming years. The large international furniture manufacturers located in China, 60% of which have US links, are not neutral to market downturns but have established their operations on a healthier basis than many smaller domestic companies.

11.2.1.3 World Furniture Conference

As furniture production increasingly shifts towards emerging economies, concerns for losses to the manufacturing industry as well as job losses prevail in UNECE region countries. Furniture manufacturing as part of the woodworking industry is an important contributor to local economies, often located in remote and less industrialized areas.

Efforts to intensify cooperation have taken some important steps forward and no new trade policy measures have been seen to take place. In the Second World Furniture Congress in September 2007 in Shanghai, two international non-governmental organizations and 17 national organizations representing furniture manufacturers in their respective regions or countries signed the founding act of the World Furniture Confederation (WFC) (WFC, 2007). The objective of the newly established WFC include the following:

- To promote the interests of the furniture industry worldwide;
- To eliminate all barriers to trade in furniture and materials used in its production;
- To promote cooperation among industry organizations and among furniture companies worldwide;
- To promote the creation of regional international furniture manufacturers' organizations;
- To organize a yearly World Furniture Congress.

This is the first time the UNECE region manufacturers in the woodworking industry have established formal cooperation with Chinese and other Asian associations to jointly protect the interests of all member countries. Also, the WFC has taken a strong position in terms of defending the intellectual property rights of its members. The member organizations from different geographical regions promise to respect, recognize and refrain from interfering with the intellectual property rights of any member company of the WFC member organizations and to maintain fair competition (WFC, 2007). The next World Furniture Congress will be organized in November 2008 in the Russian Federation.

The European Commission has proposed a new origin marking scheme limited to some consumer products such as furniture. But the European Federation of Furniture Retailers (FENA), which represents companies involved in trading furniture in Europe, has taken a strong position against the proposed scheme for furniture sold in Europe. According to FENA, origin marking would not improve levels of consumer protection or product safety but would be a costly and confusing tool of protectionism. The Federation fears that competitive imports, mainly from Asia, may be discriminated against based upon country of

origin, due to the "made in" markings. FENA has criticized origin marking as being against WTO rules, since it would create a new non-tariff barrier to trade. As reported in last year's *Review*, the tightened technical standards and requirements in the EU for imported products, including furniture, can also be seen as an alternative strategy to control the ever-increasing Asian imports.

11.2.2 Builders' joinery, carpentry and profiled wood markets

11.2.2.1 Import markets

Builders' joinery and carpentry markets in the US experienced a significant drop compared with the previous years. The slowdown in the housing sector is the principal reason for weak imports, and apparently the renovation sector has been unable to offset the lack of demand. US imports of BJC fell by 18% while German imports remained relatively flat. French import markets still experienced rapid growth (21%), and UK imports grew by 17%, reflecting relatively strong housing construction in Europe. The Japanese import market expanded by 5%.

Latin American and Asian imports gained more market share in the US, although in dollar terms they also decreased; Canada remains the market leader for US imports. Both Canadian and European imports have decreased over the years, while the lower-cost manufacturing regions keep increasing their market share. France and Germany remain controlled by intra-European trade, whereas the UK market has opened up more to overseas trade. In the UK, over 25% of imports come from the Asian region, while in Germany and France the share of Asian imports is only 10-15%. This is a trend that has been visible for a number of years (table 11.2.2 and graph 11.2.2).

Some Latin American manufacturers are intensifying their sales efforts to Europe due to weak North American export markets, depreciation of the US dollar, and the attractive exchange rates between the euro and local currencies. Southern hemisphere plantation-based producers have significant competitive advantages, e.g. wood is typically supplied by a company's own plantations at a reasonable cost and many have recently invested in new machinery. Increases in some production costs do not affect them directly, although they have been negatively impacted by high oil and energy prices. When the markets improve, especially in the US, exports by Latin American producers are expected to increase rapidly.

TABLE 11.2.2

Builders joinery and carpentry imports for the top five importing countries, 2006-2007

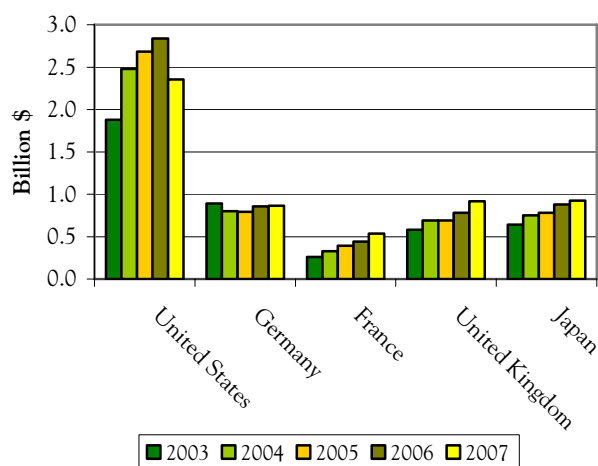
(Market shares in percentage, and values in US dollars)

Exporting regions	United States		Germany		France		United Kingdom		Japan	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Asia	15.8	18.2	10.1	11.9	10.9	14.5	23.8	26.2	56.6	54.2
North America	63.3	60.8	0.3	0.5	1.4	1.4	9.2	7.7	5.7	4.5
Europe	6.1	4.5	88.4	85.7	82.6	78.0	57.4	58.8	32.0	35.9
Latin America	14.1	16.2	0.3	0.1	4.9	5.8	6.0	4.7	0.1	0.2
Others	0.7	0.4	0.8	1.8	0.3	0.4	3.7	2.7	5.6	5.3
<i>Total imports in billion \$</i>	2.8	2.4	0.9	0.9	0.4	0.5	0.8	0.9	0.9	0.9

Sources: Eurostat, Japanese Ministry of Trade and Customs, USDA Foreign Agricultural Service and US International Trade Administration, 2008.

GRAPH 11.2.2

Builders' joinery and carpentry imports for the top five importing countries, 2003-2007



Sources: Eurostat, Japanese Ministry of Trade and Customs, USDA Foreign Agricultural Service and US International Trade Administration, 2008.

Profiled wood markets experienced a significant downturn in trade value, but developments have been different in Europe and the US. Imports in the US fell by 28%, while German imports fell by 4%. Imports to France grew rapidly by 33% and UK imports grew by approximately 15%. Japanese import markets remained stable due to relatively poor development in housing construction (graph 11.2.3 and table 11.2.3).

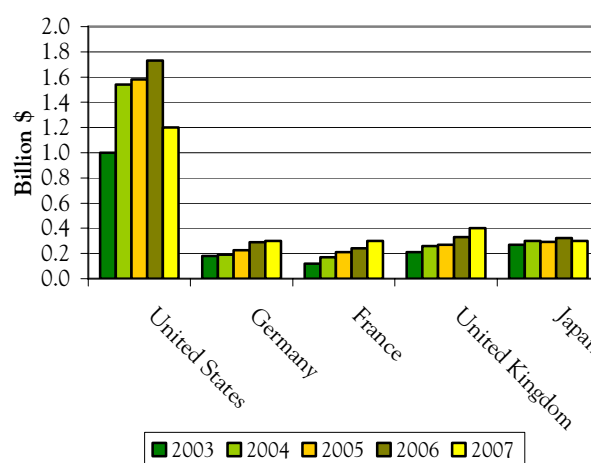
In 2006, Latin American exporters supplied 50% of all profiled wood imports into the US and in 2007 this percentage decreased slightly. Most of the exports by Brazilian and Chilean companies are softwood mouldings and some of this production has been scaled down due to the housing slump. These mills can rapidly be started again if the market revives soon, but a longer downturn will cause the mills to permanently shut down. The machinery is relatively modern and the mills carry a heavy cost burden

of unutilized capacity. Canadian exports into the US have also lost some market share, while Asian exports into the US grew moderately. Increased wood costs, including the Russian roundwood tariff mainly affecting the softwood mouldings sector, are adding to increased costs in the Asian region. In value terms the Asian importers lost market share of \$100 million in 2007.

In the European markets, Latin American exporters have been able to increase share of the French markets, while in Germany and the UK, their market share decreased. For Asian exporters, the UK market has been a success since they have now exceeded 50% of all profiled wood imports. Intra-European imports have lost market share in all European countries, with the exceptions of Germany and France where they still dominate.

GRAPH 11.2.3

Profiled wood imports for the top five importing countries, 2003-2007



Sources: Eurostat, Japanese Ministry of Trade and Customs, USDA Foreign Agricultural Service and US International Trade Administration, 2008.

TABLE 11.2.3
Profiled wood imports for the top five importing countries, 2006-2007
 (Market shares in percentage, and values in US dollars)

Exporting regions	United States		Germany		France		United Kingdom		Japan	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Asia	27.5	30.5	17.7	21.7	15.3	15.2	46.0	52.9	77.3	77.1
North America	17.8	14.6	1.2	1.7	0.5	0.7	5.3	5.6	7.1	5.8
Europe	2.9	3.4	77.4	70.3	61.3	54.9	46.0	39.2	11.0	12.0
Latin America	49.7	47.8	2.2	3.7	21.2	27.9	2.2	1.7	3.5	3.7
Others	2.1	3.7	1.6	2.7	1.7	1.3	0.5	0.5	1.1	1.3
<i>Total imports in billion \$</i>	1.7	1.2	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3

Sources: Eurostat, Japanese Ministry of Trade and Customs, USDA Foreign Agricultural Service and US International Trade Administration, 2008.

11.2.2.2 Outlook for markets

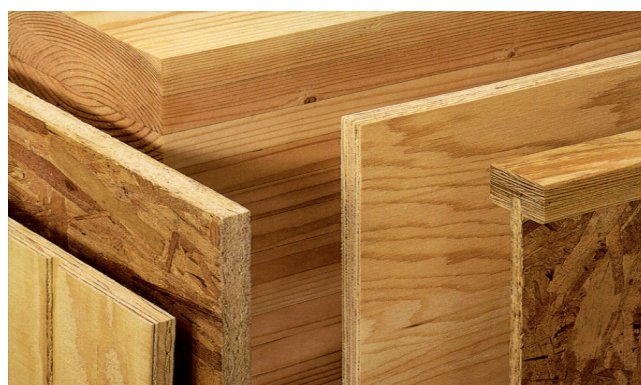
Consumers have become cautious about their spending and have postponed even necessary maintenance operations in their homes. US homeowners financed R&M with second home loans, based on increases in house prices. However, in 2008, with the US housing and mortgage crisis, much of the R&M activity is now on hold. Since housing prices are not increasing, but rather falling, in many areas, people do not want to invest more in their houses at the moment since the value is not secured in case they need to sell the house. However, once the credit crunch is over and people have easier access to credit, it is possible that demand for profiled woods and builders' joinery and carpentry products will improve even before the housing starts begin increasing. With latent demand for R&M, suppliers expect to be able to satisfy the growing demand when consumer confidence returns.

The need for new housing, and therefore demand for profiled woods and BJC, has not disappeared; on the contrary, the demand side forecast is positive for these products. Wood supply in the emerging markets, particularly in Asia, is tighter than ever before, and with rapidly increasing demand in the Asian markets, it will remain uncertain if the imports to the UNECE will return to record levels. Latin American producers, on the other hand, have a different situation since the raw material is abundant and local demand is not strong. This is showing already in the trade statistics, as the Asian producers are losing market share to Latin American producers in some markets. It is important to note that consumer preferences shift between hardwoods and softwoods, and price remains a key factor for consumers. However, the use of wood has many beneficial characteristics compared with other materials, and plantation-based wood is also usually perceived as more sustainable than natural tropical woods. New green procurement initiatives will help promote wood products further and their trade will increase in the future.

11.3 Engineered wood products market developments in North America

11.3.1 Introduction

Engineered wood products (EWP) for this chapter include glulam timber or glulam beams, I-beams (also called I-joists) and laminated veneer lumber (LVL). All three products are over 60% dependent upon new residential construction. Other markets are for non-residential building construction such as schools and stores, and for repairs and remodelling. While the remodelling market showed some weakness in 2007, the non-residential construction market was still growing. The US housing market remains in recession in 2008. After peaking in 2005 with 2.1 million single-family and multifamily housing starts, and with a 13% decline in 2006, only 1.35 million were started in 2007, a 36% decline from the 2005 peak. The outlook for 2008 is for only about 0.95 million housing starts, a 30% decline from 2007. Most of the US construction sector problems are in single-family housing, the segment that uses the greatest volume of engineered wood products, compared to multifamily. Beyond 2008, most economists are becoming pessimistic about a quick housing turnaround. Inventories of unsold homes remain high and US housing may remain in a slump until the end of 2009.



Source: APA – The Engineered Wood Association, 2008.

All the major wood associations in North America, as well as research organizations and government agencies, are implementing an initiative called WoodWorks. This is a major promotion campaign designed to increase the use of wood products in non-residential structures, a market that has traditionally been dominated by concrete and steel. EWPs use value engineering to utilize fewer resources to manufacture high-end structural products, and this nicely accommodates the green building movement. Engineered wood products are expected to benefit from the WoodWorks campaign, which will focus on educating architects, engineers and contractors about the benefits of using wood, including modern EWPs.

Whether used for building construction or as components of manufactured products, EWPs are ultra-low formaldehyde emitting, thus contributing to clean air and safe environments. In general, EWPs use fewer forest resources to manufacture high-value structural products that span longer distances with fewer pieces to carry the same loads as sawnwood. These benefits are being recognized by the green building movement in North America.

The extent of the EWP downturn is evidenced in the following analysis, based on North American data, this being the only routinely reliable information available in the UNECE region. Due primarily to the prevalence of wood-frame residential construction in North America, the bulk of EWP production occurs there. Relative to the cross-border trade between the US and Canada, exports from North America and imports coming from offshore are small. Unfortunately, there is not yet a system of harmonized tariff classifications for EWPs; hence the lack of international statistics.



Source: APA – The Engineered Wood Association, 2008.

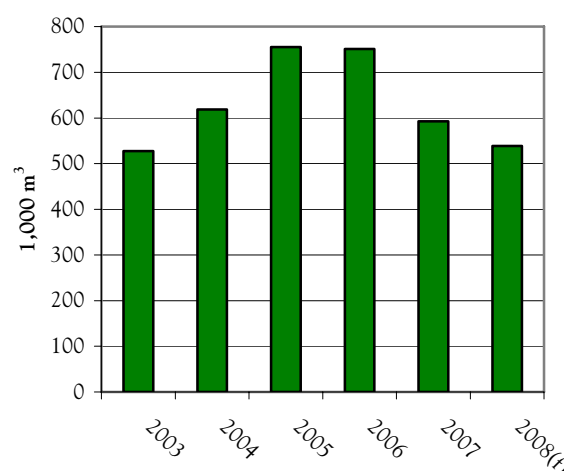
11.3.2 Glulam timber

Overall demand for glulam timber has suffered because of the downturn in home building. Fortunately, about one third of demand comes from non-residential construction, which has maintained strength (graph 11.3.1 and table 11.3.1). In the US, residential glulam usage declined 32% in 2007, while non-residential construction uses increased

2%. Demand for beams in non-residential construction is expected to increase 4% in 2008, and residential uses are expected to decline 19%. In Canada, domestic demand is expected to decline due to a weaker housing market and exports to the US are expected to weaken. Overall, North American glulam production is expected to decline 9% to 538,500 m³ in 2008.

GRAPH 11.3.1

Glulam production in North America, 2003-2008



Note: f = forecast. Conversion factor: 650 board feet per cubic metre.

Source: APA – The Engineered Wood Association, 2008.

TABLE 11.3.1

Glulam consumption, production and trade in North America, 2006-2008
(1,000 m³)

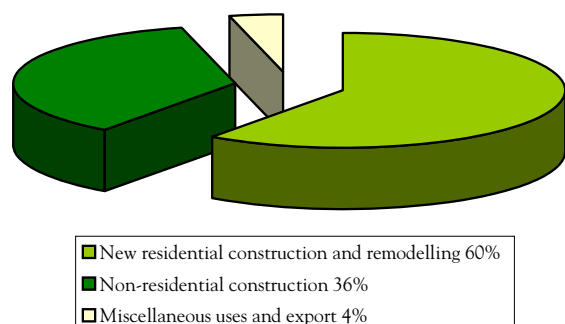
	2006	2007	2008(f)	% change 2006-2008
United States				
Consumption				
Residential	495.4	335.4	270.8	-45%
Non-residential	195.4	200.0	207.7	6%
Industrial, other	26.2	21.5	23.1	-12%
Total	716.9	556.9	501.5	-30%
Exports	1.5	1.5	4.6	200%
Imports	9.2	7.7	4.6	-50%
Production	709.2	550.8	501.5	-29%
Canada				
Consumption	26.2	27.7	24.6	-6%
Exports	15.4	13.8	12.3	-20%
Production	41.5	41.5	36.9	-11%
Total production	750.8	592.3	538.5	-28%

Notes: f = forecast. Conversion factor: 650 board feet per cubic metre. Canadian imports assumed to be minimal.

Source: APA – The Engineered Wood Association, 2008.

GRAPH 11.3.2

North American glulam uses, 2007



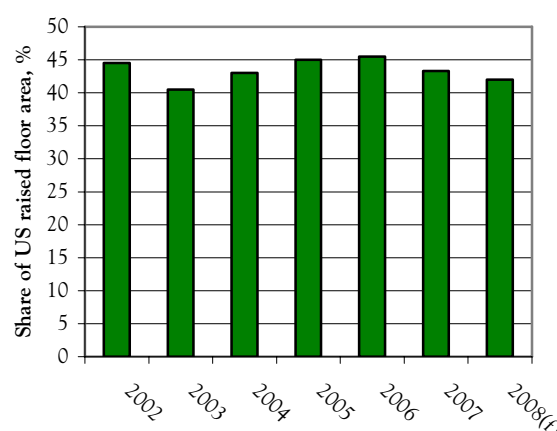
Source: APA – The Engineered Wood Association, 2008.

11.3.3 I-beams

I-beams are nearly 80% dependent on new home construction and most of this is in the large single-family construction sector. Builder surveys indicate that the I-beam share of raised wood floor area (not including concrete floor area) reached its highest level in 2006 after many years of growth (graph 11.3.3). For example, I-beam market share was only 16% in 1992 and by 1998 it had grown to 31%. During this period, builders that were interested in new technology were rapidly switching from sawnwood to I-beams. Surveys also show that after reaching 41% market share in 2001, there has not been much movement. This can be attributed to competition from other materials. In 2006, I-beam competitors were sawnwood, 34.7%; open-web wood trusses (beams with sawnwood flanges separated by a zigzag pattern of wood or metal bracing), 18.3%; and steel and miscellaneous products, with 1.5% of the floor joist/beam market. For 2008, sawnwood and open-web wood trusses are expected to gain market share because they have also been affected by the housing crisis and prices are low. I-beams still offer all of the excellent performance of an engineered wood product; however, sawnwood and open-web truss manufacturers are also offering good products for residential floor joist/beams. I-beam plants are located in all forest regions of North America and utilize a wide variety of species from managed timberlands, thus expanding the forest resource base. I-beams also offer the advantage of being supplied cut to size according to framing plans and this minimizes jobsite waste.

GRAPH 11.3.3

US I-beam market share, 2002-2007



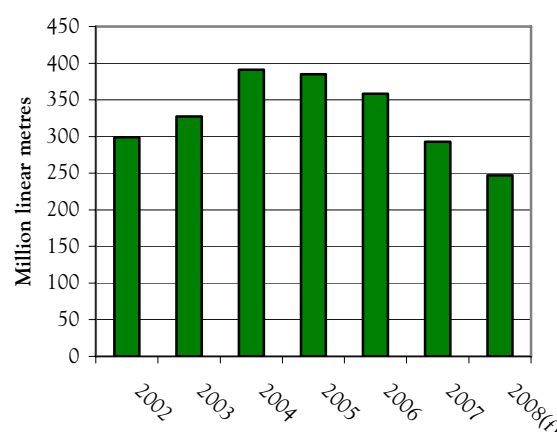
Note: Wooden I-beam percentage market share of total raised floor area, single-family homes.

Sources: NAHB builder surveys, APA forecast, 2008.

I-beam demand and production results mostly from a combination of market share and housing starts. Both 2004 and 2005 registered the highest demand years for I-beams, which represented the practical capacity of I-beam plants at that time (graph 11.3.4 and table 11.3.2). Unfortunately, because of the housing downturn, 2008 production may be 37% below the peak of 2004.

GRAPH 11.3.4

I-beam production in North America, 2002-2008



Notes: f = forecast. Conversion: 3.28 linear feet per metre.

Source: APA – The Engineered Wood Association, 2008.

Most I-beams – 72% – are used for floors in new residential construction (graph 11.3.5). Five per cent are used to construct thick, straight walls and roof rafters. Another 5% are used in repair and remodelling and 18% are used in the construction of non-residential buildings.

TABLE 11.3.2

Wooden I-Beam consumption and production in North America, 2006-2008

(million linear metres)

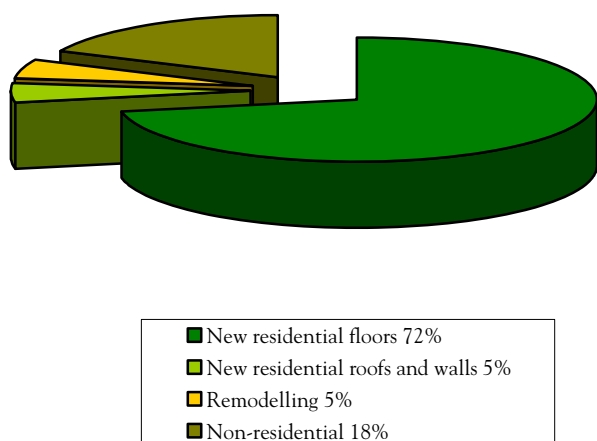
	2006	2007	2008(f)	% change 2006-2008
United States				
Consumption				
New residential	254.3	178.4	125.0	-51%
Non-residential, other	71.6	74.7	77.7	9%
Total, domestic	325.9	253.0	202.7	-38%
Production	245.1	200.0	167.7	-32%
Canada				
Demand - domestic plus offshore	41.2	42.7	42.7	4%
Production	113.4	92.7	79.3	-30%
Total production	358.5	292.7	247.0	-31%

Notes: f = forecasts. Conversion: 3.28 linear feet per metre.

Source: APA – The Engineered Wood Association, 2008.

GRAPH 11.3.5

I-beam end uses in North America, 2006



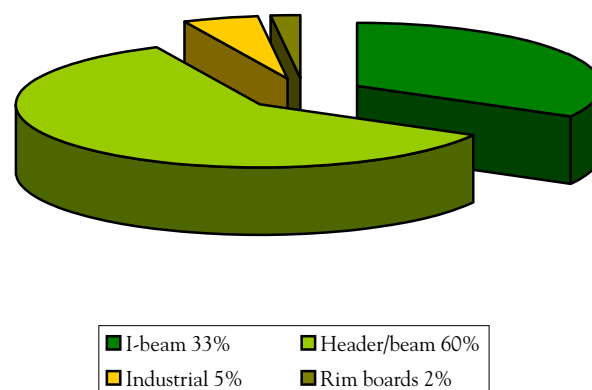
Source: APA – The Engineered Wood Association, 2008.

11.3.4 Laminated veneer lumber

Approximately 80% of all LVL is eventually used in new home construction. Thirty-three per cent is used in I-beam flanges. Sixty per cent is used as heavy-duty beams and also as headers over windows and doors (graph 11.3.6). One third is used to make I-beam flanges, 5% has industrial uses such as scaffold planks and furniture parts, and 2% is used for rim boards. Rim boards are used on the perimeter of an I-beam floor system to provide a fastening point for I-beams and to assist in distribution of loads from walls. Production peaked along with the US housing market in 2005 at 2.6 million cubic metres (graph 11.3.7). Production declined 4% in 2006, 15% in 2007 and is expected to decline 12% in 2008 (table 11.3.3).

GRAPH 11.3.6

LVL end uses in North America, 2006



Source: APA – The Engineered Wood Association, 2008.

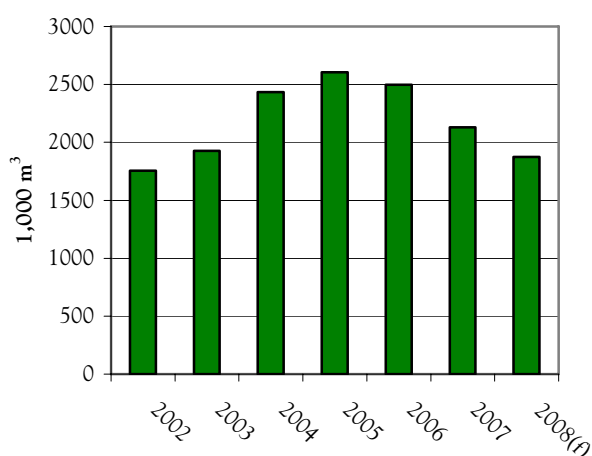
LVL is well accepted for beams and headers, and growth should return with an improved housing market. Like other engineered wood products, LVL allows the use of longer spans and fewer pieces to carry the same loads as other conventional wood products. Over the past decade, LVL has lost some market share to sawnwood flanges for I-beams and now accounts for 59% of I-beam flanges. This loss was due to the construction of I-beam plants in Canada that were close to a high-quality black spruce resource, which could replace the LVL flanges. For the immediate future, LVL is expected to retain its current share of the I-beam flange market.

In addition to the engineered wood products discussed in this chapter, there are other structural composite lumber products manufactured in North America. They are parallel strand lumber (PSL), laminated strand lumber (LSL) and oriented strand lumber (OSL). Each of these products is made from strands of wood of varying lengths and widths to achieve different strength and stiffness

properties. PSL and LSL have been manufactured for several years primarily by one company, and production volumes have been relatively low compared with other EWPs. In 2008, at least one new plant will begin to manufacture OSL. Depending on the product, uses for strand lumber include beams, headers, I-beam flanges, rim boards and structural framing lumber. As more production emerges, information about strand lumber products will be reported in this chapter.

GRAPH 11.3.7

LVL production in North America, 2002-2008



Notes: f = forecast. Conversion: 35.315 cubic feet per cubic metre.
 Source: APA – The Engineered Wood Association, 2008.



Source: APA – The Engineered Wood Association, 2008.

TABLE 11.3.3

LVL consumption and production in North America, 2006-2008 (1,000 m³)

	2006	2007	2008(f)	% change 2006-2008
Demand				
I-beam flanges	897.7	722.1	657.0	-27%
Beams, headers, others	1 599.9	1 407.4	1 217.7	-24%
Total demand (and production)	2 497.6	2 129.5	1 874.6	-25%
Production				
United States	2 268.2	1 917.1	1 704.7	-25%
Canada	229.4	212.4	169.9	-26%

Notes: f = forecast. Conversion: 35.3147 cubic feet per cubic metre.
 Source: APA – The Engineered Wood Association.

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Chapter 12

Record prices of 2007 fall with decreased demand in 2008: Trends in tropical timber markets, 2006-2008⁸²

Highlights

- Tropical log production in member countries of the International Tropical Timber Organization (ITTO) has been declining progressively since 2004, dropping to 126.2 million m³ in 2007, caused mainly by reduced resource availability and crackdowns on illegal logging, particularly in Indonesia, thereby constraining log supplies for tropical sawnwood and plywood industries.
- Accounting for half of ITTO log imports in 2007, China continues to dominate tropical log and sawnwood imports, which are supported by continued high economic growth and sustained exports of secondary processed wood products.
- China's tropical plywood exports were under investigation for illegality of supply in 2007 by the US International Trade Commission, while in the EU importers took steps towards extending anti-dumping duties on okoume plywood to include other red-faced tropical plywood.
- Medium-term prospects for tropical plywood and sawnwood markets are influenced by demand-side factors, particularly by declining construction demand in Japan and the US.
- Green building initiatives are likely to create uncertainty for tropical timber suppliers, who are concerned about their ability to comply with proliferating environmental standards and procurement policies in North American and European markets.
- Prices for some tropical timber products reached highs in 2007 due to greater demand and shortages in supply of certain species exacerbated by export restrictions, as well as rising freight rates and taxes; but weak demand is impacting prices in 2008.
- EU continued to work with many countries under the Forest Law Enforcement, Governance and Trade Initiative to develop voluntary partnership agreements in which partner countries would be subject to strict licensing requirements.
- Despite several importing countries commitments to buying legally produced and certified products, tropical countries have only about 6% of the world's certified forests.
- Differences in government procurement policies create uncertainty for tropical timber suppliers, who demand a common approach for standards of legal origin, legal compliance and verification.

⁸² By Ms. Frances Maplesden, Dr. Steven E. Johnson and Mr. Jean-Christophe Claudon, of the International Tropical Timber Organization.

Secretariat introduction

The UNECE/FAO Timber Section greatly appreciates the continued close cooperation with colleagues in the International Tropical Timber Organization (ITTO). This chapter is based on their 2007 *Annual Review and Assessment of the World Timber Situation* and bi-weekly *Market Information Service (MIS)* reports. We welcome Ms. Frances Maplesden,⁸³ ITTO's new Statistician, who was the lead author of this chapter. She was supported by Dr. Steven Johnson,⁸⁴ Communications Director, who previously authored the chapter. Statistics were prepared by Mr. Jean-Christophe Claudon,⁸⁵ Statistical Assistant.

We collect statistics together via the UNECE/FAO/ITTO/Eurostat Joint Forest Sector Questionnaire. Some of ITTO's terminology in this chapter, however, differs slightly from that of the rest of the *Review*.



Source: Adrian Whiteman, 2007.

12.1 Introduction and tropical market developments

This chapter reviews the market situation for tropical timber, focusing on logs, sawnwood and plywood. The base year for the analysis is 2006 because data for tropical timber production and trade after 2006 are generally unavailable or unreliable. Where possible, information for 2007 and the first quarter of 2008 are also included. ITTO categorizes its 60 member countries into 33 producers and 27 consumers (non-tropical), which together constitute 95% of all tropical timber trade and

over 80% of tropical forest area. Poland joined ITTO in 2007. A full list of members is available on www.itto.or.jp

For a complete analysis of trends in production, consumption and trade of primary and secondary tropical timber products in relation to global timber trends, see ITTO's *Annual Review and Assessment of the World Timber Situation 2007*, available on www.itto.or.jp

In 2007 and 2008, a number of developments were likely to impact tropical timber markets in the near future. The EU continued to work with some ITTO producer countries under the Forest Law Enforcement, Governance and Trade (FLEGT) initiative to develop voluntary partnership agreements, in which partner countries would be subject to strict licensing requirements. Ghana, Indonesia, Malaysia and Cameroon are now engaged in formal negotiations and the Central African Republic, the Congo, Liberia and Gabon are likely to begin formal negotiations. In several importing countries, public procurement agencies made commitments to buy only legally and sustainably produced products, creating demand for certified products. ITTO producer countries are underrepresented in the supply of certified wood products, with only about 6% of the world's certified forests in developing countries (ITTO, 2006). Public procurement policies differ widely in terms of the extent to which they demand that wood must be "verified legal" or "verified sustainable" and in their requirements for certification. This has been creating uncertainty for tropical timber suppliers and demand for a common approach for standards of legal origin and legal compliance as well as verification procedures. "Green building" initiatives are also creating market uncertainty for tropical suppliers, who are concerned about their ability to meet green building product specifications.

In 2007 and 2008 the importance of tropical forests and their sustainable management in climate change mitigation was recognized in international forums. The 13th Meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change agreed to the "Bali Roadmap", which would lead to a post-2012 international agreement on climate change. It emphasized the development of policies and incentives that would lead to reducing emissions from deforestation and forest degradation (REDD) and the role of conservation, sustainable forest management and the enhancement of forest carbon stocks in the mitigation of climate change.

An ITTO International Expert Meeting in May 2008 reviewed the potential of sustainable forest management to reduce greenhouse gas emissions, and explored the potential of existing and possible REDD schemes and the need for adaptation of the forest sector to climate change. The outcomes are available on www.itto.or.jp. Although

⁸³ Ms. Frances Maplesden, Statistician, ITTO, International Organizations Center, 5th Floor, Pacifico-Yokohama, 1-1-1 Minato-Mirai, Nishi-ku, Yokohama 220-0012, Japan, tel: +81 45 223 1110, fax +81 45 223 1111, website: www.itto.or.jp, e-mail: itto@itto.or.jp.

⁸⁴ Dr. Steven E. Johnson, Communications Manager, same contact information.

⁸⁵ Mr. Jean-Christophe Claudon, Statistical Assistant, same contact information.

there are currently few participants in tropical forestry carbon projects, there is agreement that a large reduction in CO² emissions from “avoided deforestation” in the tropics is possible if appropriate institutions and effective systems are created.

12.2 Production trends

12.2.1 Logs

The production of tropical industrial roundwood (“logs”) in ITTO member countries (producers and consumers) totalled 126.2 million m³ in 2007, but since 2004 has been declining progressively (table 12.2.1). Four tropical log producing countries (Brazil, Malaysia, India and Indonesia), which together comprised almost three quarters of total ITTO production, dominated production in 2006 and 2007 (graph 12.2.1). Tropical log production in Brazil, the major producer, declined to 23.8 million m³ in 2006 but was expected to increase to 24.5 million m³ in 2007 in response to rising domestic demand for wood-based materials in the growing construction industry. Malaysian tropical log production is still at less than half the levels of the early 1990s, dropping to 22.2 million m³ in 2006, and was estimated to decline further, to 20.5 million m³ in 2007, in line with government policy to implement sustainable forest management objectives.

TABLE 12.2.1

Production and trade of primary tropical timber products, 2005-2007
(million m³)

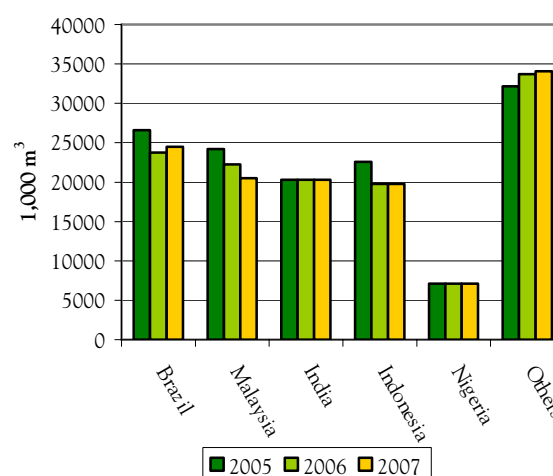
	2005	2006	2007	% Change 2005-2007
Logs				
Production	133.0	126.9	126.2	-5.1
Imports	15.3	14.4	14.2	-7.2
Exports	13.1	13.2	12.2	-6.9
Sawnwood				
Production	41.4	40.9	41.5	0.2
Imports	9.6	7.9	8.1	-15.6
Exports	13.6	11.6	11.5	-15.4
Plywood				
Production	20.9	20.0	19.9	-4.8
Imports	8.9	8.8	9.0	1.1
Exports	10.6	10.5	10.6	0

Note: Total of ITTO producer and consumer countries.

Source: ITTO, 2008.

GRAPH 12.2.1

Major tropical log producers, 2005-2007

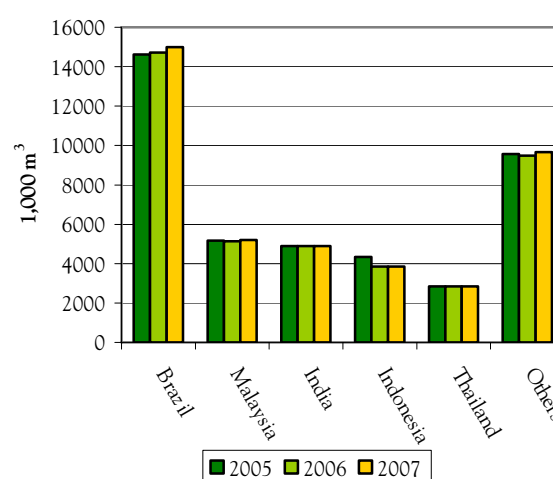


Source: ITTO, 2008.

The Government of Malaysia’s Ninth Malaysia Plan (2006-2010) expects log production to decline progressively to 2010, with more domestic wood being processed into exportable value-added products and reduced availability of logs for export. Indonesia’s production declined in 2006 to 19.8 million m³ and reflects a crackdown on illegal logging and reduced resource availability. Both Indonesia’s and Brazil’s log-production estimates are likely to be considerably higher if unofficial and illegal harvests are taken into account.

GRAPH 12.2.2

Major tropical sawnwood producers, 2005-2007



Source: ITTO, 2008.

12.2.2 Sawnwood

Production of tropical sawnwood in ITTO member countries totalled 40.9 million m³ in 2006, down 1.2% from 2005, but was estimated to recover to 41.5 million m³ in 2007 due to increases in the Latin America/Caribbean region and to a lesser extent, in the Asia-Pacific region. Until 2006, tropical sawnwood production in Africa had been gradually rising due to log export bans and requirements for further processing in many countries but in 2007 it declined to 4.4 million m³. Africa, which makes up only 11% of ITTO production, still suffers from weak infrastructure and environmentally demanding export markets that constrain major investments in wood processing. In 2006, Brazil was the largest ITTO tropical sawnwood producer, totalling 14.7 million m³, and had been estimated to increase to 15.0 million m³ in 2007 due to strong sawnwood demand in the growing construction industry (graph 12.2.2). Malaysia, India, Indonesia and Thailand were other major producers in 2006 and 2007.



Source: Adrian Whiteman, 2007.

12.2.3 Plywood

Production of tropical plywood in ITTO member countries was 19.9 million m³ in 2007, down marginally from 2006. Some of the major developments which have been influencing patterns of tropical plywood production and trade are as follows:

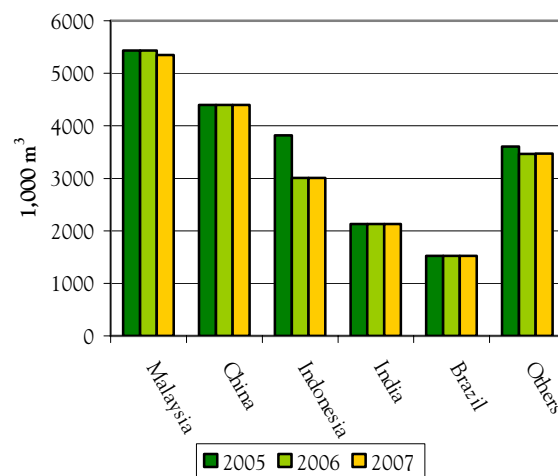
- constraints in tropical log supply to the plywood industries, particularly in Indonesia, caused mainly by crackdowns on illegal logging and reduced resource availability;
- shifts in the major tropical plywood producers and exporters, the most notable being a steady decline in Indonesia's production and exports, while China's production and exports have risen;

- traditional tropical plywood exporters facing strong price competition from Chinese tropical plywood in traditional markets;
- reduced profitability in plywood manufacturing caused by high increases in plywood production and delivery costs, particularly wood raw materials, glues, and ocean freight, and plywood prices not keeping pace with the rise in tropical log prices;
- technical advances in softwood plywood manufacturing, allowing increased substitution of softwood for hardwoods in structural plywood manufacture.

Malaysia is now the dominant tropical plywood producer, with production declining marginally to 5.3 million m³ in 2007 (graph 12.2.3). Malaysia's wood-based industries, including plywood, have been targeted to grow under the Government's Third Industrial Master Plan 2006-2020, but issues of industrial overcapacity in Peninsular Malaysia and Sabah, and restricted log availability, may constrain these targets.

GRAPH 12.2.3

Major tropical plywood producers, 2005-2007



Source: ITTO, 2008.

China is now the second largest tropical plywood producer, overtaking Indonesia in 2005, with an industry based largely on imported tropical logs. China uses tropical hardwood logs (for face veneers) and other log supplies, including domestic poplar, for plywood. Its rapid increase in production in the past decade has supplied both the booming Chinese domestic construction sector and a growing export industry. Indonesia's plywood production has fallen steadily since the 1990s when annual production exceeded 10 million m³. Production fell to 3.0 million m³ in 2006, about half the level of 2003, mainly due to reductions in logging quotas and crackdowns on illegal log flows that have restricted log

availability for plywood production. India's tropical plywood production, similar to China's, based largely on imported tropical logs, has also risen rapidly over the last decade. India's production reached 2.1 million m³ in 2005 and remained stable through 2007. Brazil's tropical plywood production in 2005 reached 1.5 million m³ and remained stable through 2007, production growth being restricted by the declining volume of exports to the US.

Japan's plywood production has fallen significantly since the 1980s, when it supported the major trade in Asian tropical logs. Japan's plywood manufacturers now predominantly use softwood logs (Russian larch and more recently, Japanese sugi and larch), as improvements in veneer manufacturing have enabled a transition to smaller diameter logs. Japan's plywood industry is using more domestic logs for the following reasons:

- tightening log supplies from Russia (due to a combination of a diversion of Russian log exports to China and the enforcement of a log export tax which will restrict supplies further);
- the growing availability of Japanese sugi and larch resources;
- technical developments in sugi veneer and plywood processing, including efficient peeling of small logs, and processes that enable pressing of "softer" veneer to produce plywood of sufficient strength for flooring underlayment.

12.3 Import trends

12.3.1 Logs

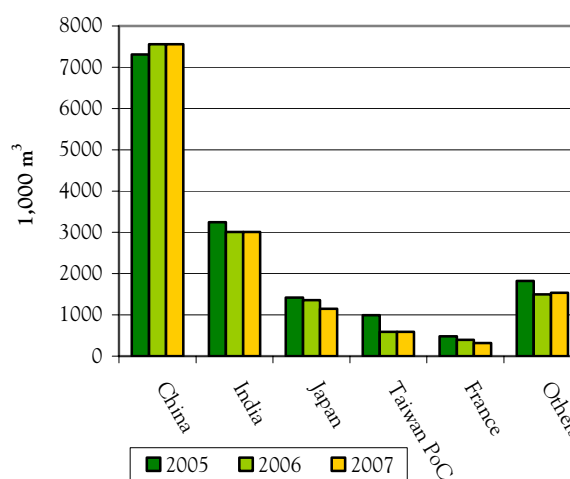
Tropical hardwood log imports by all ITTO countries have been steadily declining since 2003. China continues to dominate world imports of tropical logs, importing 7.6 million m³ in 2006, a 3.4% increase from 2005 (graph 12.3.1).

China's high economic growth rate and rising domestic consumption, sustained growth in exports of secondary manufactured wood products and incentives for exports (reductions in export tax incentives have not been fully implemented) point to continued growth in log imports to support the wood processing industry. Import growth may, however, be slightly dampened by an increase in timber harvesting from Chinese plantations. China's tropical log imports, which accounted for approximately half of total ITTO imports in 2006-2007, have almost tripled since the mid-1990s, with Papua New Guinea, Malaysia, Myanmar, Gabon, and the Congo the main sources. China's total log imports from all sources reached 35 million m³ in 2006, a 16% increase over 2005, and with most of the increase attributed to an increase in imports from Russia. In the medium term, a reduction in supply of Russian logs following the implementation of an

export tax, scheduled to reach prohibitive levels by 2009, may result in a general increase in log prices. The impact of the tax has not yet been apparent in the trade statistics, however.

GRAPH 12.3.1

Major tropical log importers, 2005-2007



Note: PoC = Province of China.

Source: ITTO, 2008.

India is also an important tropical log market, importing just over 3.0 million m³ in 2006, down 7% from a peak in 2005. Imports are mostly from Malaysia and Myanmar but with an increasing component from Africa. While India has had sustained economic growth over the past decade, its rate of growth in total and in tropical log imports has not matched that of China. Its wood-processing sector, limited by poor infrastructure and barriers to foreign investment, is unlikely to mirror that of China, which is highly competitive and export oriented.

Japan continues to become less significant in the tropical-log trade, with imports declining over the last 15 years. In 2006, imports were 1.4 million m³, declining to 1.1 million m³ in 2007 following a significant dip in Japanese residential housing starts in late 2007. This sharp decline was due to poor implementation of the new Building Standard Law, which contained strict measures against the falsification of earthquake resistance data for buildings. Although Malaysia continues to be Japan's major supplier of tropical logs, imports from Malaysia declined significantly in 2007, primarily due to transportation problems that considerably reduced shipping transport capacity between Japan and the state of Sarawak. Russia continued as the major source of total Japanese log imports (47% of total log imports of 10.6 million m³ in 2006), although this situation could change as attention shifts to investment in value-added processing in Russia in accordance with the imposition of the new log export duties.

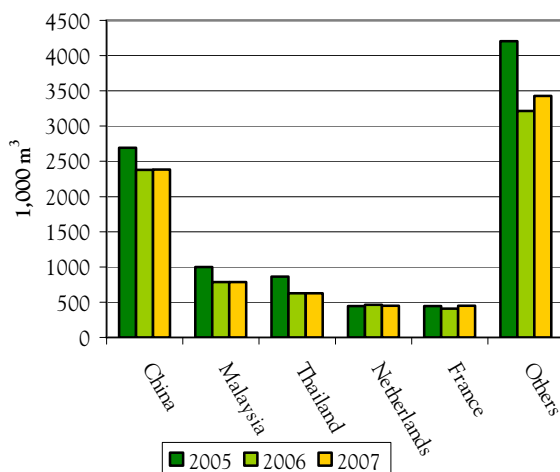
EU countries imported approximately 1.1 million m³ of tropical logs in 2006, down 4% from 2005, most imports continuing to come from Africa. Imports by France (the largest EU tropical log importer) decreased by 19% to 392,000 m³ in 2006 as log export restrictions in some of its main supplier countries (Cameroon, Gabon, Liberia and Congo) were strengthened. French imports were expected to decrease further to 320,000 m³ in 2007.

12.3.2 Sawnwood

Although its imports of tropical sawnwood decreased by 11.5% from 2005 to 2006, China still remained the world's largest importer, accounting for a 39.5% share of ITTO consumer-country imports (graph 12.3.2). Malaysia and Thailand were the next largest, although they are also important tropical sawnwood producers.

GRAPH 12.3.2

Major tropical sawnwood importers, 2005-2007



Source: ITTO, 2008.

Thailand's imports decreased significantly – by 27.1% – from 2005 to 2006. Its economy and construction activity slowed in 2006 following political uncertainties, resulting in a decline in demand for construction-grade tropical sawnwood, principally supplied by Malaysia.

Total tropical sawnwood imports by EU countries decreased by 14% in 2006 to just under 2.4 million m³, due mainly to significant declines in imports in Italy, Spain, and to a lesser extent, the UK. Both Italy and Spain were expected to recover from their downturns in 2007, and the UK was expected to remain level.

The decline in EU tropical sawnwood imports can be attributed to a number of factors including:

- lack of availability of certified tropical sawnwood;
- fashion changes to lighter colour timbers;

- loss of secondary-processed manufacturing capacity as a result of strong competition from Asian manufacturers (particularly China);
- substitution by non-tropical sawnwood in furniture and joinery manufacture;
- growing interest in non-tropical hardwood imports from eastern Europe, a region perceived to have better trading relationships than tropical supplying countries.

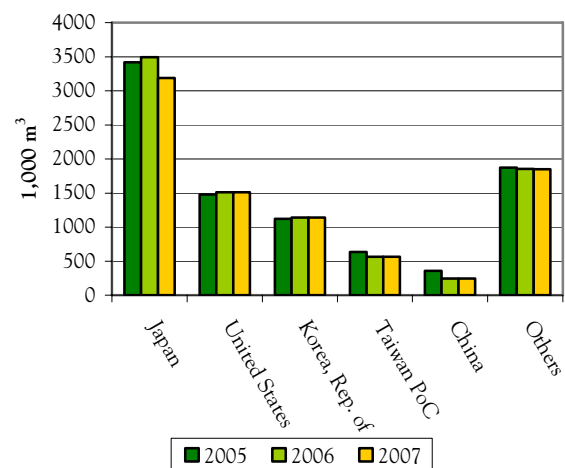
Brazil and Cameroon are the major sources for EU tropical sawnwood. Their exports to the EU increased 13% in 2007 to nearly 2.7 million m³.

12.3.3 Plywood

Japan, and to a lesser extent the US, are the major importers of tropical plywood (graph 12.3.3). Japan continues to replace domestic hardwood plywood production with softwoods, imported plywood (tropical and non-tropical) and substitutes such as oriented strand board (OSB) and medium density fibreboard (MDF). In 2006, tropical plywood imports increased due to rising housing starts and construction activity, together with difficulty in obtaining tropical logs for domestic production in the face of competition from China. Japan has converted much of its tropical plywood processing capacity to handle smaller-diameter Russian larch logs, resulting in an increase in tropical plywood imports to partially offset the resulting drop in tropical plywood production. Imports dropped again in 2007, however, due to slumping housing starts towards the end of the year. The outlook for Japan's plywood demand is not favourable in the medium to long term, given the forecasts for slowing economic growth and the implications of Japan's ageing demographic profile for housing and construction growth (Global Demographics, 2007).

GRAPH 12.3.3

Major tropical plywood importers, 2005-2007



Note: PoC = Province of China.

Source: ITTO, 2008.

The US remained ITTO's second largest tropical plywood importer in 2006 and 2007 at over 1.5 million m³, a small increase from 2005 (2.3%) but 20.3% less than the peak attained in 2004. Malaysia was the major supplier to the US (34.9%), followed by Indonesia (25.5%), with most of the rest from China (16.5%) and Brazil (11.6%). China is a more important supplier to the US than to Japan. Japan imports only 1.2% of its tropical plywood from China. The price competitiveness of tropical and non-tropical hardwood plywood (and other products) from China has been a major concern for the US hardwood plywood industry. The US International Trade Commission has launched a formal investigation into the legality of wood product supplies from China and other countries, which could be affecting the US hardwood industry. The report is due by June 2008.

EU imports of tropical plywood (about 1.0 million m³ in 2006 and 2007), were mostly accounted for by the UK, Belgium, the Netherlands and Germany. Most of the EU's tropical plywood came from Brazil, China, Indonesia and Malaysia, with inter-European trade also playing a fairly large role in many countries' imports. China continues to export growing amounts of tropical plywood to the EU, and particularly to the UK, where quality and pricing concerns have been raised. In 2007 there was considerable EU market uncertainty about Chinese tropical plywood imports. This was caused by European importers taking initial steps to apply for an extension of anti-dumping duties on okoume plywood to include plywood with other red-faced tropical surface veneers coming from China.

12.4 Export trends

12.4.1 Logs

Although Malaysia continues to dominate the trade in tropical logs, tropical log exports in 2006 declined 19% from 2005 levels, reflecting a tightening of supplies and the country's emphasis on further processing (graph 12.4.1). Malaysia's major log customers are all in Asia, with China, India, Japan and Taiwan Province of China accounting for 88% of the reported log export volume in 2006.

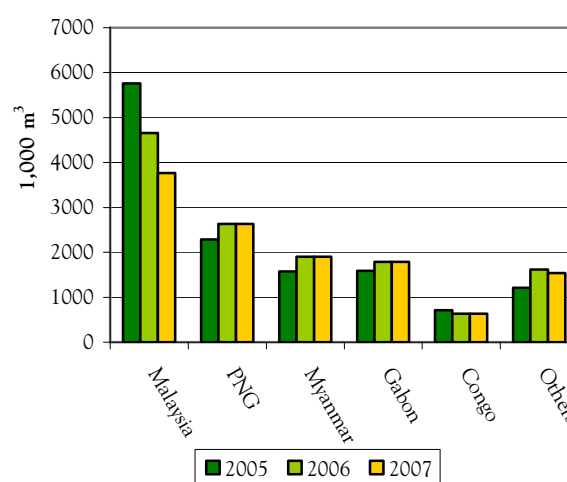
In 2007, Malaysia's exports were estimated to decline further to 3.8 million m³. Papua New Guinea, Myanmar and Gabon were also significant tropical log exporters. China and India receive the bulk of Myanmar's log exports (87% in 2006). However, Myanmar's exports to the EU were subject to a ban announced in October 2007 in response to human rights violations in the country. The new regulations were enforced in March 2008 and

affect products imported both directly from Myanmar and indirectly via other countries.

Gabon is Africa's largest tropical log exporter, with exports increasing from 1.6 million m³ in 2005 to 1.8 million m³ in 2006. The Congo, Cameroon, the Democratic Republic of the Congo, Côte d'Ivoire and the Central African Republic also exported substantial quantities of logs in 2006. Several African countries had implemented, or were in the process of implementing, log export bans/quotas for increasing further processing and controlling exports of certain species. Log export quotas were under negotiation in Gabon and the Congo in 2007 and were to be fully implemented in 2008. In 2006, a UN-imposed ban on log imports from Liberia, intended to halt the use of timber export revenues to fund illegal arms transactions, was lifted after the Government of Liberia instituted a series of regulatory reforms. The Government is currently awarding logging concessions, with log exports expected to resume in the fourth quarter of 2008.

GRAPH 12.4.1

Major tropical log exporters, 2005-2007



Note: PNG = Papua New Guinea.

Source: ITTO, 2008.

12.4.2 Sawnwood

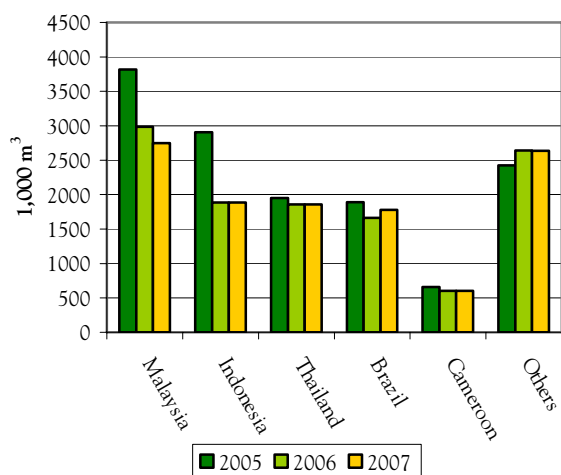
ITTO producers exported a total of almost 11.0 million m³ of tropical sawnwood in 2006, down nearly 16% from 2005. This large decrease was mostly due to significant declines in exports from Indonesia and Malaysia (graph 12.4.2).

Although Malaysia is the dominant exporter, tropical sawnwood exports declined by 22% in 2006 from a 2005 peak of 3.8 million m³. Most of this decline was due to a large drop in exports to Thailand, and to a lesser extent, to the Netherlands. Malaysia's tropical sawnwood exports

to Thailand are used mainly in the construction industry, which experienced a boom period in 2005, and which eased in 2006 and 2007.

GRAPH 12.4.2

Major tropical sawnwood exporters, 2005-2007



Source: ITTO, 2008.

Indonesia's exports of tropical sawnwood also declined significantly in 2006 to 1.9 million m³, 35% less than the 2005 levels. The country's total trade in previous years, particularly with China, had severely been underestimated. However, the magnitude of these discrepancies has declined considerably, suggesting that an apparent large undocumented flow of sawnwood out of the country appears to be decreasing.

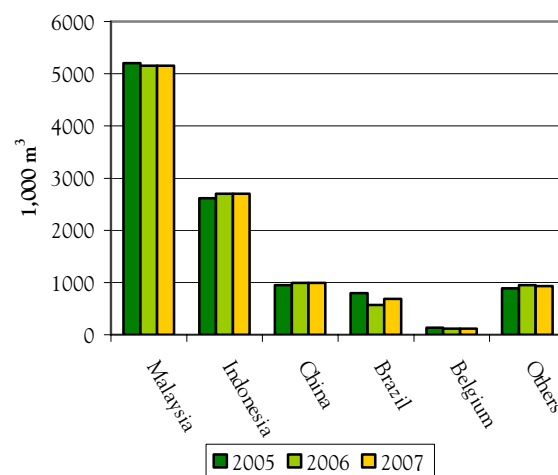
Exports from the Latin American region, predominantly Brazil, fell from 2005 to 2006 from 2.1 million m³ to 1.9 million m³, with exports affected by the strengthening of the Brazilian currency relative to the US dollar.

12.4.3 Plywood

In 2006, exports of tropical plywood from ITTO producer countries declined by 1.9% to just under 9 million m³. Malaysia remains the largest tropical plywood exporter, at 5.2 million m³ in 2006 and 2007, exporting mainly to Japan, the US, the Republic of Korea and Taiwan Province of China (graph 12.4.3). The EU, particularly the UK, is also an important market, with Malaysia able to supply significant volumes of certified plywood to the EU at small price premiums. Indonesia was traditionally Malaysia's major competitor in the tropical plywood trade, but its exports have greatly declined in recent years and Malaysia (and China) now dominate the trade. Indonesia's plywood exports have also declined considerably from the highs of around 10 million m³ (or 85% of total ITTO producer exports) in the early 1990s.

GRAPH 12.4.3

Major tropical plywood exporters, 2005-2007



Source: ITTO, 2008.

China's exports of tropical plywood reached 993,000 m³ in 2006, a 75% increase over 2003 levels. Its boom in tropical plywood exports to markets such as the EU, Taiwan Province of China and Japan is notable since it is largely based on logs sourced from tropical producer countries, many of which have been steadily losing share in these plywood markets.

In 2007, a number of factors emerged that may undermine China's plywood export competitiveness. These included the gradual removal of tax benefits for its plywood exporters (although these were not fully implemented by the end of 2007), increased competition for wood raw materials, rising labour and fuel costs, and difficulties in supplying environmentally certified products due to the complexity of supply chains.

The medium-term prospects for tropical plywood are likely to be influenced by demand factors, particularly declining construction demand in Japan and the US as their economies slow, and increasing demand for certified products from legal and sustainable sources, with many tropical plywood exporters currently unable to meet such requirements.

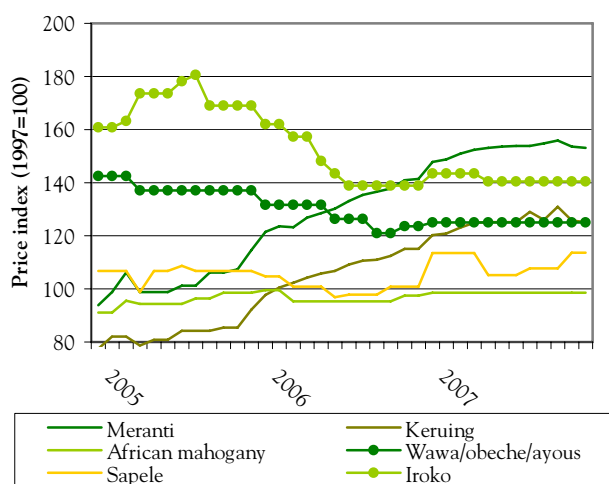
12.5 Price trends

Prices for most primary tropical timber products and species remained strong during 2006, as supply of raw materials tightened, global economies expanded and consumer confidence improved in most markets. In 2007 prices for many primary tropical timber products reached record highs, in response to strong demand in certain regions and restricted supplies from producer countries. A recent trend in the global tropical hardwood trade, brought about by increasing supply shortages, is a move to a higher value, lower volume trade in tropical wood

products. However, while prices have been strongly affected by supply issues in recent years, there were some signs that demand-side issues were affecting prices in 2008, as demand slowed in the major consumer countries, particularly the US, the end-market for a large volume of tropical wood products exports.

GRAPH 12.5.1

Tropical hardwood log price trends, 2005-2007



Source: ITTO, 2008.

12.5.1 Logs

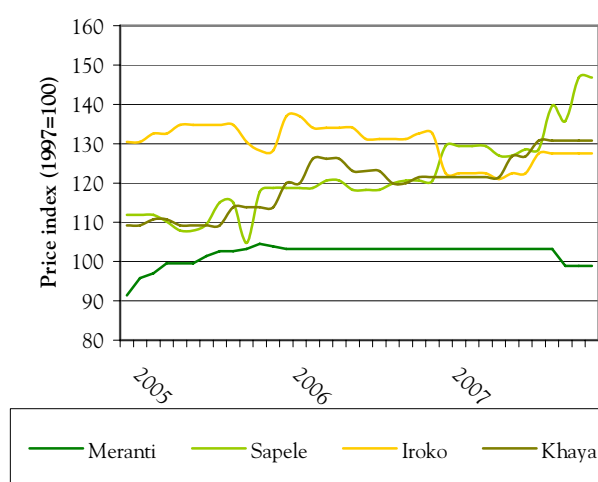
African log and sawnwood prices held on to gains made in 2005, with some species reaching new record highs in 2006 and 2007 (graph 12.5.1). Price gains were due to greater demand (including from China and India), shortages in supply of certain species exacerbated by export restrictions, as well as rising freight rates and/or taxes and similar levies. All these factors combined to encourage many producers to seek higher prices. In 2007, sapele and African mahogany log prices rose significantly in nominal terms, i.e. without adjusting for inflation, driven up by steady demand. Following a decline in prices for iroko logs in early 2006, they remained stable thereafter. In 2007, log export quotas were either partially or fully implemented in the Congo and Gabon, further restricting supplies and causing more upward pressure on African log prices.

Log prices for Southeast Asian species continued to rise in 2007, some reaching unprecedented levels, but some prices eased at the end of 2007, reflecting slowing demand conditions in major markets. Price gains were due to the continuing effects of tightening supply of logs from southeast Asia, intensified by enforcement measures against illegal logging, restrictions on log exports, and reduced logging quotas in Indonesia, although these have been eased somewhat.

Asian log price rises were supported by strong demand for certain species despite some resistance to higher prices by buyers from Japan, citing the downturn in demand for plywood within Japan. The significant price gains of logs from natural forests in Asia, led by meranti, currently exceed the previous high levels of early 1997. Export log prices for rubberwood continued to rise dramatically due to Malaysia's prohibition of rubberwood log exports to ensure an adequate supply of raw material for the country's export-oriented furniture sector and panel industries.

GRAPH 12.5.2

Tropical sawnwood price trends, 2005-2007



Source: ITTO, 2008.

12.5.2 Sawnwood

Prices for most Asian and African tropical sawnwood showed significant gains in 2007 as progressive tightening of supplies of most species dominated the trade (graph 12.5.2). Iroko nominal prices reached a record high at the end of 2006 and remained relatively firm through 2007, with periodic fluctuations of supply from Africa and demand from EU countries. Meranti and sapele also reached new record highs in late 2006 and 2007 before flattening out at the end of 2007. Prices of African mahogany (*Khaya* spp.) in the US market continued to soar through 2007 as supplies of South American mahogany (*Swietenia macrophylla*) remained extremely limited. US demand for sapele as a mahogany substitute has also put upward pressure on its prices, which overtook iroko prices in late 2006.

There is a continuing trend for some leading buyers to substitute West African sawnwoods for meranti from Malaysia because of strong prices and supply limitations. South American supplies of tropical sawnwood were reported to be difficult to source by buyers in 2006 and 2007, and prices rose strongly. The Brazilian hardwood industry has been severely affected by large rises in

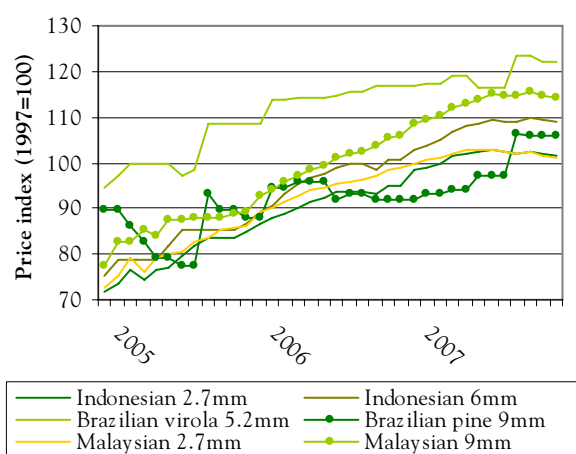
production costs, a strengthening currency which is undermining export competitiveness, and government efforts to crack down on illegal logging.

12.5.3 Plywood

Prices for southeast Asian plywood continued to rise in 2006 and 2007, reflecting ongoing shortages in log availability, including tighter control of illegal logging in Indonesia and elsewhere, bottlenecks in shipments, and higher production and material costs (graph 12.5.3). Still higher prices have been in part held back by subdued consumption and continued deflation in Japan, the world's largest consumer, closely followed by China. Chinese "combi" tropical plywood products continue to gain ground in major markets. Although prices of Malaysian plywood continued to rise through 2006 and 2007, they flattened out at the end of 2007 with the weakening of the construction sectors in most major markets.

GRAPH 12.5.3

Tropical plywood price trends, 2005-2007



Source: ITTO, 2008.

Prices of Brazilian tropical plywood also remained strong in 2006 and 2007, with strong consumer demand in North American and EU markets. But Brazil is facing strong competition from Chinese plywood exporters, and to some extent from European plywood producers, for both its hardwood and softwood plywood. Price competitiveness, linked in part to exchange-rate conditions, continue to drive plywood sourcing decisions in both Europe and the US.

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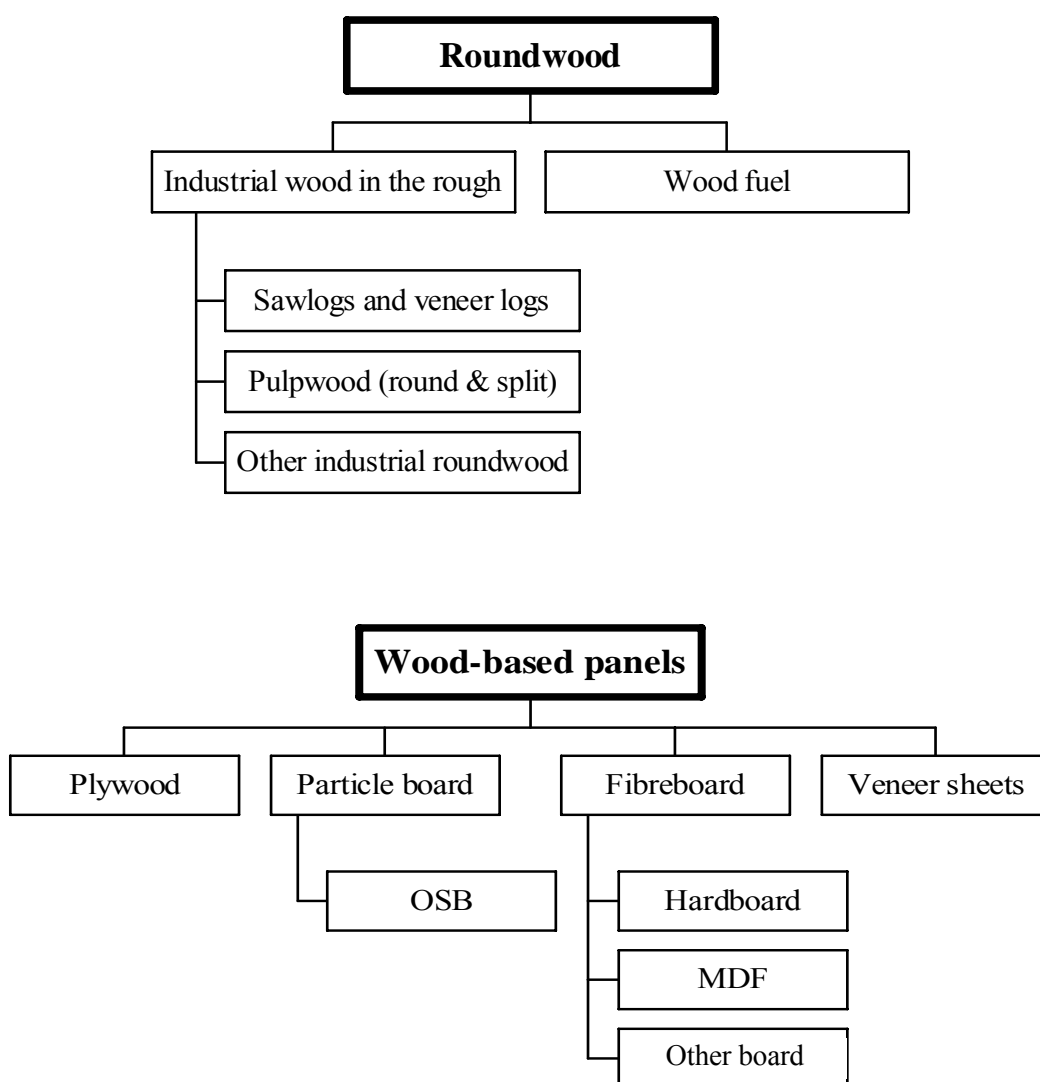
Annexes

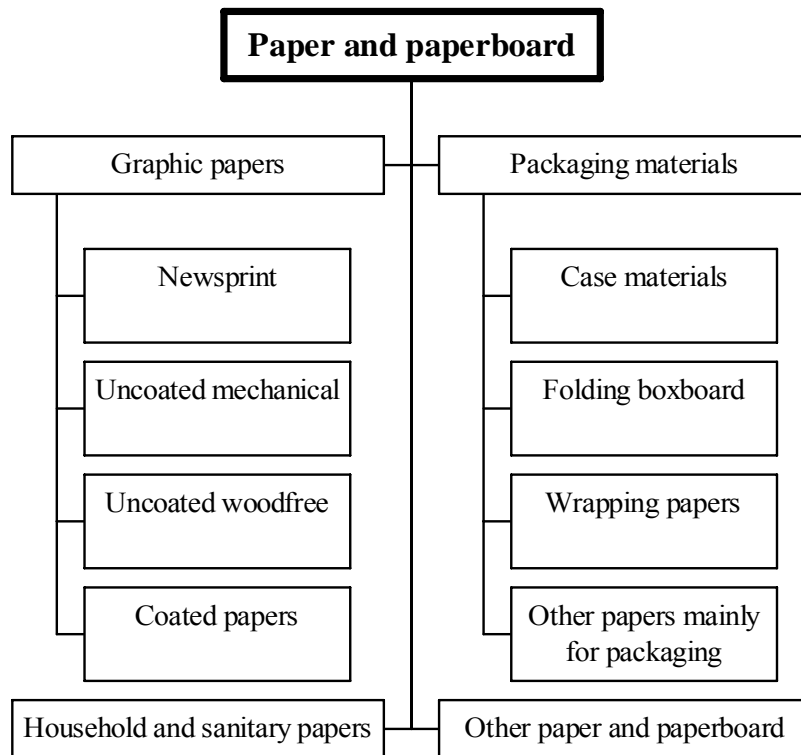
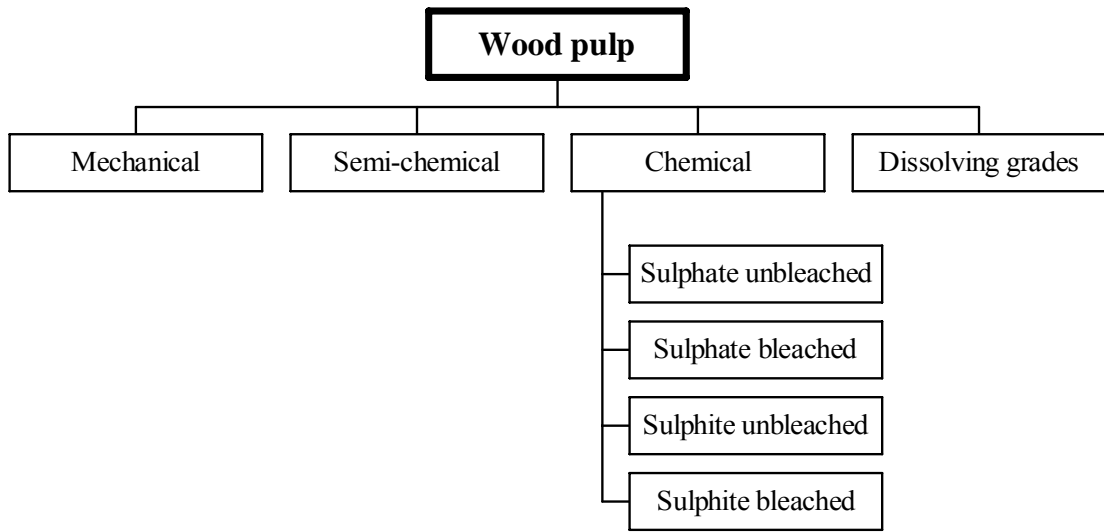
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Components of wood products groups

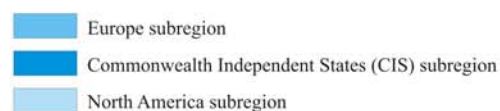
(Based on Joint Forest Sector Questionnaire nomenclature)

The important breakdowns of the major groups of primary forest products are diagrammed below. In addition, many sub-items are further divided into softwood or hardwood. These are all the roundwood products, sawnwood, veneer sheets and plywood. Items that do not fit into listed aggregates are not shown. These are wood charcoal, chips and particles, wood residues, sawnwood, other pulp and recovered paper.





Countries in the UNECE region and its subregions



Europe subregion (EU*)

Albania
 Andorra
 Austria*
 Belgium*
 Bosnia and Herzegovina
 Bulgaria*
 Croatia
 Cyprus*
 Czech Republic*
 Denmark*
 Estonia*
 Finland*
 France*
 Germany*
 Greece*
 Hungary*
 Iceland
 Ireland*
 Israel
 Italy*
 Latvia*
 Liechtenstein
 Lithuania*
 Luxembourg*
 Malta*
 Monaco
 Montenegro
 Netherlands*
 Norway
 Poland*
 Portugal*
 Romania*
 San Marino
 Serbia
 Slovakia*
 Slovenia*
 Spain*
 Sweden*
 Switzerland
 The FYR of Macedonia
 Turkey
 United Kingdom*

Commonwealth Independent States (CIS) subregion

Armenia
 Azerbaijan
 Belarus
 Georgia
 Kazakhstan
 Kyrgyzstan
 Moldova
 Russian Federation
 Tajikistan
 Turkmenistan
 Ukraine
 Uzbekistan

North America subregion

Canada
 United States of America

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Some facts about the Timber Committee

The Timber Committee, as a sectoral committee of the United Nations Economic Commission for Europe, constitutes a forum for cooperation and consultation among its member countries. Its objective is to strengthen the forest sector and its contribution to sustainable development throughout the UNECE region. It does this through monitoring, analysis, capacity building and the provision of a forum for discussion, taking into account the changing policy environment, notably as regards climate change and bioenergy. The Committee focuses on the sound and legal use of forest products, for raw material or energy, and on forest services.

Within the context of sustainable development, the Timber Committee provides member countries with the information and services which they need for policy- and decision-making as regards their forest and forest industry sector ("the sector"), including the trade and use of forest products and, when appropriate, formulate recommendations addressed to member Governments and interested organizations. To this end, it shall:

- (a) With the active participation of member countries, undertake short-, medium- and long-term analyses of developments in, and having an impact on, the sector, including those offering possibilities for the facilitation of international trade and for enhancing the protection of the environment;
- (b) In support of these analyses, collect, store and disseminate statistics and other information relating to the sector, and carry out activities to improve their quality and comparability;
- (c) Provide a framework for cooperation, e.g. by organizing seminars, workshops and ad hoc meetings and setting up time-limited teams of specialists, for the exchange of economic, environmental and technical information between Governments and other institutions of member countries that is needed for the development and implementation of policies leading to the sustainable development of the sector and to the protection of the environment in their respective countries;
- (d) Carry out tasks identified by the UNECE or the Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies of eastern Europe, the Caucasus and central Asia and the Mediterranean region;
- (e) Keep under review its structure and priorities and cooperate with other international and intergovernmental organizations active in the sector, and in particular with the FAO and its European Forestry Commission (EFC), the International Labour Organization (ILO) and with the Ministerial Conference for the Protection of Forests in Europe (MCPFE), in order to ensure complementarity and to avoid duplication, thereby optimizing the use of resources. Its work programme is fully integrated with that of the EFC.

More information about the Committee's work may be obtained by writing to:

UNECE/FAO Timber Section
Trade and Timber Division
United Nations Economic Commission for Europe
Palais des Nations
CH-1211 Geneva 10, Switzerland

Fax: +41 22 917 0041
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Forest policies and institutions of Europe, 1998-2000

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Forest and Forest Products Country Profile: Russian Federation

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(Country profiles also exist on Albania, Armenia, Belarus, Bulgaria, former Czech and Slovak Federal Republic, Estonia, Georgia, Hungary, Lithuania, Poland, Romania, Republic of Moldova, Slovenia and Ukraine)

Forest resources of Europe, CIS, North America, Australia, Japan and New Zealand

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UNECE/FAO GENEVA TIMBER AND FOREST STUDY PAPERS

The UNECE/FAO Geneva Timber and Forest Study Paper series contains annual and periodic analyses of the forest and forest industries sector. These studies are the official outputs of regular activities conducted within the Integrated Programme of Work of the UNECE Timber Committee and the FAO European Forestry Commission and as such should contribute to policy formation. Target audiences are Governments, industry, research institutions, universities, international organizations, non-governmental organizations as well as experts from other sectors. These publications often form the basis for discussions of the Timber Committee and the European Forestry Commission and their subsidiary bodies.

Study Papers are usually based on statistics, forecasts and information submitted by country correspondents in the UNECE region (Europe, North America and Commonwealth of Independent States). The basic information is often submitted via agreed questionnaires, and then complemented by expert analysis from outside and within the secretariat. Study papers are issued on the responsibility of the secretariat, although the studies most often are the work of many contributors outside the UNECE/FAO.

Study Papers are translated whenever possible into the three official languages of the UNECE: English, French and Russian. They are UN sales documents and are distributed accordingly via UN bookstores and their affiliates. They are automatically distributed to heads of delegation of the Committee and the Commission, as well as nominated repository libraries, information centres and official distribution lists. They are also available via the Sales and Marketing Sections in Geneva and New York via unpubli@unog.ch and publications@un.org respectively. Study papers are also available on the Timber Committee and European Forestry Commission website at: www.unece.org/trade/timber

Readers' comments are welcome. A reader survey is available via www.unece.org/trade/timber/mis/fpama.htm.

UNECE/FAO Timber Section
Trade and Timber Division
United Nations Economic Commission for Europe/
Food and Agriculture Organization of the United Nations
Palais des Nations
CH-1211 Geneva 10, Switzerland
Fax +41 22 917 0041
www.unece.org/trade/timber
info.timber@unece.org

Forest Products Annual Market Review



The Forest Products Annual Market Review, provides a comprehensive analysis of the UNECE region, including the Commonwealth of Independent States, Europe and North America. It covers forest products from the forest to the final consumer, i.e. from roundwood and primary-processed products to value-added products. Each issue includes extensive statistical information combined with an analysis of trends and developments. Standard statistics-based chapters are presented on sawn softwood, sawn hardwood, wood-based panels, wood raw materials and paper, paperboard and woodpulp. Other annual chapters analyse markets for wood energy, certified forest products, value-added wood products and tropical timber.

The Review includes a chapter covering policy issues related to forest products markets. This year's policy issues include energy and the forest sector, climate change and forest products markets, food security versus biofuels, the green building movement, corporate responsibility, Russian forest sector reform, and research and development.

The Forest Products Annual Market Review and its predecessor publications have been published annually since 1948 by the UNECE/FAO Timber Section. The Review's goal is to provide comprehensive statistics and analysis on forest products markets, with an emphasis on policy implications. This information is intended for policymakers, researchers, investors and forest products marketing specialists in Governments, research institutions, universities and the private sector. The Review is intended for use as a background document for the annual UNECE Timber Committee Market Discussions.

Further information about forest products markets, as well as information about the UNECE Timber Committee and the FAO European Forestry Commission, is available on the website www.unece.org/trade/timber. The Review has a statistical annex available from www.unece.org/trade/timber/mis/fpama.htm. Information about the UNECE and FAO may be found at www.unece.org and www.fao.org.