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NOTE

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Please note that the Timber Bulletin series was discontinued in 2005. The present publication was issued under the Geneva Timber and Forest Study Paper series starting in 2006.

ABSTRACT

The UNECE/FAO *Forest Products Annual Market Review, 2008-2009* provides general and statistical information on forest products markets and related policies in the UN 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. A new chapter is on forest sector carbon markets. 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/timber.

KEYWORDS

Forest products markets, wood markets, market analysis, forest policy, consumption, production, imports, exports, forestry industry, forestry trade, 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, bioenergy, biomass, fuelwood, certified forest products and carbon.

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FOREWORD

In 2009, the Secretary-General of the United Nations put climate change at the top of the development agenda, ensuring that the United Nations system will continue to bring the collective strength of all its entities as an integral part of the international community's response to climate change. The United Nations Economic Commission for Europe (UNECE) is well placed to assume an active role in supporting actions mitigating climate change at the regional level through our programmes in energy, environment, transport and, of course, timber.

The economic and financial crisis is another issue of primary importance for the United Nations. Here again, UNECE plays an active role by addressing the impact of the crisis in its sectoral areas of work.

Both of these issues are of high relevance to the forest and timber sector. First, this sector contributes to climate-change mitigation through carbon sequestration in forests, carbon storage in forests and harvested wood products and substitution of more carbon-intensive materials, for example in construction and in energy. The UNECE Timber Committee plays an active role in monitoring and analysing these trends as part of its work to strengthen the forest sector and its contribution to sustainable development in the UNECE region. One important activity linked to climate change, as identified during the Strategic Review of the Integrated Programme of Work of the Timber Committee and the Food and Agriculture Organization (FAO) European Forestry Commission, is the publication of the *Forest Products Annual Market Review*. It contributes to our efforts on climate-change issues by providing a comprehensive update on climate-change policies affecting the forest sector, along with other policy and market developments. The ultimate objective is to provide policymakers with the tools necessary for informed decision-making.

Second, all sectors are feeling the impacts of the current economic crisis, including forest products markets. Hence the theme of this year's *Review*, "The UNECE region's forest products markets in a global economic crisis". The Timber Committee Week on 12-16 October 2009 will be an opportunity for UNECE to continue to play its historic role in promoting intergovernmental cooperation, as the same theme is echoed throughout the Week: in the policy forum on "The forest sector in the green economy"; in the annual Timber Committee Market Discussions, which have same theme as the publication; and in the workshop on "Responding to climate change: wood's place in a global approach to green building". At the annual Market Discussions, interaction between industry, government and international organizations leads to a better understanding of market and policy developments.

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

The *Review* is the first comprehensive analysis of this year's forest products markets and policies for the UNECE region. It 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.



Ján Kubiš

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 forest sector has been severely hit by global recessionary economic conditions, which started with the subprime mortgage crisis in the United States. Depressed global financial markets have been accompanied by increased unemployment and declines in international trade and capital flows. Wood-product demand and production has plummeted as a result of the decline in new home construction, repair and remodelling and industrial markets. In addition to decreased construction activity across the region, the wood and paper industries continue to go through structural changes as supply and demand dynamics evolve. Energy and climate-change policies, often tied to government economic stimulus packages, are also bringing change to the forest sector. In this *Forest Products Annual Market Review, 2008-2009*, we focus on the effects of the global economic crisis on timber-based industries and communities in the UNECE region.

The 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.

As well as 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
- Forest sector carbon
- Sawn softwood and sawn hardwood
- Panels
- Paper, paperboard, and woodpulp
- Certified forest products
- Value-added wood products
- Tropical timber

The *Review* also highlights emerging policy developments:

- Economic stimulus policies and forest products markets
- Climate change policies and forest products markets
- Trade policy issues affecting markets
- Corporate social responsibility
- Developments within China forest industries
- Russian forest sector reform and domestic and export market effects
- Research and development policies

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 developments, policies and opportunities in the UNECE region. Our role, scope and mission support capacity building, training and information dissemination in social, economic and environmental aspects of forest products markets, marketing and forest sector development. Many members of the Team are authors, contributors and reviewers of the *Review*.

I wish to express my appreciation to the Team members, the secretariat production team and to all the other people who contributed information and statistics to make the *Forest Products Annual Market Review* a unique and valuable resource for 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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The policy chapter (chapter 2) was coordinated and partially written by Dr. Jim Bowyer, Director of Responsible Materials Program, Dovetail Partners, and Professor Emeritus, Department of Bio-based Products, University of Minnesota, United States of America. He was accompanied by Dr. Helmuth Resch, Professor Emeritus, University of Natural Resources, Austria. Dr. Eric Hansen, Professor, Oregon State University, US, participated in writing the policy chapter for the first time, although he has long participated in the *Review* in the certified wood products chapter. We wish to express our gratitude to these experts.

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Mr. Matt Fonseca was responsible for the publication layout, Ms. Karen Taylor performed all the administrative duties. Ms. Sefora Kifle prepared price data and Ms. Eve Charles prepared the French translation of the press release (all from the UNECE/FAO Timber Section).

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This year's *Review* has a new cover, designed by Mr. Yves Clopt, Graphic Designer, UNECE. We want to thank him for the attractive new look.

Initial technical reviews were done by Dr. Ed Pepke, Mr. Tapani Pahkasalo, Mr. Florian Steierer and Mr. Kit Prins (UNECE/FAO Timber Section). Other reviewers from the Timber Section included Ms. Franziska Hirsch, Mr. Roman Michalak and Ms. Marion Briens.

In total, 56 people worked directly in preparing this publication, not including the additional contributors and statistical correspondents listed separately.

In addition to the people involved up to this point, there will be many in the Documents Management Division, translation, printing and distribution upon whom we depend for producing this document in English, French and Russian.

This manuscript was completed on 27 July 2009. It is a true pleasure to thank all members of the Team, and the many other contributors, for their devoted efforts in producing this year's *Forest Products Annual Market Review*.

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DATA SOURCES

The data on which the *Forest Products Annual Market Review* is based are collected from official national correspondents² through the FAO/UNECE/Eurostat/ITTO Joint Forest Sector Questionnaire, distributed in April 2009. 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 2009. The data appearing in this publication form only a small part of the total data available. *Forest Products Statistics* will include all of the data available for the years 2004-2008. 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 2008 and, in the absence of formal statistics, their best estimates. Therefore all statistics for 2008 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. The Joint FAO/UNECE Working Party is currently carrying out work to increase awareness of problems in measurement and how to deal with these. Data on Intra-EU trade is less reliable than data on extra-EU trade.

In addition to the official statistics received by questionnaire, trade association and government statistics are used to complete the analysis for 2008 and early 2009. 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. It 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 2009. 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 at all.

SYMBOLS AND ABBREVIATIONS USED

(Infrequently used abbreviations spelled out in the text may not be listed again here.)

...	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
Gj	gigajoule
GWh	gigawatt hour
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
MBF	one thousand board feet
MDF	medium density fibreboard
MSF	one thousand square feet
MWe	megawatt electrical
MWth	megawatt thermal
NGO	non governmental organization
OSB	oriented strand board
PEFC	Programme for the Endorsement of Forest Certification Schemes
PJ	petajoule
PoC	Province of China
SAR	Hong Kong Special Administrative Region of China
SFI	Sustainable Forestry Initiative
SFM	sustainable forest management
STEM	Swedish Energy Agency
SWE	solid wood equivalent
VAWPs	value-added wood products

Chapter 1

UNECE region forest products markets in a global economic crisis: Overview of forest products markets and policies, 2008-2009³

Highlights

- The United States financial and economic crisis escalated in 2008, and spread globally, causing devastating effects on the UNECE region's forest products markets.
- The roots of the crisis can be found in the main driver for wood products demand – housing; from 2.2 million starts in 2005, in 2009, US housing starts fell to below 500,000 units.
- Russia delayed the final phase of raising log export taxes, citing the global financial crisis as the reason; however, the consequences of earlier log tax increases caused importing countries to retreat from dependence on Russian wood, including alternative sourcing and mill closures.
- The successor of the Kyoto Protocol will be negotiated in the United Nations Climate Change Conference in Copenhagen, in December 2009, and there are high expectations that Reduced Emissions from Deforestation and Forest Degradation (REDD) will strengthen the forest sector carbon markets.
- Demand for sawn softwood has fallen dramatically during 2008 and the first months of 2009; the effects on the industry have been disastrous with overall production in North America falling by almost 19%, in Europe by over 8%, and Russian sawn softwood exports declining by 11%.
- The paper industry continues to go through painful structural transition as the customer base changes; the global economic crisis has hit the industry at the worst possible time, and production in Europe and North America has decreased 17% in 2008, with prices continuing to fall.
- The US and EU enacted legislation to prevent wood imports and use from illegal sources, creating greater incentives for certified forest products and chain-of-custody verification.
- The quest for renewable energy sources, in the light of recognition of the dangers of climate change, with the drive for energy security, is producing a structural change within the forest sector; driven by government policies, despite the economic crisis in 2008-2009, wood energy markets remained buoyant.
- The dramatic reduction in consumption of forest products in the UNECE region by 116.9 million m³ in roundwood equivalent, of which the majority occurred in North America, 80.9 million m³ between 2007 and 2008, has ramifications throughout the forest sector.

³ By Dr. Ed Pepke and Mr. Tapani Pahkasalo, UNECE/FAO Timber Section, Switzerland.

1.1 Introduction

The UNECE/FAO *Forest Products Annual Market Review, 2008-2009*, is a comprehensive analysis of forest products market developments, and the policies driving them, in the UNECE region, which comprises three subregions: Europe, North America and the Commonwealth of Independent States (CIS). This overview chapter is the executive summary of the entire publication. It combines the separate chapters into a total market analysis, and then summarizes the individual market sectors covered subsequently in the various chapters. Furthermore it provides a summary of the policy developments from the chapter immediately following this one. Despite the organization of the *Review* by market sectors, the sectors are intertwined and inseparable, and must be analysed within a policy framework. Readers are encouraged to find deeper analyses in the following 12 chapters. Also within this chapter is a brief analysis of the forest products markets of a country outside the UNECE region, China, the region's major trading partner. For the first time the *Review* has a full chapter on forest sector carbon markets.

The *Review's* theme is the "UNECE region's forest products markets in a global economic crisis". From record levels of consumption, production and trade in 2006, the slight downturn for the region in 2007 escalated rapidly in 2008 and 2009. With an unsustainable rate of building in the US, the world's largest consumer of wood and paper products entered into an economic recession in late 2007, and its forest products markets sunk into a depression. US imports from its major trading partner, Canada, dropped off sharply, causing a crisis in the Canadian forest products industry, which was accentuated by a strengthening Canadian dollar. European exporters to the US were similarly affected, both by diminished demand and by the strong euro. In fact, US economic weakness, has resulted in a national debt of over \$1 trillion as of July 2009 (WSJE, 2009). Economic stimulus packages at the start of the Administration of President Barack Obama have contributed to the debt, together with the weakness of the dollar. These currency-exchange-rate changes have a profound effect on the international forest products trade, effectively shutting off some channels while opening others.

The economic crisis spread rapidly to Europe, and housing bubbles burst, driving down home values as well as demand for wood products. Some European banks were directly linked to the US financial problems through investments in packages of US mortgages, which turned out to be toxic assets. Further east, eastern EU and CIS economies went into recession and their forest sectors were seriously affected.



Source: M. Fonseca, 2008.

The *Review's* theme is also the theme of the annual UNECE Timber Committee Market Discussions to be held on 13-14 October 2009, where many of the chapters' authors will present their analyses along with updates and forecasts for 2009 and 2010. The Market Discussions are preceded by a one-day workshop on "Responding to climate change: Wood's place in a global approach to green building". The workshop follows the first green building workshop in 2008 held during the European Forest Week, and is scheduled to be followed by a larger conference in 2010 in Canada, which is currently entitled "Green building and climate change: From science to policies". Following the Market Discussions during the Timber Committee Week will be a one-day Policy Forum entitled "The forest sector in the green economy". Information on all events is available from the homepage of the Timber Committee.⁴

The *Review* starts with two chapters, policy developments and economic developments, which provide an essential basis for the other 10 chapters' sector-by-sector developments. The *Review* analysis period for 2008-2009 is based on the first available statistics collected by the UNECE/FAO Timber Section. These statistics are augmented by initial indicators of 2009 developments through mid-year when the *Review* went to press. The chapters in the *Review* are:

1. Overview of forest products markets and policies;
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;

⁴ www.unece.org/timber

9. Wood energy markets;
10. Certified forest products markets;
11. Forest sector carbon markets;
12. Value-added wood products markets;
13. Tropical timber markets.

The second chapter of this *Review*, "Policy issues related to forest products markets, 2008-2009", analyses the following policy areas, which are also summarized in this chapter:

- Economic stimulus policies and forest products markets;
- Climate change policies and forest-related markets;
- Russian forest sector reform and domestic and export market effects;
- Trade policy issues affecting markets;
- Corporate social responsibility;
- Research and development policies.

Considerable statistical information may be found in the *Review's* electronic annexes of statistical tables available on the website⁵. The entire TIMBER database, which was updated thanks to timely submissions of statistics from national correspondents in May 2009, is also available on the website. These comprehensive statistics are offered to provide a transparent background to the *Review*. References at the end of each chapter not only substantiate and give credit to the ideas within the chapter, but provide a wealth of information for further reading.

The secretariat expresses its sincere gratitude to the analysts, contributors and production team that made this *Review* possible. The *Review* is the earliest comprehensive market study for the entire UNECE region. It is a critical background document for participants at the Timber Committee Market Discussions. It was also recognized in the 2008 Strategic Review of the Integrated Programme of Work of the Timber Committee and the Food and Agriculture Organization (FAO) European Forestry Commission as their annual flagship publication. Reproduction of parts of the *Review*, its executive summary and its press release in many countries outside the UNECE region is recognition of its international value.

1.2 Market developments

The quest for renewable energy sources in the light of recognition of the dangers of climate change is producing a structural change within the forest sector. Combined with the severe economic crisis in 2008 and 2009, a fundamental shift is occurring within the sector, the

effects of which are being felt through the chain from the forest to the markets. Never since the first oil crisis in the 1970s have the forest products markets experienced such a downturn.

1.2.1 Regional and subregional markets

The abrupt turnaround from record levels of consumption in 2006 to the 2008 level, which continued to fall well into 2009, has sent shockwaves through the sector. In 2008, consumption of forest products in the UNECE region fell by an astonishing 8.5% overall (table 1.2.1).

The overall drop obscures more serious declines in two subregions, North America and Europe. The US housing crisis has not ended as of mid-2009, and even if the bottom has been reached, the calamity in markets and the entire industry will not be resolved any time soon. North American sawnwood consumption and production peaked in 2005 at over 157 million m³. Since that time it has fallen by an almost unbelievable 42%. In 2008 panel consumption, both structural and non-structural, fell more than sawnwood, 19.0% versus 17.7%. Combined with the large drop in paper and paperboard consumption, North American total consumption fell 12.7% in 2008 in terms of roundwood equivalent. Unfortunately the crisis was not confined to North America.

Europe also experienced its greatest downturn since the oil crisis of the 1970s. In terms of roundwood equivalent, consumption in Europe fell approximately half as much as North America, i.e. by 5.9%. But in volume terms, the loss of 81 million m³ of consumption in North America dwarfs the loss of 38.5 million m³ in Europe. However, all of these losses have been catastrophic for the forest products industry, especially for the people working in the industry, and the multiplier effects in their communities. The EU countries fared worse than eastern European countries in 2008, but preliminary indicators in 2009 indicate that the construction crisis in the east could be proportionally worse, along with their forest industry situation.

It appears that the CIS weathered the storm in 2008, as consumption of wood and paper products continued to grow, albeit at a considerably slower pace. The rising Russian roundwood export tax is a thread through most of the chapters. When the tax on unprocessed roundwood rose to 25% of value in April 2008, importers began securing alternative sources, especially in the light of the threatened 80% export tax scheduled for January 2009. Although the Government postponed the higher tax, the damage had already been done to this important trade channel, as detailed in the *Review*. Countries with a dependence on Russian logs found alternative sources, and in conjunction with the downturn in demand for wood and paper products, reduced their production capacity.

⁵ <http://timber.unece.org/index.php?id=136>

TABLE 1.2.1

Apparent consumption of sawnwood ^a , wood-based panels ^b and paper and paperboard in the UNECE region, 2004-2008							Change 2007 to 2008	
	Thousand	2004	2005	2006	2007	2008	Volume	%
Europe								
Sawnwood	m ³	114 572	116 376	116 777	124 418	111 278	-13 140	-10.6
Wood-based panels	m ³	62 695	65 234	67 961	75 105	71 896	-3 209	-4.3
Paper and paperboard	m.t.	91 756	94 819	98 229	99 670	96 027	-3 644	-3.7
Total	m ³ EQ ^c	594 681	612 013	628 578	657 119	618 609	-38 510	-5.9
of which: EU27								
Sawnwood	m ³	101 423	102 491	102 729	110 485	97 765	-12 720	-11.5
Wood-based panels	m ³	56 078	57 258	60 052	66 109	62 681	-3 428	-5.2
Paper and paperboard	m.t.	85 308	86 802	90 158	90 666	87 511	-3 155	-3.5
Total	m ³ EQ ^c	541 196	549 858	566 084	589 909	553 374	-36 534	-6.2
CIS								
Sawnwood	m ³	12 336	13 380	14 122	15 389	16 306	917	6.0
Wood-based panels	m ³	9 132	10 251	11 645	13 609	14 300	691	5.1
Paper and paperboard	m.t.	6 763	7 450	8 190	9 000	8 973	-27	-0.3
Total	m ³ EQ ^c	57 274	63 065	68 993	76 909	79 389	2 480	3.2
North America								
Sawnwood	m ³	154 644	157 372	149 677	134 146	110 466	-23 680	-17.7
Wood-based panels	m ³	66 524	69 070	69 033	61 639	49 936	-11 703	-19.0
Paper and paperboard	m.t.	98 614	98 603	98 080	96 187	89 028	-7 159	-7.4
Total	m ³ EQ ^c	688 169	696 571	682 428	639 330	558 448	-80 882	-12.7
UNECE region								
Sawnwood	m ³	281 552	287 128	280 576	273 954	238 051	-35 903	-13.1
Wood-based panels	m ³	138 351	144 555	148 639	150 353	136 131	-14 222	-9.5
Paper and paperboard	m.t.	197 133	200 872	204 500	204 858	194 028	-10 830	-5.3
Total	m ³ EQ ^c	1 340 125	1 371 649	1 380 000	1 373 358	1 256 446	-116 912	-8.5

Notes: ^a Excluding sleepers. ^b Excluding veneer sheets. ^c Equivalent of wood in the rough. CIS sawnwood consumption is based on secretariat estimates, explained in detail in chapter 5, section 5.3.

Sources: UNECE/FAO TIMBER database and secretariat estimate, 2009.

From a broad perspective, consumption in the UNECE region has changed significantly over the past year. Both Europe and the CIS had positive overall consumption growth in 2007. But the severity of the North American downturn in 2007 brought down the entire UNECE region. With European consumption falling in 2008, the relatively small increase in consumption of the CIS subregion was unable to keep the UNECE region afloat (graph 1.2.1).

What the statistics above fail to show is the boom in wood energy production and consumption. This is indeed an intrinsic factor in the ongoing structural change in the forest sector. And this change is driven notably by governmental policies for renewable energy sources. Few countries in the UNECE region are energy-independent, thus most depend on imported energy in the form of non-

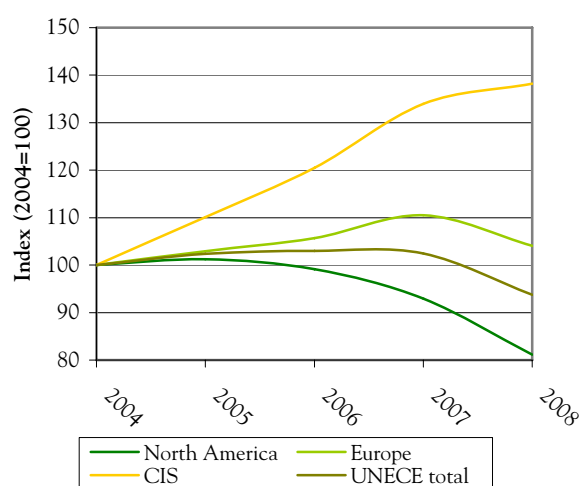
renewable fossil fuels, mainly oil, coal and natural gas. Ongoing wars in the Middle East, combined with speculation, drove energy prices to record levels as the last *Review* went to print in July 2008. Although prices have halved since then, in mid-2009, the threat of rising prices remains. And the major uncertainty of supply sources and energy security are key drivers of governmental promotion of wood-based energy in the UNECE region.

The acceleration in consumption and trade of wood for energy is part of the ongoing fundamental transition occurring within the forest sector. A decade ago the *Review* spoke of the loss of distinction between a pulplog and a sawlog when sawing and chipping technology converged to produce boards from small-diameter logs. Now another competitor for those logs exists – energy. With the downturn in sawnwood production, not only

are panel manufacturers having difficulty securing adequate residue supply, but wood energy producers are as well. Pellet manufacturers in some countries have started pelletizing pulpwood to meet the augmented demand for wood energy. That demand is directly linked to unstable prices and availability of fossil fuels.

GRAPH 1.2.1

Consumption of forest products in the UNECE region, 2004-2008



Note: Based on roundwood equivalent for sawnwood, panels and paper and paperboard.

Source: UNECE/FAO TIMBER database, 2009.

The main cause of the UNECE regional downturn in 2008-2009 has been the worst economic recession since the Great Depression. What started in the US in the fourth quarter of 2008 quickly spread to the rest of the region. It was an amazingly severe and rapid slide, as evidenced by the declines in gross national product (GNP) forecast for 2009: Russia -6.0%, CIS -5.1%, southeast Europe -4.6%, EU -4.0%, US -2.8%. From a 1.5% growth rate in gross domestic product (GDP) for the UNECE region in 2008, the forecast is for real annual growth of -3.5% in 2009. The macroeconomic situation weighs heavily on the forest products markets at this time, and the mild recovery expected in 2010 cannot come soon enough.

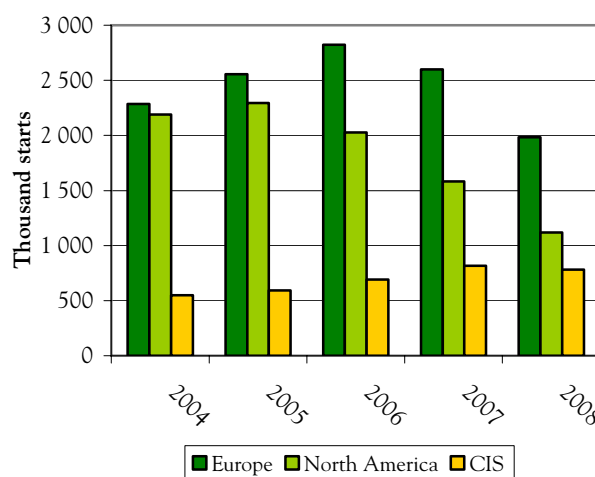
The US financial crisis was largely due to the main driver of forest products markets, housing construction. Wood-frame construction for housing and non-residential buildings in the US has multiplier effects for higher-value wood products as well. Construction was accelerated in 2006 through 2008 by building loans below the prime lending levels, the so-called sub-prime mortgages. When the US economy started to slow and the housing bubble burst, the value of houses fell below the value of the loans. When mortgage holders defaulted on their loans,

banks were left with overpriced, non-saleable assets. Not only were US banks and lending institutions in deep financial trouble, but also overseas banks and investors which had purchased bundles of US loans, which heretofore had been considered conservative investments. Countries far from the epicentre in the US soon found their banking debts greater than the country's GNP.

The housing crisis was cited as the reason behind the fall in North American forest products markets in the last Review. But now the crisis has spread to Europe, including central and eastern Europe. It is staggering to see that housing construction was 2.2 million units in the US as recently as 2005, and that only 470,000 units are forecast for 2009 (APA, 2009). European construction, which uses considerably less wood, but which is nonetheless an important demand driver, has slowed as well (graph 1.2.2). There is a fear that the housing crisis may be even more severe in central and eastern Europe. Russian housing construction has slowed, but individual houses (32% of the total surface area of construction) and timber-frame houses (10%) are growing, according to Rosstat, the Russian statistical agency.

GRAPH 1.2.2

Housing starts in the UNECE region, 2004-2008



Notes: For European countries outside Euroconstruct's 19 country region and CIS, 2008 is a forecast. Europe: Euroconstruct 19 countries plus Bulgaria, Croatia, Estonia, Latvia, Lithuania, Romania, Serbia, Slovenia and Turkey. North America: Canada and the US. CIS: Russia and Ukraine.

Sources: US Census Bureau, Canada Mortgage and Housing Corporation, Euroconstruct, Rosstat, 2009.

It is interesting to note that timber-frame housing in Russia tripled in the 10 years up to 2008, although it remains one tenth of the residential construction at 6.6 million m². This is a substantially greater growth rate over the same period than individual housing, which doubled

to 20.6 million m², and apartments, which also doubled to 36.5 million m² (Rosstat). The rise in timber-frame and individual houses in Russia is an indicator of increasing consumption of sawnwood and other wood products for construction, finishing and furnishing.

Recovery of the housing markets is essential to moving out of recession. Where the crisis started, in the US, is where the recovery needs to occur most. In early 2009 the stock of unsold new, and unsold used, homes available for sale was about 11 months each – a huge burden to move through before new construction can begin. The lessons learned about the dangers of lenient lending mean that standards have become stricter, prohibiting some potential buyers.

Government stimulus packages are being enacted throughout the UNECE region to shore up weak economies. Stricter regulations aimed at the financial sector are aimed at preventing future meltdowns which saw major banks in the US and Europe declare bankruptcy and require government intervention. Many of the stimulus packages are linked with concerns about climate change and have been termed the green new deal. The forest sector in some countries will receive direct and indirect benefits, which are targeted to assist in the short term and to enable the sector to bounce back more fully in the long term. Clearly, the stimulus packages have multiple goals, for example, to provide employment and mitigate climate change. Wood-based energy stands ready to benefit from some policies. In the US, a number of legislative actions were initiated in 2009 to assist the ailing housing sector and homeowners.

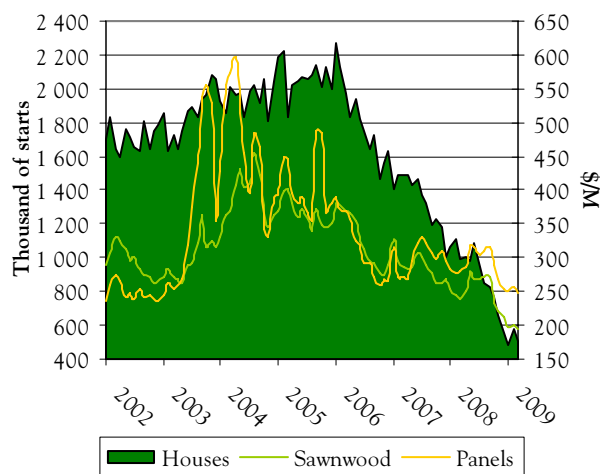
In 2009, absence of demand for new housing, as well as weak demand for repair and remodelling, has driven prices of building materials to their lowest real prices since the 1940s (graph 1.2.3). When the 2008 *Review* went to press, wood raw material prices were at record highs. But over the course of the past year, roundwood prices have fallen sharply, for example for softwood sawlogs by 26%, according to the Global Conifer Sawlog Price Index (Wood Resource Quarterly, 2009).

Green buildings are part of the solution to the current crisis and contribute to fighting climate change. Buildings which are energy efficient from the standpoint of their construction materials, as well as their heating and cooling mechanisms, are part of the green economy. Green building rating systems, which use a life cycle approach, favour wood. Many rating systems specify wood certified to have come from sustainably managed forests. Governments are promoting green buildings through laws and programmes, as well as procurement policies. In these days of rising energy costs and environmental awareness, it makes good sense to construct energy-efficient buildings. A tremendous need exists in the UNECE

region, and elsewhere, to renovate buildings for greater energy savings. Most of the world's energy use is in heating and cooling of building spaces and water.

GRAPH 1.2.3

US housing starts vs. sawnwood and panel prices,
2002-2009



Notes: Sawnwood is framing lumber composite (\$/MBF) and panels are structural panel composite (\$/MSF). Averages of 14 product and species composite prices. Houses are single-family and multi-family.

Sources: *Random Lengths* for prices and National Association of Home Builders for housing starts, 2009.

In summary, the global economic crisis has had a direct, devastating impact on the forest sector in the UNECE region in 2008-2009. The wood and paper industries have rationalized production inline with reduced demand – some of the mills will not reopen, at least not soon. Forest landowners and managers have reduced harvests accordingly, and have sought alternative markets. For example, North America is exporting greater volumes of roundwood to Asian and European destinations in the light of reduced domestic demand for wood and paper production. North America lags behind Europe in consumption of woodfuel which leads into shipments of considerable quantities of pellets crossing the Atlantic to meet rising demand for renewable energy in Europe. Driven by government policies for environmental reasons and energy security, wood energy is the one sector best surviving the economic downturn. The 116.9 million m³ reduction in consumption of forest products in the UNECE region, of which the majority, 80.9 million m³, occurred in North America between 2007 and 2008, has ramifications throughout the forest sector. These trends, along with the forecasts for 2009 and 2010, will form the basis of the annual Timber Committee Market Discussions on 13-14 October 2009.

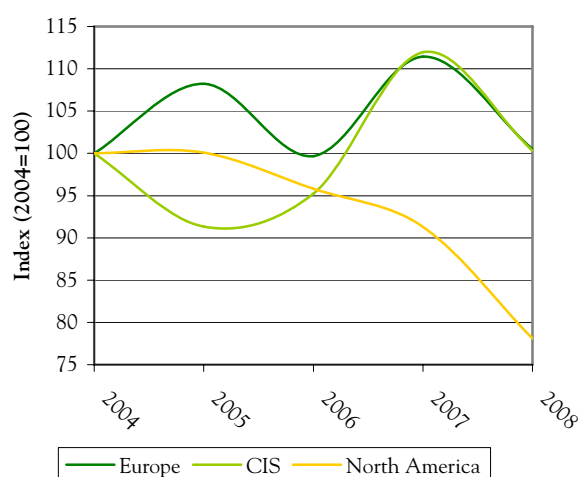
1.2.2 Wood raw materials markets

The global economic crisis has led to lower demand for forest industry products and this clearly impacts the roundwood removals in the UNECE region. For the first time in years, the roundwood removals declined in the region by 10% to their lowest level since 1999. Total removals were 1.2 billion m³ in 2008 with declines in all subregions (graph 1.2.4). Some 16% of harvested wood was used for energy purposes, while industrial roundwood accounted for the remaining 84% of harvested volume.

Raw material trade flows are clearly changing in the region as a result of the global economic crisis, Russian log export taxes, and continued wood energy boom. European log imports have declined from the previous year, especially from Russia, while wood chip and wood pellet imports are growing every year to new records, mainly due to wood energy consumption. On the other hand, North American roundwood exports to Asia have increased from the previous year by over 10%, bringing some relief to the timber-based economies otherwise hardest hit by the crisis. Consequently, Russian exports to Asia have decreased.

GRAPH 1.2.4

Consumption of industrial roundwood in the UNECE region, 2004-2008



Note: Industrial roundwood excludes woodfuel.

Source: UNECE/FAO TIMBER database, 2009.

Russian roundwood export taxes designed to boost investment in local timber processing have now led to detrimental development for the timber trade dependent regions, decreasing Russian log exports to a six-year low. During the first three months of 2009, Russian exports of softwood logs were down 43% from a year earlier and hardwood log exports were as much as 79% lower, as compared with the first quarter of 2008. Additionally, data released by the Russian State Statistics Service show

that sawnwood output was 24% lower than in the same quarter last year, market pulp production was down 26%, and the manufacture of wood-based panels had declined by about 40%.

Countries previously relying on Russian roundwood have actively searched for other sources of wood raw material, benefiting North America and certain Southern Hemisphere countries. Nordic countries are going through a severe structural change in the forest industry base, and partly due to the economic crisis, are permanently closing down some production capacity. Decrease in wood sourcing from Russia is also leading to high roundwood removal rates in Europe since the forest industry is relying more on domestic wood supply than on imports. When the market for forest industry products recovers, a wood raw materials shortage may hinder the growth in production.

Lower demand for roundwood has led to negative price development for sawlogs and pulpwood (graph 1.2.5). On average, the softwood sawlog prices have fallen an enormous 26%, while softwood pulpwood prices have already fallen 19%. As prices for forest industry products have fallen even more, the lower wood prices have not brought the expected relief for the lack of profitability in industrial production. The wood chip prices in the region have not been as strongly affected as the roundwood prices, although energy demand still represents a small fraction. The wood energy sector has nevertheless been strongly affected through decreased production volumes in the wood products industry, leading to lower raw material availability in the form of logging residues, bark, sawdust and wood chips. Therefore, the energy sector is now increasingly using small-diameter pulpwood as well, setting a floor price for all wood fibre, independent of form, as long as it can be economically sourced and has thermal value. Europe has become a significant net importer of wood chips and pellets, importing a total of 29.8 million m³ of wood residues and wood pellets in 2008.



Source: M. Fonseca, 2008.

GRAPH 1.2.5
Global softwood sawlog and wood fiber price indices,
2000-2009



Source: Wood Resource Quarterly, Wood Resources International LLC, 2009.

1.2.3 Wood energy markets

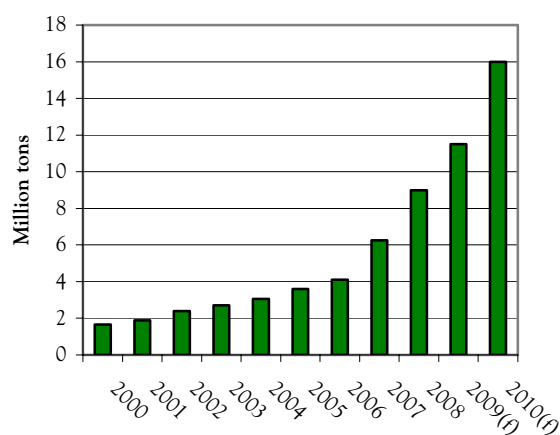
The wood energy sector seems to have been immune to the global economic recession. Demand for alternative fuels, including wood biomass, continues to grow steadily due to incentive policies and also relatively high energy prices. Although crude oil prices dropped 76% since their peak in the summer of 2008 to end of the year, electricity and other energy prices continue at high levels. Much attention is now focused on the liquid biofuels sector and most of the research and development support is currently directed there. Governments are obviously eager to reduce dependence on imported fuels apart from climate change mitigation policies. In the US, legislation for biofuels production is currently being developed and depending on the definition of biomass, wood from different kinds of stands and different forest ownerships, will or will not qualify for incentives to produce wood-based liquid fuels, heat or power. There is potentially a huge upside for wood demand. Energy supply security was put to the test in Europe with the Russo-Ukrainian dispute over transfer tariffs for Russian gas being transported over Ukrainian territory, with the ensuing dramatic fluctuations in oil.

Solutions for combined heat and power production utilizing woody biomass are commonly in use already and, as noted, the majority of energy demand within the region comes from space and water heating. Large biomass-consuming energy projects have begun over the past few years, and after completion, the energy production facilities create a somewhat permanent demand for significant amounts of biomass. However, the raw material supply for the energy sector has become even tighter since harvesting levels throughout the

UNECE region are lower than in previous years, meaning that there are fewer harvesting residues and fewer by-products from wood processing available for burning. This is leading to a situation in which it is feasible to consider burning roundwood directly, without utilizing the more valuable parts in sawmilling, panel manufacturing or pulp manufacturing, something which has actually begun in parts of the region already. The wood-processing industry is concerned about this and there are examples in which wood-paying capability of the energy industry exceeds that of the wood processing industry.

World pellet markets have grown significantly over the years and now clearly exceed 10 million tons and will double again by 2012 if the current annual growth rate of 20% continues (graph 1.2.6). Europe is the largest consumer and producer of pellets, while Canada is the single largest exporter. Asia could also become an important consumer of wood pellets, as the first large-scale industrial projects to co-fire coal with wood biomass took place in Japan in 2008. In Ontario, Canada, there is a project to replace coal in energy production with biomass, which would increase domestic demand for wood energy considerably.

GRAPH 1.2.6
Global production of wood pellets, 2000-2010



Note: f = forecast.

Sources: Hillring et al., 2007; Hillring et al., 2008.

In Russia, the Government is increasingly interested in possibilities for converting central heating systems from fossil fuels to biomass. There is significant potential to increase efficiency in these systems and the economics support this option. Russia could increase fossil fuel exports to international markets and utilize already available biomass locally for energy production. It is expected that Russian domestic use of wood biomass will increase together with wood processing. Modern wood-

processing facilities in Russia utilize their wood waste carefully in energy production to ensure profitability. Canada has allowed the retrieval of wood biomass from the Crown land for energy use in order to better utilize mountain pine beetle-killed trees. However, large parts of infected areas are not economically accessible and usage will be limited.



Source: J. Löytömäki, 2008.

1.2.4 Sawn softwood markets

The impact of the US mortgage-led financial crisis turning into a global economic crisis has severely affected the sawn softwood industry, where the impacts on demand are direct and immediate, since new housing construction is the key demand driver for products. The effects on the industry in 2008 were devastating, as overall production in North America fell by almost 19%, in Europe by over 8%, and Russian sawn softwood exports declined by 11%. It must be remembered that the economic recession in the US had already begun in late 2007 and new housing starts have now fallen 75% from the high levels of 2005. Canada has naturally also felt the 20% reduction in sawn softwood consumption since it is the principal exporter to the US.

As demand fell dramatically during 2008 and the first months of 2009, prices have consequently fallen as the oversupply situation has become worse (graph 1.2.7). In North America, half of the production capacity has at least temporarily curtailed production. In Europe, developments are similar: mills curtailed production in order to ease the oversupply situation and slow the price decline. Oversupply became evident in Europe in the first months of 2009 when the economy cooled down dramatically, and the oversupply situation continues to prevail.

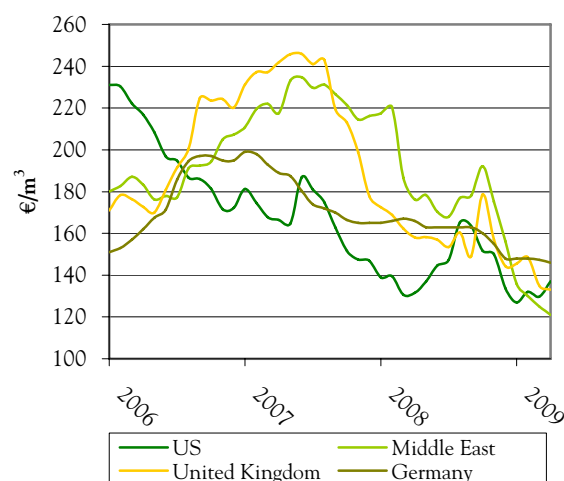
In North America, excess sawmill capacity has weakened the sawnwood prices to record low levels and caused many mills to close. It is now expected that the

industry may, at least temporarily, be in balance in mid-2009, but with low-end product prices. The operating environment will remain challenging for the sawmills even when the housing markets begin to recover. Pressure from domestic suppliers and importers will be high and it will take time to move towards more sustainable, or break-even, sawnwood prices.

Trade in sawn softwood has decreased markedly as European exports to the US decreased by 45% in 2008 and exports to Japan continued to decline by 25%. Recent years saw aggressive capacity expansion in parts of central Europe but now the investment activity has come to a halt. Many projects in Europe, as well as in Russia, have been postponed or entirely cancelled due to the economic crisis. Many new sawmills were built in regions with lower wood costs to serve the export markets. The trade-off was small domestic markets and this has become a major problem as many export markets have collapsed. Log competition in Europe was intensified due to capacity expansion and wood prices are not expected to decline significantly. Weak profitability caused by relatively high wood and energy costs, crashing end product prices, and finally, disappearing markets, has left the industry in distress. Weak profit margins within the industry will lead to major restructuring, and permanent closures and industry consolidation are expected.

GRAPH 1.2.7

Sawn softwood price development in selected regions, 2006-2009



Notes: United States 2x4 eastern; Middle East: Scandinavian spruce, pine & fir; United Kingdom: Swedish carcassing; Germany: glulam stock.

Source: EUWID Wood Products and Panels, Random Lengths, 2009.

Trends in Russia and the CIS are possibly an exception to Europe and North America since the secretariat estimates that sawn softwood consumption has

still increased in parallel with construction activity. However, the growth rate is also declining in Russia, and as exports have decreased dramatically, total production is not growing at the moment. Additionally, exports continued to decline rapidly in the first months of 2009.

1.2.5 Sawn hardwood markets

Sawn hardwood markets did not escape the economic crisis, losing 8.2% of production volume in 2008 from the previous year, falling to 42.8 million m³. Although not generally a construction material such as sawn softwood, the hardwood markets were nevertheless depressed by the housing crisis in the US and Europe. For example, for the first time in 18 years, hardwood flooring production decreased in Europe, commensurate with weak demand. Over the past years in Europe and North America, according to market commentators, the overall market size has contracted by an astonishing 40%.

North America, with its growing hardwood resources, continued the decline in sawnwood production, losing 9.1% in 2008, falling to 24.6 million m³. The decline started years ago when imported furniture, millwork and mouldings reduced demand for US production, although a significant proportion of the imports were based on US hardwood logs and sawnwood. But in the current housing crisis in 2008-2009, the demand for hardwood products is even weaker. US producers sought alternative export markets and had success until 2008 in exporting sawnwood to Asia and the Middle East. But sawn hardwood exports from the US contracted by 23.6% in 2008. The US hardwood industry in 2009 is in crisis, with both production and sales facilities closing.

Both EU and US legislation to control the trade and use of illegally harvested timber will have a direct effect on the hardwood trade, driving demand for traceability of legally sourced products, either through certification or other independent verification of legality.

Exporters of tropical and temperate hardwoods to the UNECE region have been severely affected by the sharp drop in demand. China had become an important sawn hardwood producer and exporter, mainly based on imported logs also from within all three subregions of the UNECE region. Their rise in exports levelled out in 2008 and the first months of 2009 (Global Trade Atlas, 2009). According to the latest reports, China's sawn hardwood exports have already fallen by 20.0% in 2009. With the drop in sawnwood production, China lowered its log reserves and reduced hardwood log imports by 46.4% during the first half of 2009.

Prices collapsed for sawn hardwood on both sides of the Atlantic. These developments in the hardwood markets have caused restructuring in the hardwood industries of Europe and North America, and the crisis in

the hardwood markets have affected the entire sector, from the forest to the processing of sawnwood and value-added products.

1.2.6 Panel markets

The wood-based panels sector is strongly influenced not only by the global economic crisis but also by high production costs and tighter chemicals legislation in the region. Demand for all panels has decreased, leading to mill closures in Europe and North America and the same trend is expected to continue in 2009. In Europe, panels consumption decreased by over 5%, in North America by 19%, and Russian exports decreased by 7.5%.

The economic recession arrived in Europe a bit later than in the US, first affecting demand for OSB and later, after several months delay, demand for particle board and MDF dropped. Then finally demand for plywood was hit. Although production volumes have declined sharply, affordable wood raw material availability continues to be a major concern for the panels industry. The closure of numerous sawmills complicates the raw material supply for the panels industry throughout the region. In Europe, additional pressure comes from the rising demand for sawdust and chips from the energy industry. Traditionally, MDF raw-material has been wood by-products from the sawnwood and plywood industries, however, the industry is now being forced to utilize increasingly large quantities of roundwood to make up the currently less available by-products. On an annual level, European particle board production was down 3.3%, OSB production shrank by 9% and plywood production shrank by 7.2% within the EU.



Source: J. Löytömäki, 2008.

In Russia, the MDF industry has expanded significantly over the past few years, and production volume doubled from 2006 to 2008, reaching 1.2 million m³. In addition, Russian imports soared to 1.0 million m³ (a 47% increase), with China becoming the major source for imported MDF. The old Russian particle board industry, dating to 1962-

1970, is experiencing severe profitability problems, with rising production costs and more cost-competitive production capacity emerging within Russia. During the economic crisis it is expected that many companies will close down due to the weak profitability of running old particle board capacity. The Russian plywood industry has expanded rapidly since 2000, expanding at double digit figures every year. Owing to the economic crisis, production will fall for the first time since the break-up of the Soviet Union, with production already falling by 7% in 2008 and with an additional fall of 5% forecast for 2009.

In the US, in 2008, production of hardboard decreased by 13%, MDF production by 9.3% and particle board production by 14.5%. A total of 15 mills closed in North America, although two OSB mills opened, resulting in a net capacity loss of 2.2 million m³, bringing capacity utilization down to its lowest levels since the early 1990s. This has had a serious impact on profitability. APA – The Engineered Wood Association has forecast that continued housing market weakness will likely remove an additional 830,000 m³ of plywood capacity and an additional 1.5 million m³ of OSB production capacity in 2009 (APA, 2009).

Plywood and OSB exports to the US declined drastically in recent years, from 11.2 million m³ in 2007 to 6.9 million m³ in 2008. Softwood plywood imports dropped by approximately 30% in 2008, and between 2005 and 2008 US imports of softwood plywood dropped by 68.5%; falling from 2.1 million m³ to 663,000 m³. The reasons are slow demand, a weak dollar and the new California Air Resources Board (CARB) restrictions on formaldehyde emissions. The CARB regulations came into effect in January 2009 and had little impact on the prepared North American panel producers, but many foreign panel producers, particularly those in South-east Asia, struggled to gain accreditation.



Source: A. McCusker, 2009.

1.2.7 Paper, paperboard and woodpulp markets

Overall consumption of paper, paperboard and woodpulp declined in the entire UNECE region in 2008, although only marginally in Russia. Weak demand resulted in temporary and permanent production capacity reductions. From historic peak prices for pulp and paper in mid-2008, prices fell sharply in mid-2009. The crisis in this sector has resulted in the global pulp and paper industry associations reacting against regulations constraining their industry, e.g. demanding a moratorium on new environmental restrictions.

Over the past year, global pulp and paper demand deteriorated rapidly as the economic crisis abruptly reduced industry and consumer spending. Most grades of paper and paperboard experienced significant decline. Currency exchange rates play an important role in the global paper and pulp trade, and the weak dollar made US production relatively affordable.

Another reason US pulp manufacturers fared well in 2008 and 2009 was a loophole in an alternative fuels tax credit. Kraft pulp producers' black liquor, a combustible by-product used in production processes for energy, qualified for the credit and resulted in substantial cost reductions. However, this credit is due to expire at the end of 2009.

Following a small drop in 2007, North American production of paper and paperboard fell by 5.3% in 2008 to 96.0 million metric tons (m.t.). US output was down by 17% in the first five months of 2009 relative to the same period in the previous year (AF&PA). The decline in newsprint continues, not simply because of lower readership, but now due to a structural shift in advertising expenditures from newspapers to electronic media. Several large newspapers declared bankruptcy over the past year.

1.2.8 Certified forest products markets

In addition to the traditional drivers for certification of sustainable forest management, the production and trade of certified forest products (CFPs) are gaining new support to mitigate climate change through forest management practices. The political push for renewable energy sources, including wood, is accompanied by public purchasing policies for certified wood fuels. The fledgling Reduced Emissions from Deforestation and Forest Degradation (REDD) measures could be a new driver as well. As part of REDD, there may be a need to certify forest carbon. Carbon trading systems are currently being established, which may draw on California's experience in certifying forest offset projects as a part of the State's aggressive greenhouse gas commitment.

As with other sectors, the market for CFPs has succumbed to the effects of the economic crisis, with

some buyers switching to less expensive legally verified products. The forest industry is quickly adapting to meet newly legislated requirements in Europe and the US to prevent trade and use of illegally harvested wood.

While the rate of increase of certified forest area has slowed dramatically after a steep rise during its short lifespan of 15 years, the market activity has increased tremendously in the past year. The number of chain-of-custody certificates (CoC) issued worldwide shot up by 41% in 2009. However, serious market fragmentation exists, indicating that large sectors of the wood and paper markets are not engaged in the production and trade of CFPs.

Certification remains concentrated in the UNECE region, with western European countries certifying over half of their forest area and North America approximately 40%. Russia and other CIS countries have relatively little certified area. Tropical forests, the original target of certification to stop deforestation, remain at a low 6% level of certification. Only 8% of the world's forests are certified, providing opportunities for growth, but also serious constraints to the growing demand for CFPs.

Demand for CFPs continues within the wood and paper trade, especially business-to-business. The public procurement demands are ever increasing, as are those from corporate responsibility programmes of companies and their trade associations. Green building rating systems promote certified wood in energy-efficient construction, although discrimination between systems currently exists, precluding some equally sustainably produced sawnwood, panels and engineered wood products.

1.2.9 Carbon markets

Forests are considered essential for combating climate change although they are not fully accounted for in the Kyoto Protocol or included in the largest emissions trading mechanism, the European Union Emission Trading System (EU ETS). Under the Kyoto Protocol there are three mechanisms: the Emissions Trading, the Clean Development Mechanism (CDM) and the Joint Implementation (JI). In the JI there have been no forestry projects thus far and in the CDM there have been six afforestation and reforestation projects registered, while the total number of CDM projects is 2,121. Thus, forestry projects have played a negligible role so far. Under current CDM rules, the development of afforestation and reforestation projects is complicated since it is possible only to generate temporary carbon credits that are not in great demand. In the developing countries, CDM only allows afforestation and reforestation projects and although the JI mechanism in developed countries allows forest conservation and forest management projects, these

mechanisms have not yet attracted substantial volume, notwithstanding the great potential for carbon emissions reduction. However, in the voluntary carbon markets, forestry initiatives already account for 36% of all of the projects, which demonstrates the competitiveness of the sector in generating carbon credits.

The successor of the Kyoto Protocol is being negotiated under the United Nations Framework Convention on Climate Change with a decision on a draft text expected at the Conference of the Parties in Copenhagen in December 2009. Depending on the outcome of the meeting, there are important opportunities for the forest sector, mainly through REDD, if a potential scheme is included in the agreement.

The value of the international carbon markets was some \$126 billion or a volume of 4.8 billion tons of CO₂ equivalent (CO₂e) in 2008, growing 100% in value from the previous year. The EU ETS accounted for 73% of the traded global carbon trade, while CDM was the second largest compliance market with 20% of traded carbon value, followed by voluntary markets that still held a small share. Many countries are developing national cap-and-trade schemes (emissions trading systems with a limit for emissions), particularly the US, which may accept a relatively large amount of international forestry offsets from tropical developing countries. The US policy position is critical for defining what direction carbon trade and markets in general, and forest offsets in particular, will take after 2012.

Carbon prices decreased during 2008, mainly owing to the decline in oil prices, and the price spread between the EU Allowances and primary Certified Emission Reductions narrowed down almost completely by early 2009. The carbon trade fundamentally deals with derivatives and this means that most carbon is sold as simple futures contracts. Such a contract promises to deliver a certain quantity of carbon credits or allowances at a certain time and at a specific date. Timing of transactions can be at different stages of carbon-offset project development. Prices vary according to the project's technical and procedural readiness and the risks involved.

1.2.10 Value-added wood products markets

Demand for value-added wood products (VAWPs) has seen a drastic decline due to the global recession. The decreased production in the VAWP sector has further decreased the demand for primary wood products as industries try to adjust to lower demand.

Furniture has proven to be more resistant to the housing construction collapse, as these products rely less on new housing construction as a demand driver. The countries in the UNECE region are losing market shares

in labour-intensive industries, such as furniture, as profits erode. Areas with low labour and other production costs, e.g. Asia and Latin America, are able to profit from their comparative advantages and attract outsourced production from the UNECE region.

Many producers have proven to be vulnerable as they have relied on specific markets for their products, and now some of those markets have collapsed. The softness of the US market has led to numerous mill closures. Brazil and Chile have a highly specialized production of softwood mouldings, which relied heavily on the US market. But demand for these products collapsed with the US construction crisis. These closures have had numerous adverse affects, resulting in local economies struggling as unemployment increases.

Some Governments are trying to help their industries with support packages, for example through introducing tax rebates for exporters. This is likely to expand as the crisis deepens, possibly leading to international disputes regarding violation of international trade agreements. The incentive to stay in business is high, since it is expected that demand for VAWP will skyrocket once the recession ends.

Engineered wood products (EWPs) have also been severely hit by the housing crisis and demand has plummeted. This applies to all three of the major types of EWP: glulam beams, I-beams and laminated veneer lumber. Production has been declining together with housing construction since 2005, and this is unlikely to change until housing starts rise again.

1.2.11 Tropical timber markets

The global economic crisis also took a toll in the main consumer markets for tropical timber products, namely in the US and EU, leading to diminishing consumption of tropical timber products. This has had many secondary effects, not only within tropical timber-producing countries but also in countries with secondary processing of tropical timbers. Small and medium-sized companies have been the most severely affected and many have discontinued operations as profitability is wiped out by increased costs and decreasing prices for tropical timber products. One important impact for the tropical timber processing sector is the tighter credit conditions after the financial crisis, which greatly complicate development of new projects that would be internationally competitive.

The EU's Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan aims to develop forest governance in member countries. For many ITTO producer countries this provides an opportunity to develop Voluntary Partnership Agreements. Under these Agreements partner countries implement a timber licensing scheme and the EU customs regulators allow

importation of FLEGT-licensed wood products from these countries.

Tropical plywood production continued a downward trend, particularly in Indonesia, where crackdowns on illegal logging are reducing resource availability. Also, reduced profitability in plywood manufacturing was evident from 2007 until late 2008, caused by a steep rise in production and delivery costs, particularly wood raw materials, glues and ocean freight, coupled with plywood prices that did not keep pace with the steep rise in tropical log prices.



Source: E. Parker, Tropical Forest Trust, 2009.

In some markets tropical hardwood consumption is being negatively affected by increased use of substitute products such as softwood plywood, OSB and other engineered wood products in structural applications, and MDF, plastics, and other composite materials in non-structural applications.

In the medium term, prospects for tropical hardwood products are likely to continue to be influenced by demand-side factors, particularly construction demand in Japan, the EU and the US, with demand for certified products from legal and sustainable sources increasing, although many tropical supplying countries are still unable to meet such requirements.

1.3 Policy developments

The main policy development since the last *Review* is the flurry of economic stimulus packages promulgated by Governments worldwide to shore up their economies during the current crisis and repair their weakened financial systems. Climate change policy debates continue in the run-up to the negotiations in December 2009 of a post-Kyoto Protocol; in 2010 there will be yet further policies to facilitate compliance with forthcoming agreements. A number of policy issues concern the trade of forest products, some new and some continuing. Corporate responsibility remains a constant thread through this and the past *Reviews* as there are both new

developments and opportunities for widespread adoption by the forest sector across the UNECE region. While difficult in times of reduced revenues and profitability now, research and development is critical to maintaining wood and paper products in the growth period of product life cycles. These topics are discussed in the next subsections.

1.3.1 *Economic stimulus policies and forest products markets*

Across the UNECE region, governments have enacted legislation and programmes to stimulate their economies. Some of these started before the major financial crises in the US and Europe in the autumn of 2008, but they were too little and too late to reverse the collapse of the housing sector, especially in the US. To stimulate the housing sector, the main driver for wood in North America, the American Recovery and Reinvestment Act of 2009, commonly referred to as the US economic stimulus package, contains six separate acts to reinvigorate building. In addition, there are many stimulus packages to promote a better environment, simultaneously creating long-term employment and economic growth, commonly called the green new deal. Wood energy is poised to benefit from renewable energy stimulus schemes, which are occurring throughout the UNECE region.

1.3.2 *Climate change policies*

The United Nations Framework Convention on Climate Change (UNFCCC), Conference of the Parties will meet in Copenhagen in December 2009 to agree upon the successor for the Kyoto Protocol. The outcome will be extremely important for the forest sector in the medium and long term, as the decisions taken there will influence public policies worldwide. If forest carbon is included in the post-Kyoto agreement, this could create excellent opportunities for the forest sector. Negotiations are expected to lead to decisions on issues such as Land Use, Land Use Change and Forestry (LULUCF), including harvested wood products (HWP), emissions trading, and project-based mechanisms such as the CDM and the JI. Also, the single most important issue relevant to forestry are the future of REDD provisions. All of these issues affect the UNECE region and the forest sector through evolution of the carbon markets in connection with emissions reduction targets and trading schemes and renewable energy policies adopted as part of mitigation strategies to meet these targets.

The outcome of the previous Bali Climate Change Conference was the linkage of efforts to reduce deforestation and forest degradation through international initiatives to address climate change. In December 2008 the European Commission proposed

specific goals for reduction of forest loss globally and suggested that a new instrument for financing forest protection efforts should be created. The aim is to halve total forest loss in the tropics by 2020, and to halt global forest cover loss completely by 2030 at the latest. It was proposed to establish a Global Forest Carbon Mechanism through which developing countries would be rewarded for REDD.

The US now seems willing to adopt strict carbon emission controls following a declaration by the US Environmental Protection Agency (EPA) that greenhouse gas emissions pose a danger to public health and welfare. Under US law, the EPA could regulate emissions under the Clean Air Act, but a prevailing view within the agency is that compliance would likely be better if Congress were to legislate emissions regulations. This development is being closely followed by all countries owing to the significance of US carbon emissions. There are high hopes that the national system will include forest carbon, as do some voluntary systems currently in place.

The EU approved in December 2008 a package related to the use of renewable energy sources. Wood energy and other forms of bioenergy constitute an important part of this package. The aim of the package is to reach the “20/20/20” goals – a 20% reduction of GHG emissions, a 20% increase in energy efficiency, and 20% of energy from renewable sources – by 2020. As wood energy will have a significant contribution to the targets, sustainable wood mobilization is considered also in this context.



Source: D. Parsons, National Renewable Energy Laboratory, 2009.

1.3.3 Trade policy issues affecting markets

A major amendment to the US Lacey Act, which is being implemented starting in mid-2009, addresses illegal logging and other illegal plant trade by: (a) prohibiting all trade in plant and plant products such as sawnwood, furniture and paper that are illegally sourced from any country; (b) requiring importers to declare the country of origin of harvest and species name of all plants and plant-derived materials contained in their products; and (c) establishing penalties, including forfeiture of goods and vessels, fines, and imprisonment for those who knowingly violate the declaration requirements. The burden of proof is on the supplier to be able to substantiate legality, and other reporting requirements are quite detailed and will necessitate major changes in ways of doing business in or with the US.

The EU's 2003 Forest Law Enforcement, Governance and Trade Action Plan took a new step at the same time as the initiation of the Lacey Act Amendment when the European Parliament adopted strict rules to eliminate illegally harvested wood from the EU market. The rules outline a due diligence system whereby companies must ensure legality of the source of their wood products. As with the Lacey Amendment, companies must institute a properly documented and audited system to prove that the wood they purchase has been harvested according to the laws of that country (both within and outside the EU). For the Parliament's action to become law, approval of the proposal by the EU Agriculture Council is needed. Development of such laws, comparable to the Lacey Act in the US, prohibiting the importation of illegally harvested wood, continues in EU Member States.

The US-Canadian Softwood Lumber Agreement has not been definitively settled, as it was contested again in 2009. The US Coalition for Fair Lumber Imports asked the US Government to impose duties on imports of lumber (sawnwood) from four Canadian provinces, Ontario, Quebec, Manitoba and Saskatchewan. A settlement offer was refused by the US, which imposed a 10% import duty on sawnwood from the four provinces. With low sawnwood prices, other trade restrictions were also in effect as part of the "Agreement".

The amount of bark on imported wood packaging is now limited by the EU. Packaging must also be treated according to new phytosanitary standards scheduled to come into force in July 2009. Such requirements will raise manufacturing costs for pallet and packaging producers.

1.3.4 Corporate social responsibility

Companies' and trade associations' corporate responsibility programmes have become even more important during the economic crisis. With an oversupply of wood and paper products, buyers have a greater

selection of suppliers, and shop not only based on price, but on many other attributes, including CSR.

A new ISO standard on CSR is under development and is scheduled to be published in 2010. It is built on seven principles of social responsibility: accountability, transparency, ethical behaviour, respect for stakeholder interests, respect for the rule of law, respect for international norms of behaviour, and respect for human rights (ISO, 2008). While it has few direct references to forestry, it is applicable to the forest sector and will provide guidance for those companies and associations which do not already have CSR policies in place, as well as measures for those with established programmes.

Environmental and social responsibility reporting is becoming commonplace among the largest international forest industry companies. What was once an annual environmental report has evolved to include social responsibility issues. Carbon footprint and climate-change issues are other elements of the most progressive reports.

Despite the incorporation of CSR in North America and western Europe, it is not widespread in eastern Europe and the CIS. The Timber Committee has an opportunity to promote wider adoption of CSR measures to support sustainable development of the sector.

1.3.5 Research and development

During an economic crisis, companies and Governments often take a short-term approach to reducing costs, including those of research and development. However, market research is essential now, as in the past and in the future, to constantly create new products and market opportunities for forest products. The landscape for conducting the wood and paper business is rapidly changing with the recognition of the need to mitigate climate change. Adaptation by the entire forest sector is necessary not only to survive in the current situation, but also to be poised to be prominent in the near future.



Source: W. Gretz, National Renewable Energy Laboratory, 2009.

Forest-based technology platforms, that aim to combine research efforts, now exist in all three UNECE subregions. Much of the emphasis of their work is on biorefinery research, to co-produce multiple wood, paper, chemical and energy products. Fortunately, government stimulus packages have contained funding for pilot projects for wood-based fuels, which will inevitably help the forest sector if proven to be economically feasible.

1.3.6 Country-specific forest sector policies and market developments

1.3.6.1 Russian forest sector reform

The Russian forest sector has great potential to contribute to the Russian national economy as well as to become an important exporter of forest products, due to high quality wood resources and an attractive location with respect to Europe and emerging markets, for example in Asia. The Russian Federation planned to assist the development of domestic wood processing by implementing a priority investment programme (including lower stumpage fees, investment assistance and granting forest lease areas without auctions), and by levying strict roundwood export taxes and lower tariffs for processed forest industry products. However, Russian domestic investment has remained low and foreign investors have rated the risks as too high, resulting in few concrete investments over the past couple of years.

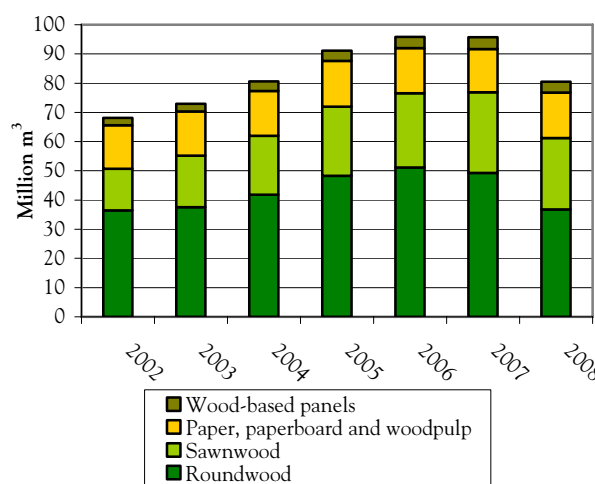
Russia delayed the implementation of the final phase of roundwood export tax increases in November 2008 (to 80% or minimum €50 per m³), which was to have come into effect in January 2009. In 2009, the tax is still 25% (minimum of €15 per m³). The delay was announced for 9 to 12 months, but it is unclear whether and when the higher tax will be implemented. The stated reason for the delay was the global financial crisis; however, there were other reasons too. Russian exports of forest products decreased from the previous year, mainly due to lower roundwood exports, although exports of other products have also declined (graph 1.3.1).

The core of Russian forest sector institutional reform was the adoption of the new forest code in 2007. The institutional reform was based on the idea of division of the functions of the State in relation to forest management and reorganizing those functions into State-holding functions (forest ownership) and productive functions. The reform was also strongly aimed at decentralization of all forest management functions and delegating these to local administrations (oblasts, krais and republics). The creation of a market-based and market-oriented environment, which will support the development of new administrative institutions and ensure a sufficient return from new forest management in

Russia, has also been one of the driving forces of the reforms. (Indufor, 2008).

GRAPH 1.3.1

Russian forest products exports, 2002-2008



Notes: Based on roundwood equivalent for sawnwood, panels and paper and paperboard.

Source: UNECE/FAO TIMBER database, 2009.

The current forest code is a framework document that needs clarification for implementing policies in practice (e.g. forest leaseholder's obligation is to perform reforestation after logging, but to what extent and how is it to be specified?). Another issue is that some of the changes to the current forest legislation have proved to be inadequate. Many of the changes are time-consuming and costly to implement, and are also problematic because inadequate and incomplete legislation often produces and supports corruption. At the moment, the administrative reform of the forest sector (also as part of general administrative reforms in Russia) does not appear to be targeted for liberalization of the forest industry as a sector of the economy, but merely for division of the governing (or administrative) and business functions of the federal and local authorities. Since the forest code remains the most important policy instrument, the development of the forest code and complementary legislation is perceived as a priority. Because there are several inconsistencies and gaps in the forest code that have been targets of criticism since the adoption of this document, either changes or additional legislation are required (Indufor, 2008).

The competitiveness of the Russian forest sector is mainly based on low costs of wood, energy and labour, all of which are significantly lower than in western Europe and North America. However, key to forest sector development is the infrastructure, physical and legal, and both are currently perceived as inadequate by foreign

investors. Wood procurement costs in Russia are extremely high due to extensive investment needed to build and maintain the road infrastructure and reliable power supplies for processing facilities. This is in part due to the lack of a market for harvesting, forest road building and maintenance services, which necessitate that the wood-processing companies produce these services within the company. The problems affecting investment decisions and creating risks also lie in the undeveloped and extensive legislative base of forest use and forest management. The reliability of legislation resides in its consistency and transparency. Transparency is needed not only in policies but also in implementation. The new forest code creates new institutions for acquiring forest use rights through auctions. However, the monitoring responsibilities to ensure transparency of the auction procedures are not defined.

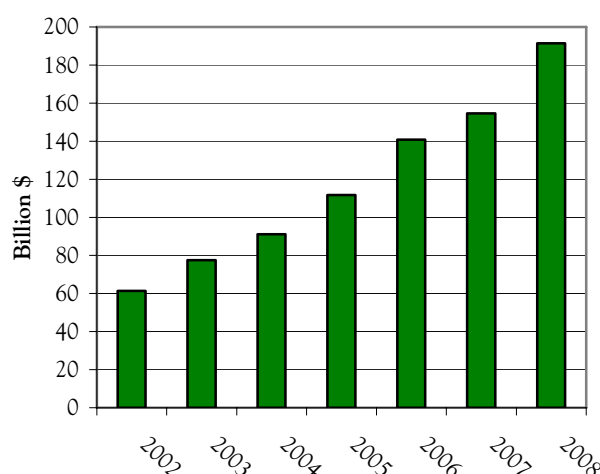
1.3.6.2 Chinese forest sector development⁶

China's double digit economic growth ended in 2008 with GDP rising "only" 9.0%, an increase much greater than most of the other economies of the world. The Chinese economy was particularly vulnerable to the global economic crisis, which hit their export markets. The US is the most important importer of China's forest products and its financial and economic crises in 2008 were a major factor in China's decrease in exports. According to Chinese statistics for early 2009, the situation worsened. The depreciation of the US dollar and the euro in comparison to the Chinese yuan (RMB) posed a great challenge to China's forest products exporters. China also suffered from natural disasters in 2008. The snow disaster that occurred earlier in the year and the earthquake in May affected the country's economy considerably.

The Chinese forest products industry was influenced directly by the macroeconomic developments of 2008. The export of major forest products dropped tremendously. In 2008, to stimulate domestic demand and aid the development of the forest and forest industries sector, the Government invested \$14.5 billion (RMB100.7 billion), which was 26.8% more than in 2007. Investments were made to facilitate projects such as natural forests protection and forest sector infrastructure improvement. Part of the result of the government stimulus was that China's forest product outputs continued rising strongly in 2008, by over 23%, even stronger than in 2007 (graph 1.3.2).

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GRAPH 1.3.2
Chinese forest products output, 2002-2008



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

Source: International WOOD Markets Group, 2009.

China has become the largest global furniture exporter in recent years. Chinese furniture manufacturers obtain some of their raw materials from the UNECE region, especially from the US, as well as from Europe and the CIS, and then export the final products back to the region. China's furniture industry relies heavily on exports and more than half of China's furniture exports (wood and non-wood) go to the US. Therefore, the economic situation in the US has had a direct impact on Chinese furniture manufacturers. The growth of exports of wood furniture slowed during 2008 (graph 1.3.3).



Source: M. Jääskeläinen, 2009.

It is critical for China's furniture industry to develop new markets and Russia could be a potential partner. In Russia, the demand for imported furniture has gone up continuously due to the reconstruction of the Far East Region and its lack of domestic production. Chinese furniture, with a major competitive advantage in lower price, is becoming a good choice for many Russians.

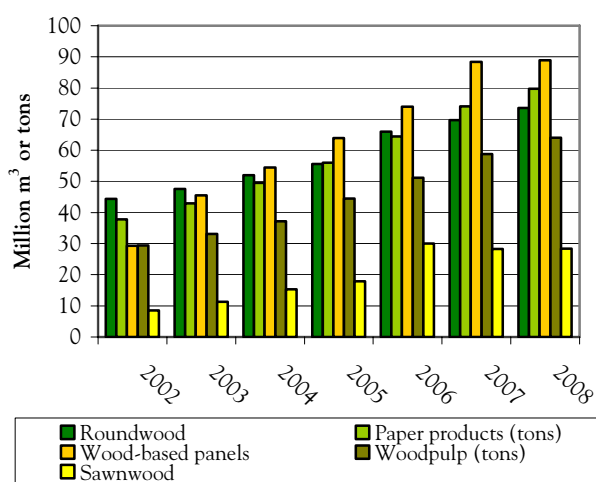
GRAPH 1.3.3
Chinese furniture exports, 2002-2008



Sources: China Customs, China National Furniture Association, 2009.

The growth in production of sawnwood and panels slowed in 2008 (graph 1.3.4). The production of plywood even decreased slightly, by 0.58% to 35.41 million m³, compared with 2007. The major reasons were the increasing price of raw materials and lower export demand.

GRAPH 1.3.4
Chinese forest products production, 2002-2008

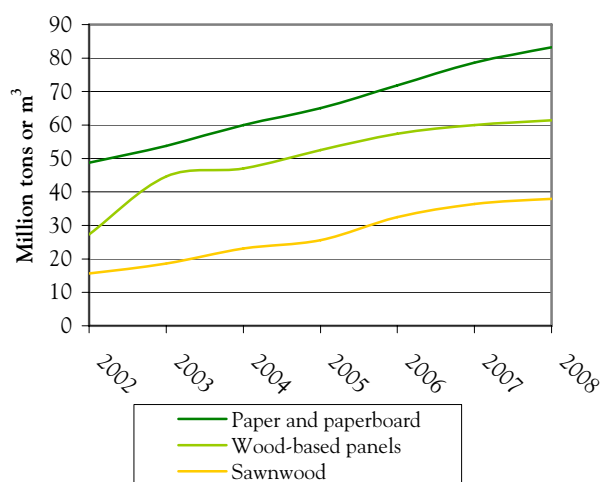


Sources: China Paper Association, International WOOD Markets Global, secretariat estimates, 2009.

Most of China's production of wood and paper products is destined for the domestic market. With 1.3 billion people and a rising middle class, China's consumption of wood and paper products is growing (graph 1.3.5). However, growth slowed in 2008, and according to early indications in 2009, may slow further.

Other announcements from the Government in mid-2009 indicated a strengthening in the economy in mid-year.

GRAPH 1.3.5
Chinese forest products consumption, 2002-2008



Sources: FAOSTAT and secretariat estimates, 2009.

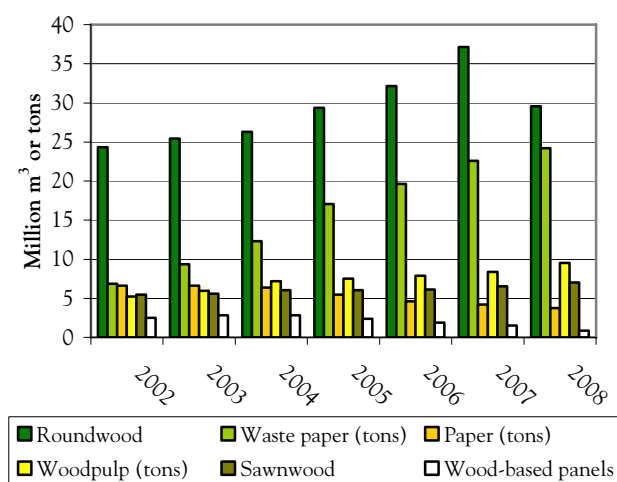
China's wood products imports and exports grew during the first three quarters of 2008, despite the impact of the global economic crisis. However, the growth rate is slower compared with 2007. According to Chinese Customs statistics, from January to October, wood products imports and exports have slowed, especially imports, which decreased by 17 percentage points. In the fourth quarter, both imports and exports were decreasing and it was the same situation for the first two months of 2009 due to the impact of the global economic crisis. However, imports, including roundwood, sawnwood and paper products, increased slightly in February 2009 compared on a month-on-month basis. China's massive forest products trade surplus was \$8.7 billion in 2008, which decreased by \$1.3 billion compared to 2007.

China's imports of roundwood decreased in 2008 due to the global economic crisis and the rising Russian log export tax (graph 1.3.6). This was the first drop in over 10 years, and an important indicator of the state of the wood-processing industry. The 25% log export tax rate introduced by Russia in April 2008, and the threat of higher taxes, damaged Russia's competitiveness as a roundwood supplier. Russian roundwood imports decreased in 2008, and at 29.6 million m³ were 20.4% lower than in 2007's maximum of an astounding 37.1 million m³. Early indicators based on the first four months of 2009, with roundwood imports registering 5.2 million m³, support the same declining trend during 2009 as well (Ewood, 2009).

Thus, growing wood demand in China must be met by other softwood log and sawnwood exporters. China's growing demand for wood imports resulted in a wood fibre shortage. Part of it will be made up by domestic logs with smaller diameters, which cost less than Russian logs. China's import of sawnwood from Russia and Canada increased, which partially filled the log void as well. China's sawnwood imports in 2008 reached 7.1 million m³, increasing by 8.7%.

GRAPH 1.3.6

Chinese forest product imports, 2002-2008

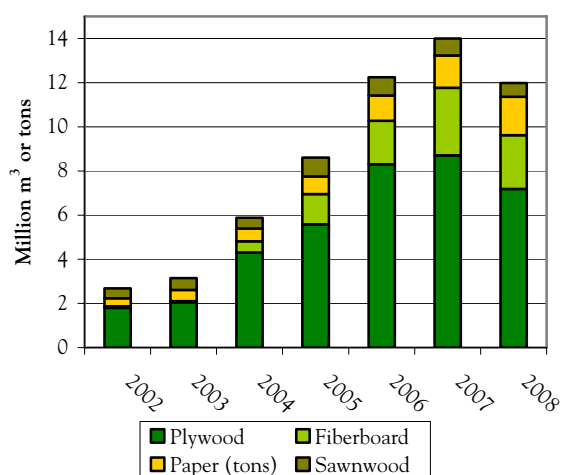


Sources: China Customs, 2009.

Plywood exports have increased significantly during the past 10 years (graph 1.3.7). China moved from being a net importer to a net exporter due to the expanding capacity of domestic production. However, in 2008, for the first time, China's exports of plywood to the US decreased by 38.9%. This was also the case for wooden furniture.

GRAPH 1.3.7

Chinese forest product exports, 2002-2008



Sources: China Customs, 2009.

To maintain a continuous growth of exports, the Government of China raised the VAT tax rebate on over 100 types of wood products for exporters. For example, the tax rebate of panels was raised to 9% from a previous value of 5%, and for wooden furniture to 13%, from the previous 11%.

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Chapter 2

Policy issues related to forest products markets, 2008-2009⁷

Highlights

- Economic stimulus measures initiated on both sides of the Atlantic should help the forest sector, especially in the United States, where a number of steps are being taken to reinvigorate home financing and house construction and remodelling – steps that should provide a boost to the forest sector of North America and elsewhere.
- A European Commission Directive which promotes renewable energy sources also raised the issue of sustainability criteria; the MCPFE reacted considering the creation of sustainability criteria for biomass production from forests, the outcome of which could impact biofuel targets and production.
- Negotiations towards a successor-regime to the Kyoto Protocol, with the objective of reaching agreement at the 2009 Copenhagen Conference of the Parties, could yield significant opportunities for the forest sector through provisions to Reduce Emissions from Deforestation and Forest Degradation (REDD), account for harvested wood products, and streamline clean development mechanism project requirements.
- The US appears poised to adopt strict carbon emission controls following a declaration by the Environmental Protection Agency that greenhouse gas emissions pose a danger to public health and welfare.
- Russia acted to delay the planned implementation of an 80% log export tax, citing the global financial crisis; negative consequences of earlier phases of the export tax programme, including efforts on the part of importing countries to move away from dependence on Russian wood, have raised questions as to the future of higher Russian export taxes.
- New actions on the part of many UNECE region countries to address the illegal logging problem provide new tools for stemming the flow of illegal logs; recently enacted measures in both the European Union and North America place major responsibility and the prospect of severe penalties on importers to ensure that wood is legally sourced.
- Corporate social responsibility (CSR) has quietly emerged into the mainstream of thinking in global forest products companies, with attention to CSR issues growing steadily.
- Despite concerns about potential adverse environmental and social impacts of biofuel production, UNECE region Governments are aggressively financing research and development aimed at new and improved biofuel technologies (including woody biomass to biofuels), technology adoption, and biofuel systems implementation.

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Secretariat introduction

As forest products markets are affected not only by market developments but also by policy developments, this chapter focuses on how government and trade association policies are affecting the forest products marketplace. Some of the issues here are new, while others are updated from last year's chapter. Sector-specific effects may be found in the following chapters.

The focus of this year's chapter is linked to the theme of the *Forest Products Annual Market Review*, i.e. the UNECE region's forest products markets in a global economic crisis. The authors are scheduled to present the chapter at the 13-14 October 2009 Timber Committee Market Discussions, which will have the same theme.

We are fortunate to again have the chapter coordinated and partly written by Dr. Jim Bowyer,⁸ Director of the Responsible Materials Program, Dovetail Partners, Inc., and Professor Emeritus, Department of Bioproducts and Biosystems Engineering, University of Minnesota, US. Dr. Bowyer is a member of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing. Dr. Helmuth Resch⁹, Emeritus Professor, University of Natural Resources and Applied Life Sciences, Vienna, once again provided his European perspective. They were joined by Dr. Eric Hansen,¹⁰ Professor, Oregon State University, US. He was previously an author of the certified forest products chapter.

A number of other specialists contributed to the chapter, and we hereby recognize their contributions: Mr. Randy Cantrell, National Association of Homebuilders Research Center; Mr. John Clarke, The Nelson Company; Mr. John Conway, Conway & Robison, LLC; Mr. Paul Davis, Columbia Forest Products; Ms. Anne Divjik, American Forest & Paper Association; Dr. Ivan Eastin, University of Washington; Dr. Robert Kozak, University of British Columbia; Dr. Heikki Juslin, University of Helsinki; Mr. Craig Larsen, Softwood Export Council; Mr. Rajat Panwar, Northland College; Mr. David Stallcop, Vanport International, Inc.; Ms.

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Natalia Vidal, University of British Columbia; and Mr. Lei Wang, University of Helsinki.

2.1 Chapter overview

Events over the past year have been shaped significantly by the global financial and economic crisis, ongoing concerns about long-term energy security, and renewed attention to environmental and social performance of Governments and private-sector organizations. In addition, post-Kyoto climate change negotiations that are focused on potential contributions by all sectors to climate-change mitigation have begun to move the forest sector front and centre in policy discussions. In this year's edition, we focus on the impacts of economic stimulus programmes on the forest sector, energy policies and markets related to forests and forest products, evolving forest carbon markets, trade policy issues affecting forest products markets and corporate social responsibility programmes in the forest sector. Also examined are recent developments regarding Russia's log export tax and trends in wood and bioproducts oriented research.

2.2 Economic stimulus policies and forest products markets

Governments throughout the UNECE region have moved rapidly to get their economies back on track during the sharp global downturn, trying to make the recession as short and shallow as possible. The US economy is hard-hit, led by a heavily impacted housing sector and related curtailments and closures of forest products manufacturing operations. Housing starts, which were over 2 million annually as recently as 2005, have plummeted to a seasonally adjusted value of less than a half million as of early 2009. In addition, the inventory of unsold units is hovering near 4 million units, about double the historical level. With wood-frame construction accounting for over 85% of US housing, the impact on the forest products industries of both the US and Canada has been devastating.¹¹ A recent forecast of the Western Wood Products Association suggests that housing starts will hit bottom in 2009 at 432,000 units and slowly rebound to about 550,000 units in 2010; housing starts in excess of 1 million are not expected until 2012 (WWPA, 2009). Because housing has been such a key factor in the economic turmoil of recent months, housing is a major focus of the recently enacted American Recovery and Reinvestment Act of 2009 (ARRA – commonly referred to as the US economic stimulus package).

¹¹ For additional information on the construction crisis, see chapter 3.

As explained by the National Association of Realtors, and the National Association of Homebuilders Research Center (NAR and NAHB, 2009) the ARRA of 2009 is connected to housing in the following ways:

Homebuyer Tax Credit – The Act includes an \$8,000 tax credit for first-time home buyers purchasing a home during calendar year 2009. This is expected to stimulate demand and benefit homeowners seeking to sell an existing home.

Neighborhood Stabilization – This provides \$2 billion designed to address problems created when entire neighbourhoods are decimated by foreclosures. It can also be used to purchase, manage, repair and resell foreclosed and abandoned properties. The money can also be used by states and localities to establish financing methods for the purchase and redevelopment of foreclosed properties. The homes must then go to households with incomes at or below 120% of area median income. One quarter of the money must be used for households with incomes at or below 50% of area median income.

Commercial Real Estate – Commercial real estate is addressed primarily through green building, energy efficiency and tax incentives. This could serve to fuel further growth in the green building sector.

Low-Income Housing Grants – States are allowed to exchange a portion of their 2009 low-income housing tax credits for Treasury grants. These grants can then be used for construction or acquisition and rehabilitation of low-income housing.

Energy Efficient Housing Tax Credits and Grants – Significant investment is designed to make homes and buildings more energy efficient. State and local Governments will receive \$6 billion in grants for energy audits, retrofits and financial incentives. Through 2010, homeowners can claim a 30% tax credit for new energy-efficient furnaces, windows and insulation.

Rural Housing Service – This provides an extra \$500 million dollars to existing US Department of Agriculture Rural Housing programmes, which are essentially loan programmes for individuals who meet specific eligibility guidelines. The direct loan programme will receive \$270 million and \$230 million has been allocated for guaranteed loans. It has been reported that this level of funding would provide for an additional 192,000 homeowners.

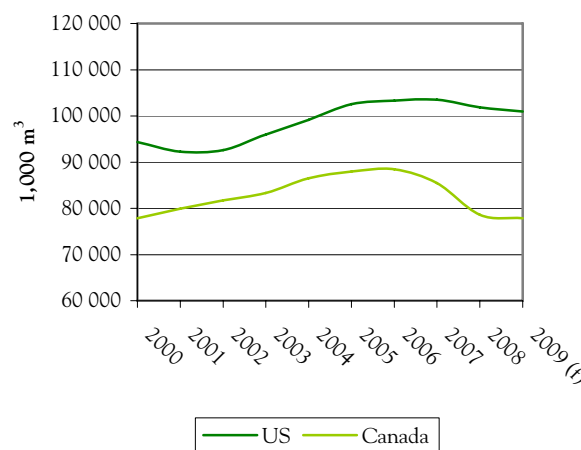
There are many other aspects of the ARRA that may benefit the construction industry, such as loan guarantees for small businesses and repair and remodelling of public buildings (NAHB, 2009.)

Contributing to the current pain of North America's forest sector is the fact that this sector benefited greatly from the housing boom of the past decade. During that

period, production capacity was expanded far beyond current needs, and much of that is now in a shutdown or reduced-capacity mode. Mill closures and cutbacks are reported to have occurred more rapidly in Canada, where a surging exchange rate against the US dollar exacerbated market forces (graph 2.2.1).

GRAPH 2.2.1

US and Canadian sawn softwood capacity, 2000-2009



Note: f = forecast.

Source: USDA Forest Service, Forest Products Laboratory, 2009.

The EU and its Member States have been less enthusiastic about spending their way out of recession. A \$6.9 billion (€5 billion) European Economic Recovery Plan has been developed. Much of the focus is on energy and broadband internet to rural regions, not housing. The European Commission amended the Regulation on the European Regional Development Fund to allow all Member States to co-fund projects that enhance energy efficiency or that address existing problems in the housing stock. As an example of projected benefits under this programme, it is estimated that there are 30 million residences in Europe with leaky roofs and humidity in the walls; the \$11.1 billion (€8 billion) programme is designed to solve these problems in approximately 1 million homes, creating at the same time some 250,000 jobs (Euractive, 2009). Individual countries are also pursuing various strategies in economic stimulus. For example, in January Germany announced a \$69.3 billion (€50 billion) package focused on infrastructure development and tax relief.

2.3 Climate change policies and forest-related markets

The outcomes of international negotiations on climate change to be held between June and December 2009 will be decisive for the medium and long term of the forest sector, as they will strongly influence public policies which impact the sector, including forest-related markets. The agreement to be reached at the United Nations Framework Convention on Climate Change meeting in Copenhagen in December will set up a new international framework to coordinate efforts to combat climate change and update the legally-binding commitments under the Kyoto Protocol for the period after 2012. Further emission reduction commitments for Annex I countries will possibly be agreed upon. It is expected in particular that negotiations will lead to decisions on issues such as Land Use, Land Use Change and Forestry (LULUCF) including Harvested Wood Products (HWP), emissions trading, and project-based mechanisms such as the Clean Development Mechanism (CDM) and the Joint Implementation (JI). A mechanism for Reducing Emissions from Deforestation and Forest Degradation (REDD) is also likely to emerge. The impacts of these decisions on the forest sector in the UNECE region will be related mainly to the evolution of carbon markets in connection with emissions reduction targets and trading schemes, and renewable energy policies adopted as part of mitigation strategies to meet these targets.

2.3.1 Forests, wood products, and carbon markets

In April 2009, the US Environmental Protection Agency (EPA) issued a proposed finding that carbon dioxide and five other greenhouse gases (GHG) are a danger to public health and welfare and must be addressed as directed in the Clean Air Act of 1990. The finding is the first step in regulating pollution linked to climate change; a proposed finding is followed by a public comment period, the next step in the deliberative process EPA must undertake before issuing a final finding. Noting that the science pointing to man-made pollution as a cause of global warming is "compelling and overwhelming," the agency said tailpipe emissions from motor vehicles contribute to climate change. The new EPA stance on GHGs followed a Supreme Court ruling in 2007 that GHGs are pollutants as defined in the Clean Air Act and must be regulated if found to be a human health danger.

Under US law, the EPA could regulate emissions under the Clean Air Act, but a prevailing view within the agency is that compliance would likely be better if Congress were to legislate emissions regulation. House Democrats support a bill that would adopt a cap and trade system and a new carbon market in which businesses would buy and sell pollution allowances to meet targets

for lower emissions. The bill aims at reducing carbon dioxide emissions by 83% by 2050. US President Barack Obama has called for the Government to auction pollution credits, with the goal of reducing emissions while raising billions of dollars to support renewable energy research and development and for tax rebates.

A key outcome of the December 2007 United Nations Climate Change Conference in Bali was linkage of efforts to reduce deforestation and forest degradation with international initiatives to address climate-change. Growing out of post-Bali negotiations, in December 2008 the European Commission proposed specific goals for reduction of forest loss globally and suggested that a new instrument for financing forest protection efforts be created. The Commission articulated a goal of halving total forest loss in the tropics by 2020, and of halting global forest cover loss completely by 2030 at the latest. To finance progress towards what is clearly an ambitious goal, establishment of a Global Forest Carbon Mechanism was proposed, through which developing countries would be rewarded for REDD. The costs of such a mechanism are estimated at \$20.8 (€15) billion to \$34.7 billion (€25) billion annually.

In support of the proposed financing mechanism, in March 2009 the European Parliament passed a "resolution on an EU strategy for a comprehensive climate change agreement in Copenhagen and the adequate provision of financing for climate change policy". It includes a favourable approach to forest credits in the carbon market to address climate change. Buying and selling of emissions allowances and reduction credits allows countries to meet their targets for emissions of GHGs. In early 2008, increased trading of these types of commodities made it possible for larger countries to purchase offsets to counterbalance the rise in national carbon dioxide output above their targets. Now some in the environmental community have taken the position that developed countries should meet 75% of their emissions reduction obligations at home. Greenpeace warned that carbon markets would collapse if forest protection credits were to be included in international emissions trading because of a massive oversupply of emission credits. It predicted that carbon prices would decrease by up to 75% by 2020 if "relatively abundant" forest offset credits were included in carbon markets. Initially, developing countries could benefit from selling credits to industrialized countries facilitating payments for their emissions. An unrestricted supply of forest credits, however, would greatly reduce energy and industrial emissions reductions in developing countries such as China and India.

As the carbon-credit debate continues, the efforts of the United Nations Environment Programme (UNEP) effort to counteract climate change through reforestation has reached the mark of 3 billion trees planted around the

world by early 2009. The Timber Committee and the FAO European Forestry Commission are partners in the campaign. The leading countries in this endeavour are Ethiopia, Turkey and Mexico. Now, a new goal has been set to reach the 7-billion-tree mark by the end of 2009. UNEP points out that tree planting remains one of the most cost-effective ways to absorb carbon dioxide and that trees provide a range of products and services to rural and urban populations, including food, timber, fibre, medicines and energy. UNEP has estimated that the development of alternative energy should create more than 20 million jobs around the world in coming decades. Some 2.3 million people around the world already work in alternative energy jobs, half of them in biofuels. That number could increase to 12 million by 2030.

2.3.2 Renewable energy policies and markets

In April 2008 the European Environment Agency's Scientific Committee made public an opinion on the environmental impacts of biofuel use in Europe. The Scientific Committee recommended a new, comprehensive scientific study on the environmental risks and benefits of biofuels, and that the EU target to increase the share of biofuels used in transport to 10% by 2020 be suspended (EEA, 2008). Concerns have intensified because of the rapid growth of liquid biofuels production in Europe over the past year, such as in Germany where the production of biofuels from raw materials such as wheat and sugar beets increased by 46% in 2008 to 458,394 tons. In February 2009, a resolution was passed by EU Parliament delegates asking for additional funds for research on second-generation biofuels to include a reassessment of potential energy savings.

Objections to biofuel production on biodiversity grounds have also come to the forefront over the past year. Mr. Pieter dePous, Agriculture Policy Officer of the European Environment Bureau (a coalition of NGOs), recently argued that it is time to abandon the 10% biofuels target and adapt strict criteria for biofuels that are already under development (dePous and Garofalo, 2008). DePous noted that what are often viewed as "waste" streams in agricultural and forestry systems are, in fact, part of a natural and critically important nutrient cycle. He pointed out that "non-productive" land can be hugely productive for biodiversity and that forest biodiversity is intrinsically linked to the presence of deadwood in the forest. Slovenian authorities, then holding the EU presidency, echoed these views at an informal meeting of EU Environment Ministers saying that "experience from the past (litter collection, mowing, grazing) shows that the use of forest residues is problematic for ecosystem functioning" (Tavzes and Glažar, 2008). It was also noted that afforestation and new plantations may heavily affect

biodiversity. Meanwhile, in response to concerns, the Ministerial Conference on Protection of Forests in Europe has been working over the past year to define sustainability criteria for biofuels production from forests.



Source: VAPO, 2009.

In the US, in May 2009, the EPA issued a draft rule reaffirming Government support for increased use of advanced biofuels. The announcement indicated intent to, for the first time, measure carbon dioxide emissions from alternative motor fuels.

Meanwhile, rapid development of biomass-to-energy is under way throughout the UNECE region and worldwide. According to the International Energy Agency (IEA), biomass resources – such as forestry and agriculture crops, biomass residues and wastes – already provide about 14% of the world's primary energy supplies principally in the form of generally inefficient wood use for cooking and home heating. In the Agency's view, bioenergy production using modern technologies offers cost-effective and sustainable opportunities with the potential to meet 50% of world energy demands during the next century and at the same time meet the requirement of reducing carbon emissions from fossil fuels.

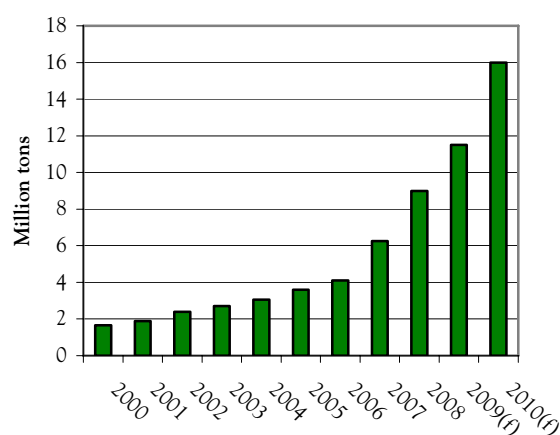
The IEA, in implementing its agreement on Renewable Energy Technology Deployment, sponsored a study on “Policy instrument design to reduce financing costs in renewable energy technology projects” (de Jager and Rathmann, 2008). It considered a specific project finance case of a large scale 10 MWe to 26 MWth biomass co-generation plant. Assuming 25% for electrical and 65% for heat-conversion efficiencies, financial performance was evaluated under different representative policy-support schemes in Europe, the US and Canada. Results indicate that with the assurance of long-term commitments towards renewable energy, especially in terms of tariffs, taxes, subsidies, risk sharing, etc., the cost of electricity can be reduced significantly, e.g. by 10% to 30%.

The Biomass Research and Development Initiative of the US Departments of Energy and Agriculture, announced in January 2009, is intended to ensure progress towards meeting the federal Renewable Fuels Standard, which requires the production of conventional ethanol to increase to 56 billion tons (15 billion gallons) per year by the year 2016. The federal standard also requires further increases in the production of advanced biofuels, such as cellulosic ethanol, to reach approximately 60 million tons (20 billion gallons) per year by 2022. Of that amount, at least 15 billion tons (approximately 4 billion gallons) of cellulosic ethanol are to be derived from wood that comes from forests and/or as residues from manufacturing plants. The USDOE/USDA initiative targets research and development activity in the areas of feedstock development, biofuel and biobased product development, and biofuel development analysis.

The debate regarding what role woody biomass should play in bioenergy production is being influenced by developments in commercial markets, although the framework conditions in these markets, notably price-setting mechanisms for energy, are set by policy. The low technology alternative of using wood to produce pellets is rapidly developing, with global pellet production estimated at close to 10 million tons in 2008 and with rapid growth forecast for the decade ahead (graph 2.3.1). In Europe, as well as in other regions, pellet manufacturers are increasingly in competition with pulpmills and panel producers, especially for sawmill chips. Such competition is currently limited to only a few geographical areas in North America, though conflicts are likely to develop as the wood products industry pulls out of recession and as the wood pellet industry continues to expand. Such developments serve to underscore concerns expressed previously regarding the need for policies to stimulate wood mobilization efforts in parallel with efforts to encourage bioenergy production.

GRAPH 2.3.1

Global production of wood pellets, 2000-2010



Note: f = forecast.

Sources: Hillring et al., 2007; Hillring et al., 2008.

2.4 Russian forest sector reform and domestic and export market effects

In November 2008, the Government of Russia announced a delay in implementation of the final phase of log export tax increases (to 80%) which was to have come into effect in January 2009. Thus in mid-2009, the tax is still 25% (minimum of \$21(€15) per m³) (Wood Markets, 2009). It was suggested that the delay in implementation would be 9 to 12 months, but it is unclear whether and when the higher tax will be implemented. The stated reason for the delay was the global financial crisis. Based on recent analyses, there also may have been concerns regarding unintended consequences of the tax, i.e. lower stumpage prices, steep reductions in logging activity, and sharply lower log export revenue (Turner et al., 2008). Additionally, pressure from important importers in the Nordic countries, as well as linkage to negotiations about Russia's accession to the World Trade Organization (WTO), may have played a role in the reversal.

Prior to the delay in implementing the final phase of the log-export tax, a simulation analysis suggested that Russian roundwood exports would be 50% lower by 2020 and value-added manufacturing would increase by \$225 million. Study findings indicated that value-added manufacturing would be \$1.3 billion lower in Finland and \$728 million lower in China (Turner, et al., 2008). Study findings are bolstered by the reality that Russia's log exports were significantly impacted by far lower levels of taxation. For instance, China's softwood imports amounted to 4.2 million m³ in the second quarter of 2008, down from 6.5 million m³ in the second quarter of 2007. This decrease was caused to a large extent by a decline in the importation of

logs from Russia. Perhaps as important as the decline in log imports was a marked shift that occurred in the nature of Chinese wood imports. In response to the reduction in Russian exports, other countries actually increased shipments to China, but not necessarily in the form of logs. While imports of softwood logs declined, sawn softwood imports increased by almost 30% from 2007 to 2008.

Questions of when and whether higher log-import taxes will be re-implemented would appear to hinge on the success of Russian forest-policy reform in attracting new investment to Russia's forest sector. Foreign and domestic companies have recently announced tens of billions of dollars of investment in the Russian forest industry (PFIC, 2008). Russia had some 30 large projects under way as of November 2008 that involved production of cellulose, paper and paperboard, sawnwood, particleboard, plywood and other house-building materials; investments committed to these products alone were estimated at \$41.6 billion (€30 billion). Thus, the strategy intended to further develop wood-processing capacity within Russia has resulted in these announcements, which may be postponed in the current economic situation.

2.5 Trade policy issues affecting markets

2.5.1 Illegal logging

2.5.1.1 Amendment to the Lacey Act

In the US, "The Food, Conservation, and Energy Act of 2008", effective as of May 2008, expanded protection to a broad range of plants and plant products. It is the latest amendment of the Lacey Act of 1900, which was originally introduced with the intent of curbing illegal commercial hunting of threatened game species in the US. Later, the protection was expanded to plants. The law was primarily used to prevent the importation or spread of potentially dangerous non-native species. Now, it also addresses illegal logging and other illegal plant trade by a) prohibiting all trade in plant and plant products such as sawnwood, furniture and paper that are illegally sourced from any country, b) requiring importers to declare the country of origin of harvest and species name of all plants and plant-derived materials contained in their products and c) establishing penalties, including forfeiture of goods and vessels, fines and imprisonment for those who knowingly violate the declaration requirements (i.e. the burden of proof is on the supplier). Declarations must show the scientific names of any species used, the country of harvest, as well as the quantity, measure and value. While the amendment was passed in 2008, implementation began in April 2009. The phased-in implementation programme is based on the product's degree of processing and complexity, with

the least complex products covered initially and the most complex covered later. Total implementation is scheduled for September 2010 (Aphis, 2009).



Source: M. Jääskeläinen, 2009.

2.5.1.2 EU actions on illegal logging

General EU policy on illegal logging is outlined in the 2003 Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan. Building on this policy, in late April 2009 the European Parliament adopted strict rules to eliminate illegally harvested wood from the EU market. The rules outline a due diligence system wherein companies must ensure legality to the best of their ability. Under these new rules, which are quite similar to those adopted via the US Lacey Act amendment, companies must institute a properly documented and audited system that will ensure legality, document the country of origin and also ensure that the wood they purchase has been harvested according to the laws of that country. These rules apply to all wood marketed in the EU, including domestic supplies from EU members (Commission of the European Communities, 2008a). The proposal is a response to a mid-April 2008 legislative report claiming that stricter rules were needed to combat illegal logging. That report suggested that financial penalties be "at least five times the value of the timber products obtained by committing a serious infringement" and called for establishment of categories of high-risk timber coming from regions with a history of failure in forest law governance (Commission of European Communities, 2008b). For the Parliament's action to become law, approval of the proposal by the EU-Agriculture Council, is needed (See also chapter 10 on certified forest products markets.) Preparation of such laws, comparable to the Lacey Act in the US, that prohibit the importation of illegally harvested wood, continue.

In a country-based action, the UK instituted a new timber procurement policy effective in April 2009. According to the Government's procurement advice note, "Central Government departments, their executive agencies and non-departmental public bodies are now

required to procure timber and wood-derived products originating from either legal and sustainable or FLEGT licensed or equivalent sources". The policy applies to all central Government departments, executive agencies and non-departmental public bodies in England (Great Britain Forestry Commission, 2009).

2.5.2 Softwood Lumber Agreement

The US-Canadian Softwood Lumber Agreement (SLA) was again in the headlines in early 2009. The US Coalition for Fair Lumber Imports asked the US Government to impose duties on imports of lumber (sawnwood) from four Canadian provinces, Ontario, Quebec, Manitoba, and Saskatchewan. In August 2007, the US Government requested arbitration from the London Court of International Arbitration regarding Canada's application of surge taxes and quota calculations under the SLA. In a split decision the court determined in February 2009 that Canada incorrectly calculated surge taxes and quota volumes for the first six months of 2007. On 27 March 2009, Canada offered to pay US\$36.7 million to the US Government to settle the dispute. However, the US formally rejected that offer on 2 April and subsequently announced the imposition of 10% *ad valorem* customs duties on imports of sawn softwood from the provinces in question; the announcement indicated that these duties would remain in place until such time as the US has collected US\$54.8 million.



Source: M. Fonseca, 2009.

2.5.3 California Air Resources Board Composite Products Regulations

In early 2007, the California Air Resources Board (CARB) approved an airborne toxic control measure (ATCM) to reduce formaldehyde emissions from composite wood products and furniture and other

finished products made with those products. The ATCM was approved on 18 April 2008 by the Office of Administrative Law and codified into the California Code of Regulations. The first emission standards were implemented on 1 January 2009 and starting 1 July 2010, furniture retailers and manufacturers selling in California will be required to produce and sell only products that are CARB-compliant (CARB, 2009). Now, several other states are considering similar measures. While much of the composite wood products industry lobbied against this regulation, leading players with access to formaldehyde-free resin technology saw it as providing a potential competitive advantage, especially against imports. For example, machine drying veneer and more expensive resins will increase costs for foreign manufacturers. The regulation has resulted in much testing and serious reconsideration of resin technology by the composites industry. The CARB rules implemented at the beginning of 2009 are roughly equivalent to the majority of European standards but will exceed them with stricter limits in 2010 (and in 2012 for some products).

2.5.4 Bark

The Commission of the European Communities, under Commission Directive 2008/109/EC, placed a limitation on the amount of bark that can exist on imported wood packaging such as pallets and crates. The Directive specifies that the packaging material shall: "be free from bark with the exception of any number of individual pieces of bark if they are either less than 3 cm in width (regardless of the length) or, if greater than 3 cm in width, of not more than 50 cm² in area..." The US packaging industry is referring to this as "credit card size" (ALSC, 2008). Packaging must also be treated under Phytosanitary Measures No. 15 and be marked accordingly. The Directive goes into force in July 2009. US pallet manufacturers were already producing pallets that met these requirements by mid-April 2009 to ensure that pallets arriving to the EU in the summer were acceptable. The rule has larger implications for pallets made from softwoods and may require use of higher grades or higher levels of sorting. This is expected to increase costs for packaging manufacturers.

2.6 Corporate social responsibility

Development of the ISO 26000 standard, which will provide guidance on social responsibility activities, recently moved from a working draft to a committee draft (ISO 2008a). According to ISO, this indicates a high level of consensus among the multiple stakeholder groups involved in development of the standard. There are six stakeholder groups working on the standard: industry; Government; labour; consumers; non-governmental organizations; and service, support, research and others.

The standard, which is scheduled to be published in late 2010, is built around seven principles of social responsibility: accountability, transparency, ethical behaviour, respect for stakeholder interests, respect for the rule of law, respect for international norms of behaviour and respect for human rights. Although direct references to forestry are few, an excerpt from the text reads: "In relation to all its activities, products and services, an organization should . . . incorporate the protection of natural habitat, wetlands, forest, wildlife corridors, protected areas and agricultural lands into the development of the built environment" (ISO 2008b).

Environmental and social responsibility reporting is becoming commonplace among the largest forest industry companies. What was once an annual environmental report has evolved to be, in most cases, a social responsibility or sustainability report. Carbon footprint and climate-change issues have become an important element of these reports in recent years. Of the 100 largest global paper and packaging firms identified by PricewaterhouseCoopers in 2006, 61 reported on responsibility issues (PWC, 2007). Of those companies listed in 2007, there were 39 that provided separate reports focused on CSR issues, and an additional 48 that provided reporting via their annual report or website (PWC, 2008).

CSR in the forest sector is seeing significant research attention by universities. A project at the University of British Columbia is investigating the adoption of CSR practices in the forest industry, using data from companies in the US, Canada and Brazil (Vidal, 2009). Findings suggest that both internal and external drivers have a role in CSR adoption in companies. Market trends, behaviour of competing firms, stakeholder demands and the socio-political context of a firm's place of operation are some of the external drivers influencing adoption of CSR. Examples of internal drivers are leadership and company culture. Company characteristics such as the organizational structure, formal processes and continuous improvement activities practised in the organization also influence the adoption of CSR practices.

A current project at the University of Helsinki is examining CSR opinions and attitudes of multiple stakeholders in the Chinese forest sector, with comparisons made among China, Finland and the US. One finding is that values have significant impacts on an individual's CSR perspectives. Among all respondents, satisfaction with forest industry CSR performance was generally highest with respect to economic performance, and lowest with respect to environmental performance (Wang and Juslin, 2009). The Helsinki study follows a recently completed project at Oregon State University that compared perceptions between the citizenry of the US Pacific Northwest and industry executives in the region regarding industry's social and environmental

performance. Not surprisingly, citizens judged the performance of the industry to be lower than did the executives. As to expected performance, citizens had significantly higher expectations than did the executives. Further, citizens considered that family-owned companies had higher social and environmental performance than corporations (Panwar, 2008).

2.7 Research and development

In a recent speech, European Union's Research Commissioner, Janez Potočnik, stressed the importance of combining efforts across Europe to develop costly and complex research infrastructures, particularly during a recession. Cooperation with individual Governments is called for in planning and construction of research infrastructures and centres of competence. Carbon-dioxide management is among the top priority areas where 10 new Pan-European Research Infrastructures will be set up, according to a roadmap announced in December 2008. The roadmap includes cutting-edge projects to test technologies for carbon-dioxide capture and storage. One area in which the call for coordination and support actions has been answered is the area of biorefineries.



Source: S. Bryant, National Renewable Energy Laboratory, 2009.

The Forest-Based Sector Technology Platform (FTP) has initiated collaboration in research on biorefineries with four other European Technology Platforms (ETPs), namely Biofuels ETP, Sustainable Chemistry ETP, Plants for the Future ETP and Manufacture ETP. The group aims to ensure the interest of platform stakeholders by contributing a) to the planning of national and European research funding, b) policies related to the concept of biorefineries, and c) immediate support and coordination of ongoing biorefinery research projects with high potential in terms of industrial exploitation of results (FTP-Update, 2008).

Despite concerns about potential adverse environmental and social impacts of biofuel production, UNECE region Governments are aggressively financing research and development aimed at new and improved technologies (including woody biomass to biofuels), pilot-scale research, technology adoption and biofuel systems implementation. As depicted on a new interactive web-based map and associated database, in the EU alone there are now at least 32 pilot and demonstration facilities for the production of biofuels from ligno-cellulosic raw materials (Austrian Bioenergy Centre, 2009). North America has at least 16 such facilities in development or operation, with over a third focused on woody biomass. In May 2009, the US Department of Energy announced the availability of an additional \$787 million in funding to accelerate second-generation biofuel research and commercialization.

Such efforts are beginning to attract considerable interest and investment from the private sector. For instance, a biomass-to-liquids project, termed OPTFUEL, has been initiated by a group of 10 industrial firms. Volkswagen AG has taken the leadership with automobile manufacturers Ford Motor Co. and Renault SA., among others. The goal over the next three to four years is to develop a commercial-scale, second-generation biodiesel plant with 200,000 tons per year output. In Japan, Nippon Oil, Toyota Motor and others announced in March 2009 that they will jointly establish a bioethanol research association, to be named the Research Association of Innovative Bioethanol Technology, to research and develop full-scale production technologies for cellulosic bioethanol. In the announcement, it was noted that research would focus on production that does not affect the supply of materials needed for food.

As concerted efforts to develop liquid fuels proceed, new research questions the use of biomass for transportation fuels rather than bioelectricity that could be used to power vehicles. Research reported in the May 2009 issue of *Science* (Ohlrogge et al., 2009) indicated that if biomass were burned for electricity generation, and

that energy were used to power electric vehicles, the goal of replacing 30% of US petroleum consumption by biomass could be met with half or less of the land area and with less infrastructure than if that same biomass were converted to liquid fuels.

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Chapter 3

UNECE region recession causing region-wide construction decline:

Economic developments affecting forest products markets, 2008-2009¹²

Highlights

- In 2008 the UNECE region entered the worst economic downturn since the Second World War; each subregion has experienced negative growth in 2009, with only a mild recovery expected for 2010.
- The declines in economic growth in the emerging economies of the UNECE region have been greater than in the advanced economies where the crisis originated; the potential remains for a serious crisis to develop that could affect their social and political stability.
- The decline in growth has been accompanied by rising unemployment and especially large declines in international trade and capital flows.
- Economic policy in North America and western Europe has concentrated on addressing the meltdown in the financial sectors and accompanying recessions by providing support for the financial sector and macroeconomic stimulus to minimize the recession, including a green new deal in the United States, which is aimed, in part, at the forest sector.
- In 2008 the US housing market continued to fall, reaching the lowest level since the Great Depression, but it is expected to bottom out in 2009 and begin recovery in 2010.
- Growing US housing inventories, fuelled by increasing foreclosures, tougher lending standards, and the recession, are delaying the recovery of the construction sector.
- North American building material real prices are the lowest since the Second World War. Demand and pricing will not improve until housing strengthens, as 70% of demand for structural building material is tied to residential markets.
- The European construction market is forecast to slow down through 2010 due to weakening new residential construction in western Europe.
- The European construction market and the US market are remarkably similar, with weakness in residential markets causing weakness in the non-residential building sector in 2009, while civil engineering remains relatively steady.

¹² 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

At this time of global economic crisis, the UNECE region forest-products markets are intrinsically linked to macroeconomic developments. This chapter provides an overview of the economic situation and also focuses on construction sector developments in the UNECE region, as they are a major demand driver for the following chapters' wood products, both primary and secondary.

The secretariat of the UNECE/FAO Timber Section sincerely appreciates the continued collaboration with the three authors on this chapter. The section on economic developments was produced by Dr. Robert Shelburne,¹³ Senior Economic Affairs Officer, UNECE. Additional information about economic developments in the region is available in the UNECE Discussion Paper series.¹⁴

The second section of this chapter, focusing on construction developments, was contributed by Dr. Al Schuler,¹⁵ Research Economist, US Department of Agriculture, Forest Service, and Mr. Craig Adair,¹⁶ Director, Market Research, APA – The Engineered Wood Products Association. The information for the European construction analysis is from Euroconstruct. We are grateful to 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, 2008-2009

3.1.1 *The global financial and economic crisis*

The world economy is in the midst of its worst economic downturn since the Second World War, with real gross domestic product (GDP) growth expected to be negative in 2009. The current crisis is characterized not only by its severity but also by its global synchronization. The slowdown has been especially severe in the UNECE region. This has been due to the fact that the advanced economies of the US and western Europe were at the

centre of the crisis, as those countries created, distributed and owned the subprime mortgage-backed securities whose prices have collapsed. Although the European emerging economies neither created nor owned a significant amount of these assets, their development model, based upon external finance, made them particularly vulnerable to the economic situation that developed when global capital markets essentially seized up. So far it is estimated that the world's Governments have committed more than \$20 trillion, or 30% of world GDP, in the form of monetary, fiscal and financial instruments, to address the crisis.

The current crisis resulted from a combination of macroeconomic imbalances and microeconomic market failures, which were both due to inadequate governance and a failure by market participants to properly understand risk. The core of the crisis was a US property bubble which, after bursting, led to widespread defaults on mortgages, which then led to a collapse in the value of the financial assets that had been created from them. The regulatory failure, however, was not restricted solely to the US, as it was often the European affiliates of US firms that engaged in some of the riskiest behaviour, and this was generally outside the jurisdiction of US regulators. Overall, the crisis has revealed that the regulatory failure was not confined to one or two specific operations in one or two countries, but rather to a broad spectrum of financial market activities throughout the US and western Europe.

In theory, the sophisticated financial instruments based upon the underlying subprime mortgages were designed to diminish risk for those who did not want to take risks, and distribute it to those who were willing and better able to manage risks. In practice, however, these securities distributed the risk to those who did not always understand it and were often least prepared to deal with it. In this sense, this financial model was a failure in that it did not achieve its primary objective.

Once the value of US mortgage-backed securities began to fall, the crisis moved to the wider European region quite rapidly through a surprisingly large number of different channels. In some countries (e.g. Belgium, Germany and Switzerland), the banks owned large quantities of the toxic US assets, while in other cases (e.g. Ireland, Spain and the UK) the countries had their own bursting housing bubbles. In some cases, banks and companies were dependent upon global capital markets that seized up (e.g. in Russia and most of east-central Europe), while in other cases, domestic banks had foreign subsidiaries exposed to non-performing loans from countries negatively impacted by the channels already mentioned (e.g., in Austria, Greece and Sweden). In some cases there were large declines in remittances, which had been a significant component of the gross

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national incomes of some countries (e.g. Armenia, Georgia, Moldova, Serbia, the Former Yugoslav Republic of Macedonia and Tajikistan). In almost every case, countries were negatively affected by declining exports and commodity prices as well as declining tourism.



Source: APA – The Engineered Wood Association, 2009.

The European emerging markets were sheltered from the first wave of financial instability, as their banking activity was based on traditional lending models, with no exposure to the toxic assets. The situation deteriorated dramatically in late 2008, however, as global capital markets came to a standstill as a result of increased risk aversion and the accompanying “flight to quality”. Private capital flows to the world’s emerging markets declined from \$929 billion in 2007 to \$466 billion in 2008 and are forecast to be only \$165 billion in 2009. The European emerging economies had been major recipients of these flows, and their access to them was particularly curtailed as market participants increasingly became more focused on the vulnerability associated with their large current-account deficits.

3.1.2 The overall macroeconomic situation

At a general level, although the shock was smaller in Europe than in the US, the European policy response was slower and considerably weaker, and as a result the decline in GDP has been larger than in the US. This will be the deepest recession the advanced economies have experienced since the Great Depression of the 1930s, although unemployment might not reach the levels of the 1981-1982 downturn. In the emerging economies of Europe, which experienced a “sudden stop” in terms of capital inflows, the magnitude of the shock was large, although of a different nature than in the advanced economies. These emerging economies have been unable to implement counter-cyclical macroeconomic policies, and as a result their economic declines have been quite severe, generally greater than in the advanced economies. Their downturns, however, will not be as severe as their transitional recessions of the early 1990s. However, in

Russia this downturn is deeper than the one that followed the 1998 currency crisis.

Annual real growth in the UNECE region in the three years prior to the beginning of the crisis (2005-2007) averaged 3.2%, but this fell by half to 1.5% in 2008 and is forecast to be -3.5% in 2009 before recovering slightly to about 0.5% in 2010 (table 3.1.1). Prior to the crisis, the growth pattern in the UNECE had followed global trends with the European emerging economies growing two to three times faster than the advanced economies in North America and western Europe. To a significant degree this growth was due to large capital inflows which allowed them to maintain investment at higher rates than would have been possible from relying solely on domestic savings. This dependence on external finance, however, has proven to be a major disadvantage during the current downturn as it created a channel for importing the crisis.

For 2009 the change in GDP in each of the UNECE’s subregions is forecast to be in the range of -3% to -5% with the largest contractions occurring in the emerging economies. In addition, the latter have weaker social safety nets than the advanced economies and a higher percentage of their populations are near subsistence levels; for these reasons, the economic downturn is much more severe in the European emerging economies than in the more advanced economies.

In 2009, the change in economic activity is expected to be -5.1% in the Commonwealth of Independent States (CIS), -5.1% in Turkey, -4.2% in the Eurozone, -2.8% in the US, and -2.3% in the EU New Member States (NMS). The economic downturn has been quite severe for the Baltic economies, Iceland and Ireland, where the decline is forecast to be close to 10%, and somewhat severe in Germany, Russia and Ukraine. A few of the smaller UNECE economies such as Albania, Azerbaijan, Cyprus, Georgia, Tajikistan, Turkmenistan and Uzbekistan may have positive growth in 2009; it may be especially strong in the latter two economies due to their lower levels of integration into global financial and goods markets. Although a slow recovery is expected to begin in the second half of 2009 with positive but low growth in 2010 throughout most of the region, there is considerable uncertainty surrounding this forecast, and there is a reasonable possibility that growth next year could still be negative in the EU.

The International Labour Organization is predicting that 50 million people will lose their jobs due to the current crisis as world unemployment increases from 180 million in 2007 to 230 million in 2009. Unemployment rates in the US, Europe, Turkey and the CIS are likely to continue to increase throughout 2009 and reach double digits by 2010. In some European economies the situation

is much worse; for example, by 2010 unemployment may reach 20% in Spain and 17% in Ireland. Because of the rapid growth during 2002-2007, extreme poverty in the UNECE region had almost been eliminated by the end of 2007. The crisis has been reducing employment opportunities and remittances and straining government safety nets; United Nations Development Programme has estimated that at least another 10 million people in the region have already been pushed back into extreme poverty.

For the advanced economies, the crisis has moderated inflation that had begun to increase above target levels in early 2008. Although deflation may occur for a short period during 2009, this is unlikely to be persistent. Currency fluctuations in these economies had strong effects on the trade of forest products as the US dollar weakened in 2008 and early 2009 (graph 3.1.1).

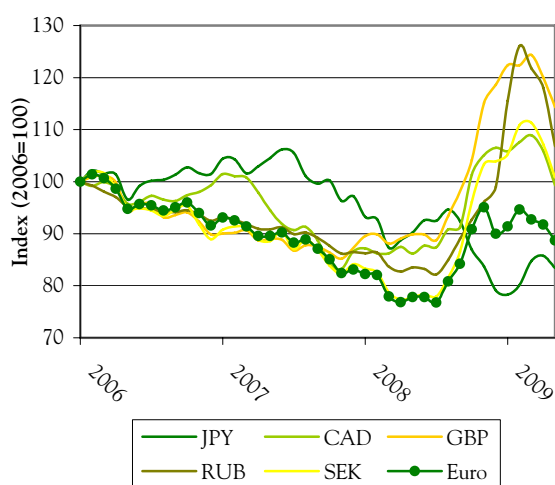
TABLE 3.1.1
UNECE region real GDP growth rates, 2007-2009
(Percentage)

Country	2007	2008	2009 ^f	Country	2007	2008	2009 ^f
Albania	6.3	6.8	0.4	Spain	3.7	1.2	-3.0
Bosnia and Herzegovina	6.8	5.5	-3.0	Slovakia	10.4	6.4	-2.1
Croatia	5.4	2.4	-3.5	Slovenia	6.7	3.5	-2.7
Montenegro	10.7	7.5	-2.7	Eurozone	2.7	0.9	-4.2
Serbia	6.9	5.4	-2.0	Denmark	1.6	-1.1	-4.0
Turkey	4.7	1.1	-5.1	Sweden	2.6	-0.2	-4.3
TfYR of Macedonia	5.9	5.0	-2.0	United Kingdom	3.0	0.7	-4.1
South-east Europe (non-EU)	5.0	1.8	-4.6				
Armenia	13.8	6.8	-5.0	Bulgaria	6.2	6.0	-2.0
Azerbaijan	23.4	11.6	2.5	Czech Republic	5.9	3.2	-3.5
Belarus	8.6	10.0	-4.3	Estonia	6.3	-3.6	-10.0
Georgia	12.4	2.0	1.0	Hungary	1.1	0.6	-3.3
Kazakhstan	8.9	3.2	-2.0	Latvia	10.0	-4.6	-12.0
Kyrgyzstan	8.5	7.6	1.0	Lithuania	8.9	3.0	-10.0
Republic of Moldova	4.0	7.2	-3.4	Poland	6.7	4.8	-0.7
Russia	8.1	5.6	-6.0	Romania	6.2	7.1	-4.1
Tajikistan	7.8	7.9	2.0	EU – 27	3.1	1.1	-4.0
Turkmenistan	11.6	9.8	6.9	Iceland	5.5	0.3	-10.6
Ukraine	7.9	2.1	-8.0	Norway	3.1	2.0	-1.7
Uzbekistan	9.5	9.0	7.0	Switzerland	3.3	1.6	-3.0
CIS	8.6	5.5	-5.1	Israel	5.4	3.9	-1.7
Austria	3.1	1.8	-3.0	Europe – 31	3.1	1.1	-3.9
Belgium	2.6	1.1	-3.8	Canada	2.7	0.5	-2.5
Cyprus	4.4	3.7	0.3	United States	2.0	1.1	-2.8
Finland	4.2	0.9	-5.2	North America	2.9	1.1	-2.7
France	2.1	0.7	-3.0	UNECE – 52*	3.2	1.5	-3.5
Germany	2.5	1.3	-5.6	Memorandum Items			
Greece	4.0	2.9	-0.2	CIS (without Russia)	9.9	5.3	-2.9
Ireland	6.0	-2.3	-8.0	EU-pre 2004 - 15	2.7	0.7	-4.2
Italy	1.6	-1.0	-4.5	EU NMS-10+2	6.0	4.3	-2.3
Luxembourg	5.2	0.7	-4.8	World	5.2	3.2	-1.3
Malta	3.6	1.6	-1.5				
Netherlands	3.5	2.0	-4.8				
Portugal	1.9	0.0	-4.1				

Note: f = forecast. *This total excludes four countries within the UNECE region: Andorra, Liechtenstein, Monaco, and San Marino which do not report GDP.

Sources: IMF, OECD and national central banks, 2009.

GRAPH 3.1.1
Exchange rates of selected currencies vs. the US dollar, 2006-2009



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

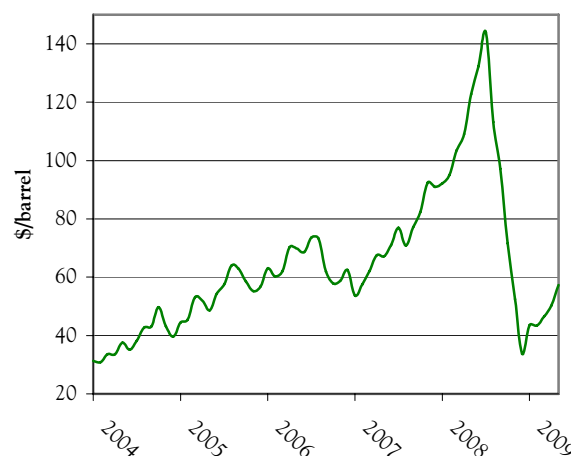
Sources: International Monetary Fund and UNECE, 2009.

For emerging Europe, however, the crisis led to significant currency depreciations and has in some cases increased inflation. For example, average consumer prices were 14% higher in the CIS in January 2009 than a year earlier, and inflation may be over 5% in most of south-east Europe in 2009. Given that the global commodity price booms of 2006-2008 were due largely to supply constraints, there is the troubling prospect that once a recovery is under way, the prices of energy and food will escalate again. Higher energy prices and stabilized housing prices would provide pricing support for wood products. As the *Review* went to print in 2008, oil prices were at record levels of \$145 per barrel, providing even greater economic incentive for alternative energy sources such as wood. Oil prices fell considerably throughout the second half of 2008, only to begin rising again in mid-2009 (graph 3.1.2).

Trade for the UNECE economies has declined significantly over the last year, generally falling by a quarter to a half. This has been due to both the decline in national incomes and consumption and the collapse of trade financing as credit markets seized up. Investment spending and the purchase of durable consumer goods were particularly hard hit, and as a result trade in manufactured goods has been especially negatively affected. In April 2009 US merchandise exports were 26.6% lower than a year before and US imports were 34.6% lower. Over the same period, Russian merchandise exports declined by 47.1% and imports declined by 41.6%; intra-EU exports were down 24.1% and imports were down 26.8%. Despite the slowdown, Germany exported almost \$1.5 trillion in

2008 and remained the world's largest exporter; the US is third, having been overtaken by China.

GRAPH 3.1.2
Brent crude oil price, 2004-2009



Source: US Department of Energy, 2009.

The equity markets in the UNECE's advanced economies lost more than one half of their value between their peaks in 2007 and lows in March 2009, while those in many of the emerging economies lost three quarters of their value. Equity markets, however, did stage a significant rally in the spring of 2009 that recouped some of these losses, as it appeared that the crisis was at least bottoming out. This affected not only the household wealth of UNECE residents but also the net external positions of some countries, especially the US, whose external assets were made up of foreign securities but whose liabilities were in the form of debt. Thus the net external debt of the US doubled between 2007 and 2009. However, this change in asset values led to an improvement in the net external positions of the Eurozone and Russia. A large percentage of the equity capital of the banking sector in the US, western Europe and the European emerging markets has been wiped out by the crisis. A significant number of the largest and most recognized banks are insolvent or close to becoming insolvent, although the vast majority of small and medium-sized banks are in a much healthier situation. US bank loan losses are expected to total \$1.1 trillion, of which half have already been written down, while Eurozone and UK bank loan losses will be over \$900 billion, of which only 17% had been written down by June 2009. Although Governments have already provided the banking sector considerable amounts in terms of loans or bailouts, more will be required. Governmental attempts to recapitalize the banks have so far been only marginally successful; as a result, the issue of how to recapitalize the banking sectors of these countries

remains largely unresolved. Currently interbank markets in the US and Europe remain dysfunctional and most newly created bank debt requires a government guarantee to be marketable. Critical to containing the crisis is the need to establish a price for US mortgage-backed securities, and this will only be possible once US housing prices and mortgage defaults have stabilized. The Canadian banking sector largely avoided the problems that plagued US and European banks; they have had no bank failures or bailouts due to tighter regulations, less leverage, less securitization and a more stable housing market.

3.1.3 The policy response to the crisis

Economic policy in North America and western Europe has concentrated on addressing the meltdown in the financial sectors and accompanying recessions by providing governmental support for those sectors, attempting to provide additional macroeconomic stimulus to minimize the recession, and reforming the governance structure and regulatory apparatus of their financial markets to avoid a repeat of the current crisis. There have, however, been significant differences in the initiatives proposed in the two regions in terms of their focus, their magnitude and their speed of implementation. The US has been far more focused on macroeconomic stimulation in order to get out of the current crisis while the focus in Europe (especially continental Europe) has been on regulatory reform to avoid a future crisis. Their macroeconomic policies for addressing the economic slowdown have also varied significantly. Neither subregion has been particularly successful in recapitalizing its banking system. The emerging economies of Europe, however, generally have not had the option of implementing counter-cyclical fiscal and monetary policies but actually have had to do the opposite, that being to implement pro-cyclical policies which have caused their economies to contract even further.

Overall the size of the fiscal stimulus and monetary easing in the advanced economies of the UNECE has been unprecedented; however, it is generally believed that even this historically large response has been below what was required, especially in western Europe. The weak European response is due significantly to inadequately designed institutions for conducting macroeconomic policy. There are, however, long-run costs in terms of potential inflation and debt repayment that result from the aggressive use of macroeconomic stimuli. Only after the crisis is completely over and many of the longer-term complications of debt and inflation have been resolved will it be possible to fully evaluate whether the more aggressive macroeconomic response of

the US was preferable to the more cautious European approach.

Once the recession is over, it will be necessary to unwind any stimulus quickly in order to avoid inflation and limit the excessive growth of government debt. This will be a major policy challenge and will probably prove extremely difficult to time properly. For example, macroeconomic policy was tightened prematurely during the Great Depression in the 1930s, which caused the world to have a relapse into several more years of depression, and the same thing happened in Japan in the 1990s.

Over the next year, regulatory reform and improved supervision of the financial sectors are expected in the US and western Europe. Although these are primarily national issues, there is a strong need for international cooperation and harmonization in implementing these reforms. Generally it is agreed that mortgage origination procedures need to be tightened, banking supervision needs to be strengthened and extended to a wider range of institutions, hedge funds and derivative markets need more oversight, credit-rating agencies need to be regulated, executive incentives need to be given a more long-term focus, and bank leverage should be reduced. There is a need to reduce pro-cyclicality in accounting rules and in bank lending practices, and central banks will have to consider asset prices in making monetary policy. Each of these reforms is quite technical and the national financial authorities will have to decide how best to achieve these basic objectives.

3.1.4 North America

The US entered into recession in the fall of 2007 and has remained in recession through the first half of 2009. In May 2009 industrial production in the US was down 13.4% from a year earlier and manufacturing output was down 15.3%. By May 2009 the level of employment in the US had declined by 6.0 million jobs since December 2007; unemployment stood at 14.5 million, which translates into an unemployment rate of 9.4%, which is the highest in 25 years. During the last several recessions, US unemployment continued to rise for over a year after the economy reached its trough; thus, unemployment in the US is expected to keep increasing until 2010 even if the economy begins growing, as expected, in the second half of 2009.

The US macroeconomic policy response in terms of the standard tools of monetary and fiscal policy has been large by historic standards but nevertheless has been insufficient to fully contain the crisis. Interest rates were reduced rapidly to near zero by late 2008 and monetary policy was further magnified by the implementation of some non-traditional policies referred to as "quantitative

easing". There was a fiscal stimulus in mid-2008 followed by a historically large stimulus of \$787 billion in early 2009 composed of approximately two thirds spending increases and one third tax cuts. The US government also implemented a number of programmes to help stabilize its housing market and assist mortgage holders experiencing difficulty in making their payments.

As part of the stimulus package, \$1.8 billion has been allocated to the US Department of Agriculture, Forest Service. Part of this "green new deal", i.e. environmentally oriented economic stimulus, will promote wood-based energy production. Together with the aforementioned housing relief, this assistance could benefit the forest sector.¹⁷



Source: A. Carlin, National Renewable Energy Laboratory, 2009.

3.1.5 Western Europe

The economic performance of the Eurozone is likely to be one of the world's worst during this global crisis, with a forecast of a decline in GDP of 4.2% in 2009 and 0.5% in 2010. The economic slowdowns being forecast for Iceland and Ireland would represent the largest for an advanced economy since the 1930s. By April 2009 total unemployment had surpassed 20.8 million (8.6% of the workforce) in the EU-27 and 14.5 million (9.2%) in the Eurozone.

In April 2009 industrial production was 20.9% lower year-over-year in the Eurozone and 19.0% lower in the EU, a record decline. Manufacturing activity was particularly hard hit in the Eurozone; new orders in January 2009 were 34% lower than a year earlier. This represented the largest monthly year over year-decline since Eurostat began compiling this data in 1996. The decline in European industrial production was due significantly to the worldwide decline in trade and was therefore especially large for those economies that

exported a high percentage of capital and consumer durables.

The European macroeconomic response to the crisis was weaker and implemented more slowly than in the US. However, the European Central Bank finally lowered interest rates to 1% in May 2009. The Bank of England took a more active role in lowering rates early in the crisis and ultimately lowered them to 0.5%, the lowest in its 315-year history. Other non-Eurozone economies, including Denmark, Norway, Sweden and Switzerland, have also cut rates sometimes to all-time lows.

The advanced western European countries, led by Germany, were reluctant to implement large discretionary fiscal stimulus packages due to their large automatic stabilizers (which are estimated to be about twice the size of those in the US), their conservative economic philosophies regarding macroeconomic policy, more pressing long-run demographic concerns, and built-in institutional constraints on fiscal deficits. The consolidated Eurozone fiscal deficit is forecast to be 6% in 2009; this is twice the limit enshrined in the European Union's Stability and Growth Pact. The UK's deficit is forecast to be as high as 14% of GDP in 2009 and 11% in 2010. Although its public debt is only likely to reach 61% of GDP in 2009, it may approach 88% of GDP by 2014.

3.1.6 UNECE region emerging markets

The negative growth being forecast for 2009 in the UNECE region's emerging economies is an unfortunate setback because a number of them, especially in South-east Europe and the CIS, had yet to fully recover from the transition process, which began in 1989. For example, most of the States of the former Yugoslavia (except Croatia and Slovenia) and the energy-poor CIS had real GDPs in 2008 which were below what they had been in 1989, and The Republic of Moldova had a real income of only about half of what it had before the transition. By 2008, Russia had approximately returned to its 1989 income level although some of the energy-rich CIS countries, including Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan, were significantly above their 1989 levels, as were Armenia and Belarus. Thus, for many of the transition economies, real income in 2009 will be below what it had been 20 years earlier.

Industrial production and especially manufacturing have been affected the most severely in these economies; trade in these sectors has also fallen significantly.

Owing to tight integration and interconnected financial markets, the potential for adverse contagion in emerging Europe is viewed to be quite high. There remains a significant although relatively small possibility that there could still be a systemic financial meltdown throughout these emerging markets that would have

¹⁷ During the UNECE Timber Committee week, a UNECE/FAO Policy Forum is scheduled on 15 October 2009 on "The forest sector in the green economy." Additional information at www.unece.org/timber.

significant and long-lasting global implications. In addition, if the consequences of the crisis are not properly addressed, social and political instability could arise in some of these emerging economies.

It is likely that a significant number of the European emerging markets will need some type of multilateral support before the crisis is over. By June 2009, eight economies (Armenia, Belarus, Georgia, Hungary, Latvia, Romania, Serbia, and Ukraine) already had International Monetary Fund (IMF) programmes and Bosnia and Herzegovina was close to concluding an agreement. The sizes of the packages were in the range of 5% to 10% of their GDPs. Several of the countries (Hungary, Latvia and Ukraine) experienced difficulties in meeting IMF-agreed targets, and disbursements were temporarily put on hold. These are in addition to the IMF rescue of Iceland, a European advanced economy. Several other countries established new credit lines from the IMF as a precautionary move. Poland obtained \$20.5 billion to boost the reserves of its national bank so as to provide more support for its currency. In early 2009, the European Bank for Restructuring and Development (EBRD) (\$8.5 billion or €6 billion), the European Investment Bank (EIB) (\$15.5 billion or €11 billion) and the World Bank (\$10.6 or €7.5 billion) put together a \$34.6 billion (€24.5 billion) package of support for the European emerging economies, especially their financial sectors. Economic progress in a number of European emerging markets has been hampered by unresolved political issues and “frozen” conflicts, which have produced economic uncertainty and limited the gains from intergovernmental cooperation.

3.1.6.1 New Member States

The EU (NMS) have characteristics of both advanced and emerging economies and thus represent the interface of the two groups. As a group the NMS have a purchasing power parity per capita income of about 56% of the EU. Several now have per capita incomes above that of some of the poorer western European economies, which are generally classified as advanced economies. During this economic crisis, however, market participants have generally treated the NMS as if they were emerging economies due to the fact that they had a number of vulnerabilities such as large current-account deficits and sizable foreign currency denominated-loans, which are often associated with emerging markets. The four NMS that have already adopted the euro were protected slightly.

The policy response of the NMS to the economic crisis has been hampered significantly by the institutional constraints in the Stability and Growth Pact and the Maastricht treaty criteria. The possibility of a typical emerging market financial and currency crisis remains significant in several of these countries.

3.1.6.2 South-east Europe economies

The economies in South-East Europe (SEE) have also experienced considerable decreases in growth as exports, capital inflows and remittances have declined dramatically. The situation and vulnerabilities (current-account deficits and foreign currency denominated debt) in SEE were similar in many ways to those of the NMS but worse in others as the SEE did not have the financial support of the EU or European Central Bank (ECB). These countries do, however, continue to benefit from a number of longer-term EU assistance programmes. Growth in the subregion is forecast to be -4.6% in 2009, led by the decline in Turkey of -5.1%. The economic crisis has potentially long-run implications for the economies of south-east Europe.

3.1.6.3 CIS

The decline in economic growth in the CIS including Russia during the current crisis has been extraordinary and represents probably the greatest “reversal of fortune” of any of the world’s major regions. Real GDP growth in the CIS is expected to fall from 8.6% in 2007 to -5.2% in 2009, a turnaround of almost 14 percentage points, which is over twice the turnaround in the US or the Eurozone over the same period. The largest reversal of approximately 16 percentage points is likely to be in Ukraine, where growth is forecast to decline from 8.0% in 2007 to -8.0% in 2009.

In Russia, real GDP growth is likely to decline from 8.1% in 2007 to -6.0% in 2009. This is quite remarkable as Russia owned few of the toxic assets at the centre of the crisis, was running a large current-account surplus, and had sizeable international reserves, little government debt and a large fiscal surplus. The Russian unemployment rate rose to 10.2% in April 2009; unemployment is expected to increase to 12% by the end of 2009. In March, Russian retail trade had declined 4.0% year-on-year, the previous month’s decline had been the first monthly decline since 1999. Russia’s GDP decline was primarily caused by a large fall in export revenue and loss of access by its private sector to world capital markets. Private capital inflows came to a sudden stop in mid-2008, followed by a sharp reversal in the second half of the year, with net outflows reaching a record level of \$130 billion over the whole year. Net outflows continued in 2009, amounting to \$39 billion in the first quarter. Owing to excessive volatility, the stock exchanges were closed on several occasions.

The ability of Russia and the energy-rich CIS to recover from the crisis will depend significantly on how energy prices evolve over the coming year. Their recovery prospects will be improved substantially if energy prices pick up considerably once the world economy improves.

3.2 Construction sector developments

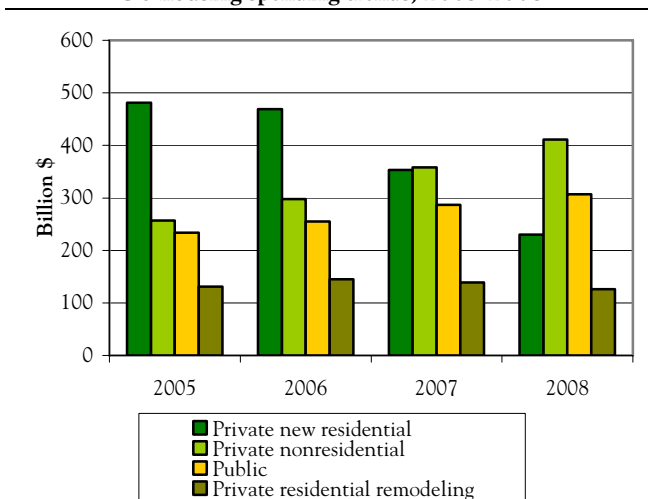
3.2.1 North American markets

3.2.1.1 US construction market – review of 2008

The year 2008 was, again, full of contrasts (graph 3.2.1). Private new residential construction fell 35% (value basis), continuing a correction that began in 2007 when it fell 25%. The pullback in private residential remodelling expenditures was less dramatic, falling 9% in 2008 following a 4% drop in 2007. In contrast, private non-residential markets posted gains of 15% in 2008 following a 20% gain in 2007. Public construction expenditures increased 7% in 2008 following a 12% gain in 2007.

GRAPH 3.2.1

US housing spending trends, 2005-2008



Note: Annual rates.

Source: US Census Bureau, 2009.

Using housing starts as a metric, the US downturn in new residential construction is even more dramatic (graph 3.2.2). Single family starts peaked at 1.82 million (seasonally adjusted annual rate) in January 2006 and began a precipitous decline that is expected to continue through most of 2009. The current annual building rate for single family starts as of April 2009 is 368,000 – a 46% drop year-on-year. Multi-family housing has not been able to avoid the problems in today's market, down an astonishing 72% year-on-year.

Record foreclosure rates, adding to the record inventories, are driving prices down, thus creating a vicious cycle, including infliction of major stress on the world's (US and elsewhere) financial systems. Therefore, there has been much pressure on the federal Government

to help homeowners facing foreclosure. The Homeowner Affordability and Stability Plan (US Treasury 2009) is the latest and most promising attempt. There are two parts: (a) refinancing help to make mortgages more affordable for up to 5 million responsible homeowners; and (b) a \$70 billion homeowner stability initiative to reach up to 4 million at-risk homeowners. Time will tell if the initiative will be successful in stabilizing the housing market.

GRAPH 3.2.2

US housing starts, 2005-2009



Note: SAAR = Seasonally adjusted annual rate.

Source: US Census Bureau, 2009.

3.2.1.2 US construction outlook for 2009

The latest outlook for 2009 forecasts non-residential construction expenditures to fall about 6% (range from -3% to -9%), with total construction expenditures (residential plus non-residential) to recede about 4% (range from -1% to -7%) (Associated General Contractors of America, 2009). The main problem area with the non-residential sector seems to be commercial construction, where increasing default rates are expected in the commercial mortgage-backed securities market (similar to the subprime problem in the residential market). This, of course, is a result of slower retail sales and the recession. APA – The Engineered Wood Association is forecasting housing starts to decrease 48%, from 903,000 units in 2008 to 470,000 units in 2009. The consensus forecast for housing is for starts to bottom out by midyear, and begin a modest recovery in the second half, with the annualized rate of production (total starts) approaching 800,000 units by year end. Separately, the Joint Center for Housing Studies at Harvard University is forecasting a 12% drop in private remodelling expenditures in 2009 (Joint Center for Housing Studies, 2009).

3.2.1.3 Canadian housing market

In stark contrast to the US market, the Canadian market fared quite well in 2008, with starts declining only 7.4% to 211,000 units (Statistics Canada, 2009). However, Canadian housing starts are expected to weaken considerably in 2009, receding approximately 34% to 140,000 units (Bank of Montreal, 2009). Canadian exports, including non-forest products, to the US account for about 30% of GDP, so Canada's economy is expected to fall about 2.5% in 2009. Furthermore, commodity exports are suffering in response to the global recession. It should be mentioned, however, that the Canadian housing market did not experience the price escalation and severe foreclosure problems seen in the US market. Some reasons include the more conservative Canadian banking and financial system and the fact that the US is the only country with "non-recourse" residential mortgages – mortgages for which the heavily indebted homeowners (whose house is worth less than the mortgage) can walk away from the house without fear of the lenders going after their remaining assets. "Recourse loans" are the norm in other parts of the world, including Canada. Recourse loans allow the lender to go after some of the borrower's remaining assets if there is a default on a residential mortgage. Hence, the borrower is more prudent when signing the mortgage papers.

3.2.1.4 North American building material markets

Considering that 65% of wood building materials, such as sawn softwood and structural panels, went to residential construction (new construction plus remodelling) in 2008, one can imagine the current state of wood-product markets. Sawn softwood and panel prices follow housing starts (graph 3.2.3). (Additional details on sawn softwood and panel markets, including price analyses, may be found in chapters 5 and 7, respectively.)

3.2.2 European construction markets¹⁸

3.2.2.1 Review and outlook

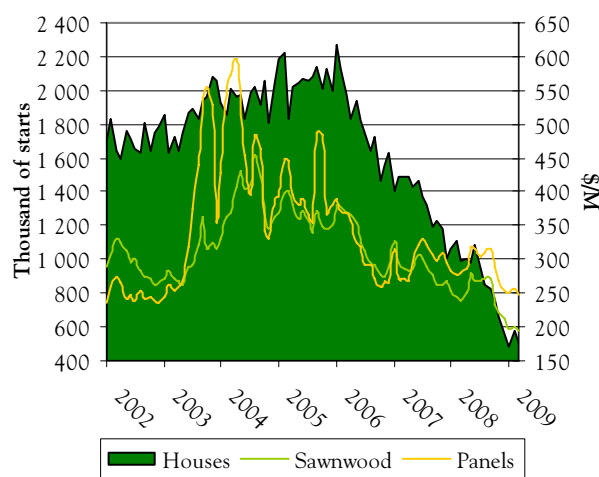
Total construction in Europe is considerably larger than in the US (table 3.2.1). At 2007 exchange rates, European countries invested \$940 billion more than the US on

¹⁸ 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.

construction, i.e. Europe's construction spending was 80% higher than that in the US. This is due to a number of reasons; for example, a larger population in the 19 countries comprising the Euroconstruct region (460 million versus 300 million in US) explains more spending on housing and infrastructure. In addition, the European Governments account for a larger share of GDP, so they naturally spend more on non-residential buildings (hospitals, schools, etc.) and civil engineering (roads and other infrastructure). The European construction sector, however, is remarkably similar to the US regarding shares, with the residential sector being dominant, followed by non-residential buildings and civil engineering. An important difference, however, is a much heavier use of wood building materials in North America whereas the use of structural wood building materials in Europe is marginal.

GRAPH 3.2.3

US housing starts vs. sawnwood and panel prices, 2002-2009



Notes: Sawnwood is framing lumber composite (\$/MBF) and panels are structural panel composite (\$/MSF). Averages of 14 product and species composite prices. Houses are single-family and multi-family.

Sources: *Random Lengths* for prices and National Association of Home Builders for housing starts, 2009.

TABLE 3.2.1

Construction spending in Europe vs. US, 2007

	US		Europe	
	Billion \$	%	Billion \$	%
Residential	500	44	986	48
Non-residential buildings	404	35	662	31
Civil engineering	234	21	436	21
Total construction spending	1137	100	2080	100

Sources: US Census Bureau, 2009a and Euroconstruct, 2008.

3.2.2.2 New housing

Another similarity between European and US markets is the severe downturn in new housing with the other sectors holding steady or growing, at least through 2008 (graph 3.2.4). Spending on residential construction fell almost 7% in 2008 and is expected to fall another 7% in 2009 before levelling off in 2010. This is being driven by the extreme weakness in spending on new housing which fell 13.4% in 2008 and is expected to fall another 13.3% in 2009. Forecasters do not expect new residential construction to be positive again until 2011. Most of the housing weakness is centred in western Europe, where Euroconstruct is forecasting a drop of 800,000 newly completed housing¹⁹ units over the 2008-2009 period. Between 2004 and 2007, Spain accounted for 50% of the increase in newly completed units in western Europe. In 2008 and 2009, Spain is expected to account for more than 60% of the decrease or 500,000 units of the 800,000 decrease for all of western Europe.

Looking at flats (apartments) versus 1- and 2-family houses (called individual units by Euroconstruct), the downturn for the countries covered by Euroconstruct²⁰ is more pronounced for flats, which made up 60% of all housing completions in 2007, whereas in 2003, flats and 1- & 2-family units were equal at 1.1 million. During the 2004 to 2007 period, flat completions increased to 1.6 million or 45% while 1- and 2-family starts fell to 1 million, or 37%. During the 2007 to 2009 period, flat completions are expected to fall by 530,000 units, with the bulk of the pullback occurring in 2009. Completions of individual units are expected to decline by about 165,000 units during the same time period. The numbers of both flats and individual units are expected to bottom out in 2010 and begin modest recoveries in 2012, according to Euroconstruct (2008).

3.2.2.3 Non-residential buildings and civil engineering.

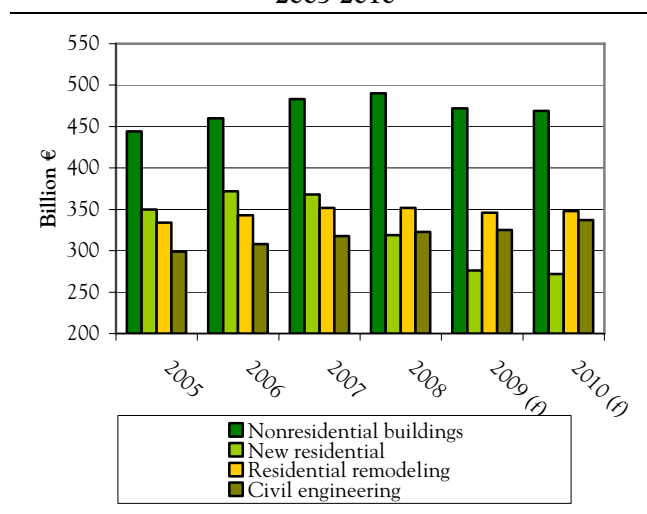
Growth in non-residential spending slowed to 1.3% in 2008, down from 5% growth in 2007, and is expected to fall another 3.6% in 2009 before levelling off in 2010. Civil engineering slowed in 2008, growing 1.8%, down from 3% in 2007, while spending in 2009 is expected to be flat (Euroconstruct 2008).

¹⁹ For Europe, "housing completions" is used in lieu of "starts" because of data availability.

²⁰ 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.

GRAPH 3.2.4

European construction spending trends, 2005-2010



Notes: f = forecast. 2007 prices.

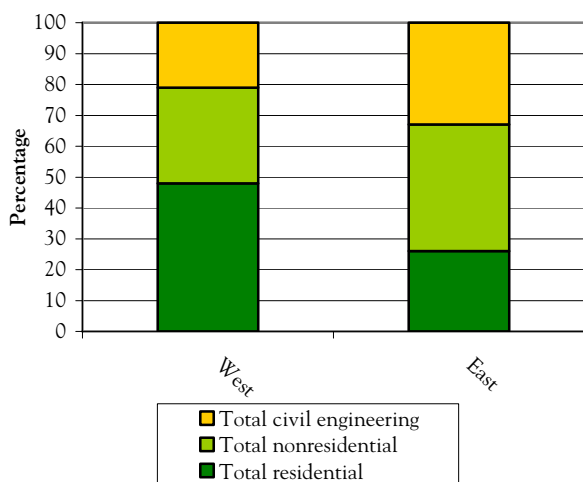
Source: Euroconstruct, 2008.

3.2.2.4 Contrasting western and eastern Europe construction sector shares and growth

When comparing eastern and western European construction sectors, there are major differences in makeup; residential shares are much higher in western Europe where the bulk of the population resides (graph 3.2.5). Eastern Europe invests more heavily in civil infrastructure and non-residential construction, including factories and commercial construction, despite the urgent need for better housing in the region. However, 95% of the 1.5 trillion euro construction market resides in western Europe. Another difference is expenditures on new construction versus renovation and maintenance. Western Europe spends a higher share on renovation and maintenance whereas eastern Europe spends a higher share on new construction. This holds true for all construction types – residential, civil engineering and non-residential buildings. Total construction expenditures are expected to grow more in eastern Europe than in western Europe. After contracting 2.9% in 2008, western Europe is expected to contract 4.8% in 2009 and be essentially flat in 2010. Eastern Europe, after growing 6.2% in 2008, is expected to continue growing 4.8% in 2009 and 9.6% in 2010.

GRAPH 3.2.5

Construction in western Europe vs. eastern Europe, 2008



Source: Euroconstruct, 2008.

European residential construction techniques favour non-wood building materials, such as stone, steel, and concrete, for structural purposes. There are several reasons why wood is not the preferred building material as in North America: insurance premiums are higher for wood construction; tradition favours non-wood, partially due to a longer lifecycle for housing in western Europe; and cost – wood construction is cheaper in North America. That said, wood construction is popular in eastern Europe, but far behind trends in North America. Governments and industry associations are promoting wood-frame residential and non-residential construction in Europe through green building programmes.²¹

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²¹ Continuing promotion on the opportunities for the forest sector through green building will be the subject of a second green building workshop during the UNECE Timber Committee week, 12-16 October 2009. See www.unece.org/timber.

Chapter 4

Wood costs decline dramatically as log demand falls to lowest level in nine years: Wood raw material markets, 2008-2009²²

Highlights

- The global economic crisis has had a major impact on the forest industry in the UNECE region, with demand for forest products declining dramatically; consequently, demand for roundwood fell in 2008 and early 2009.
- Total roundwood removals declined by 10% to 1.2 billion m³ in 2008, reaching the lowest levels since 1999.
- Sawlog prices fell sharply throughout the UNECE region in 2008, contributing to the 26% drop in the Global Conifer Sawlog Price Index.
- In 2008, European roundwood imports declined to the lowest level since 2004, but imports of chips and pellets have increased substantially over the past five years, driven in part by government policies promoting wood energy.
- Wood-fibre consumption for the manufacturing of woodpulp fell 5.5% in 2008, with the greatest decline occurring in the Nordic countries, as a number of paper and pulpmills closed or had to reduce production.
- Wood costs for the global pulp industry were down in 2008 and early 2009 by up to 25%, especially in Finland, Germany, Russia and Japan.
- In 2008, Russian log export volumes were at their lowest level in six years, driven down initially by rising export taxes; however, given the weak economies of importing countries, log exports fell even more in early 2009.
- Eight per cent of industrial roundwood production in the UNECE region was exported in 2008; the export share, which was lower for softwood than for hardwood, fell from 2007 onwards.
- Competition for smaller logs has intensified and it is increasingly common that logs that typically would have gone to pulpmills are now sold to energy plants.
- The rise in demand for forest biomass, including branches, stumps and tops, will encourage more intensive management strategies with higher utilization of the forest resources in Europe in the coming years.

²² By Håkan Ekström, Wood Resources International, US.

Secretariat introduction

The *Forest Products Annual Market Review* benefits from continued collaboration with Mr. Håkan Ekström²³, President, Wood Resources International. His work as Editor-in-Chief of two publications that follow global fibre markets, including prices: *Wood Resource Quarterly* and *North American Wood Fibre Review*, provides him with great expertise in global markets, which is evident in the current analysis. Mr. Ekström regularly presents his analyses in international forums such as the UNECE Timber Committee Market Discussions, where he will present this chapter, and wood raw material forecasts for 2009 and 2010 in Geneva on 13-14 October 2009. We also acknowledge the contributions from Dr. Riitta Hänninen and Mr. Esa Ylitalo, from the Finnish Forest Research Institute, and Ms. Ariane Crèvecoeur of the Confederation of European Paper Industries.

Knowing that the international terminology may need clarification, a schematic diagram of the roundwood breakdown into different subcategories appears in the annex of this volume. The complete statistics upon which this chapter is based are available in the electronic annex on the *Review* website.

4.1 Introduction

The global economic crisis has had a major impact on the forest industry in the UNECE region, with demand for forest products declining substantially and with no subregion immune to the deteriorating world market demand for wood and paper products. As a consequence, consumption of roundwood and wood chips fell in 2008, and demand is expected to be even lower in 2009. The softwood log market fell the most, by over 10%, while demand for hardwood roundwood was only down 4.8% (graphs 4.1.1 and 4.1.2).

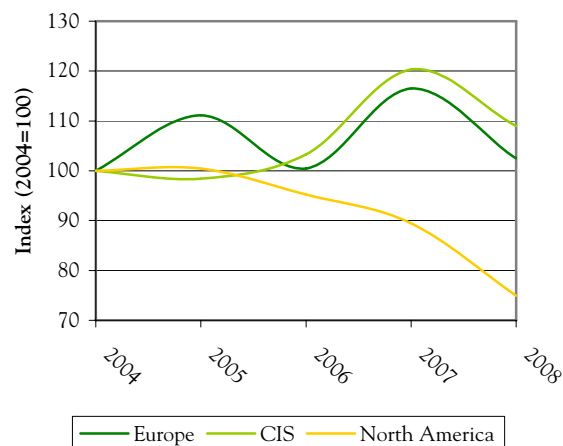
Total roundwood removals (production) declined by almost 10% to 1.22 billion m³ in 2008, reaching the lowest levels since 1999. The greatest reduction occurred in North America, where total removals were down 13.6% from 2007; the declines in the CIS and Europe were down relatively less, by 10.9% and 6.6%, respectively.

Harvest of roundwood for industrial purposes accounted for about 84% of the total harvest, with the remaining 16% being used for fuel. However, the statistics regarding volumes removed from forests for fuel purposes are very unreliable as few countries have consistent methods of collecting relevant data for this end use.

²³ By Mr. Håkan Ekström, President and Editor-in-Chief, Wood Resources, Wood Resources International, P.O. Box 1891, Bothell, Washington 98041, US, Ph: +1 425 402 8809, fax: +1 425 402 0187, e-mail: hekstrom@wri-ltd.com, www.woodprices.com.

GRAPH 4.1.1

Consumption of softwood industrial roundwood in the UNECE region, 2004-2008

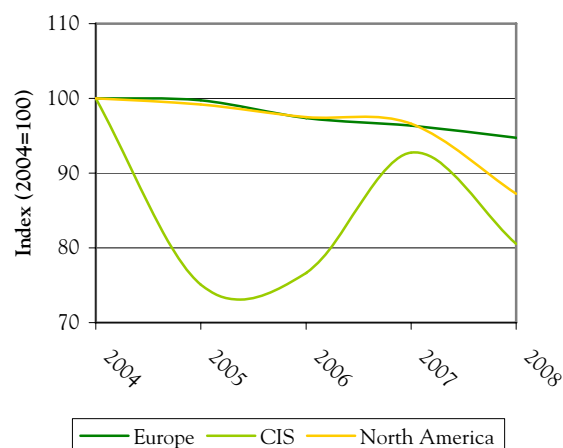


Note: Industrial roundwood excludes woodfuel.

Source: UNECE/FAO TIMBER database, 2009.

GRAPH 4.1.2

Consumption of hardwood industrial roundwood in the UNECE region, 2004-2008



Note: Industrial roundwood excludes woodfuel.

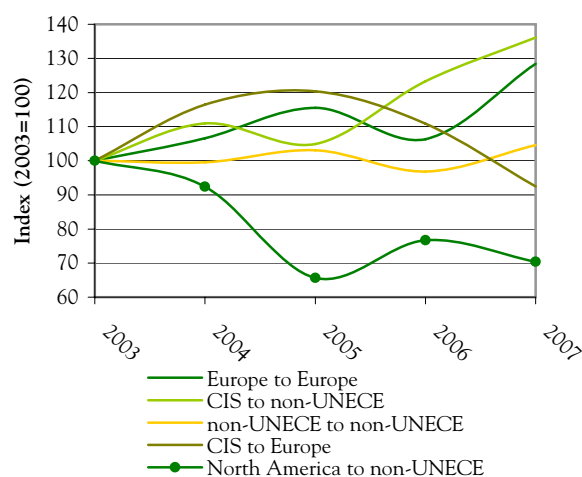
Source: UNECE/FAO TIMBER database, 2009.

Just over 8% of industrial roundwood production in the UNECE region was exported in 2008. The export share, which was lower for softwood than for hardwood, fell from 2007. The relatively large share of hardwood log exports can mainly be attributed to shipments of birch logs from Russia to pulp mills in Finland. The greatest changes in trade flow from 2003 to 2007 have been the declines in exports from North America to Asia, the increased shipments from Russia to Asia, and trade between countries within Europe (graph 4.1.3). However, in 2008, log trade between Russia and Asia fell sharply, both due to the higher cost of Russian logs and lower demand in the

importing countries. In addition to Russian official export statistics, there are also undocumented volumes being exported from Siberia and far east Russia to China. There have been estimates by Russian officials and other observers that log exports to China could be up to 30% more than officially acknowledged.

GRAPH 4.1.3

Major industrial roundwood trade flows in the UNECE region, 2003-2007



Note: Corresponding trade flow table in electronic annex.

Source: UN Comtrade/EFI, 2009.

4.2 Europe subregion

4.2.1 Roundwood removals, trade and consumption

Total removals of roundwood in Europe in 2008 were just over 475 million m³, of which 378 million m³ was industrial roundwood and the remaining 96 million m³ (albeit an uncertain estimate) used for fuel purposes (table 4.2.1).

TABLE 4.2.1

Roundwood balance in Europe, 2007-2008 (1,000 m³)

	2007	2008	Change %
Removals	509 424	475 878	-6.6
Imports	72 266	58 356	-19.2
Exports	43 095	37 832	-12.2
Net trade	-29 172	-20 525	...
Apparent consumption	538 596	496 403	-7.8
of which: EU27			
Removals	462 489	429 248	-7.2
Imports	66 284	54 399	-17.9
Exports	38 598	34 376	-10.9
Net trade	-27 687	-20 023	...
Apparent consumption	490 176	449 270	-8.3

Source: UNECE/FAO TIMBER database, 2009.

4.2.2 Consumption of industrial roundwood fell 10% in 2008

The consumption of industrial roundwood was close to 400 million m³ in 2008, down 9.8% from the previous year but slightly higher than in 2006. Among countries which are major consumers, Germany, Sweden and Finland showed the greatest declines. Part of the reason for the decrease in consumption in Germany in 2008 (-16.5%) was the high volume of storm-damaged timber that was available in 2007. The harvest level in 2008 was actually the second highest ever recorded in the country, and the highest during a "non-storm" year.

The log usage in Europe is concentrated in relatively few countries, with six of the 40 countries on the continent accounting for 67% of the total wood consumption. Not surprisingly, it is countries with large forest resources such as Sweden, Germany, France, Finland, Poland and Austria that are also the large consumers of roundwood.

Despite the weak markets for forest products in later 2008 and a reduction in the demand for wood raw material, timber harvesting in Europe was still at a historically high level, only lower than in 2005 and 2007. Roundwood removals have remained high because the forest industry has relied on domestic wood supply rather than imports. Harvesting of softwood timber accounted for 76% of the total harvest, which was practically the same share as in 2007.

The continent continues to be a net importer of logs because total log production only reached 378 million m³ in 2008. The log deficit of 20.5 million m³, which is mainly met by Russian logs, was at its lowest point in over 10 years and is expected to shrink even further in the coming years.

The Finnish forest industry was hit hard in 2008 and 2009, with many sawmills and pulpmills closing temporarily and a few plants closing permanently as a result of the weak markets for pulp, paper, plywood and sawnwood, in combination with high costs for wood raw material. Other reasons for a gloomy outlook for Finland include the unfavourable exchange rate vs. the Swedish krona and the high cost of sawlogs in the country, which make the industry less competitive as compared with Russia, Sweden and countries in eastern Europe. As an incentive for Finnish landowners to increase harvests, the Government decided to grant tax exemptions on the sale of logs from first thinnings from the period of April through August, 2008. As a result of this temporary tax adjustment, purchases of spruce pulpwood increased by 75% compared to the five-year average for the January through August period, and pine purchases were 24% higher. The Government introduced another tax law in July 2008 by which no taxes have to be paid on 50% of timber sales

from April 2008 until the end of 2009. Thereafter, the tax-free share will be 25% for an additional 12 months.

In January 2009, the storm "Klaus" hit southwestern France and northwestern Spain. Most of the damage occurred in France, where an estimated 700,000 hectares (ha) were affected. Approximately 300,000 ha of mostly maritime pine were classified as "seriously" impacted, meaning 60-70% of the trees were on the ground. An estimated 42 million m³ of timber was damaged in France, which is 1½ times the annual harvest for the country. Spain was less affected by the storm, although locally in the province of Galicia, the damage was devastating, with almost two million ha of radiata pine and high-quality eucalyptus globulus plantations destroyed.



Source: E. Pepke, 2009.

4.2.3 *The pulp industry in Europe consumed less wood fibre in 2008*

Wood-fibre consumption for the manufacturing of wood-based pulp fell 5.5% in 2008 as compared with the previous year, according to CEPI. The biggest decline in fibre demand occurred in Finland (-8.6%) and Sweden (-6.0%), while pulpmills in both Germany and Austria increased their usage of wood fibre slightly. The consumption of wood fibre last year totalled 152 million m³, which was the second lowest volume out of the past five years. Just over 25% were residual chips, a share that has been fairly constant the past few years. However, the volume was lower in 2008 because of reduced availability from a sawmilling industry running at a lower operating rate. Roundwood continued to be the most important wood-fibre source for the pulp industry. In 2008, almost 24% of the total harvest of industrial roundwood in Europe was destined for this sector.

4.2.4 *Increased competition for wood fibre from the energy sector*

Although log imports to Europe have declined and last year were at their lowest level since 2004, imports of wood chips and wood pellets have gone up substantially over the past five years. Europe has moved from having a wood chip supply and demand balance six years ago to being a net importer of 7.6 million m³ solid wood equivalent (SWE) in 2008. Total imports of chips, residues and wood pellets were 29.8 million m³ SWE in 2008, which was practically the same as the record year of 2007. The biggest importers were pulpmills, medium density fibreboard (MDF) manufacturers and energy plants in Finland, Germany, Sweden, Turkey and Italy. Major exporters of wood chips in Europe have been Germany, Latvia, France and the Czech Republic, while non-European supplying countries were Russia, Uruguay, Canada and Brazil.

The increased demand for biomass from the energy sector has not only had an impact on prices of residual chips from sawmills (wood chips, sawdust and shavings) but also on the price of small-diameter logs, which have increasingly been utilized for energy generation. These developments have been particularly prominent in Germany and Sweden the past year. In Germany, prices for sawdust, wood chips and hardwood logs have converged during 2008 and 2009, and were in the first quarter practically the same.

In Sweden, small logs that would typically go to pulpmills have, in 2009, been sold to energy plants. With the demand and prices for pulpwood being in decline and the consumption of "energy wood" steadily rising, competition for smaller logs has intensified and volumes of wood chips and logs bound for energy facilities are expected to increase, thus potentially decreasing volumes going to pulpmills in the future. The rise in demand for forest biomass, including branches, stumps and tops will encourage more intensive management strategies with higher utilization of the forest resources, not only in Sweden but in the rest of Europe as well.

With the energy sector emerging as a new and aggressive market player, floor prices for wood chips and pulplogs are not ever expected to return to the low levels of the late 1990s. The increased competition for raw material between the biomass sector, the composite board manufacturers and the pulp industry will result in relatively high fibre costs for forest products in the future, even if markets are weak. The recent evolution of the wood raw material market in Europe is not unique to this continent, but can be expected to take place in North America as well in the coming years.

4.3 CIS subregion

The total harvest in the CIS subregion was down 7.3% to 209 million m³ in 2008 (table 4.3.1). This was the lowest level since 2004 as the result of weak markets both within the CIS region and in the export markets. In this subregion, where only the Russian Federation, Ukraine and Belarus have any major forest resources, industrial softwood removals fell almost 15% to 112 million m³, of which 85 million m³ was consumed domestically. Harvests of hardwood species were also lower in 2008, totalling 40 million m³, of which one third was exported.

The total harvest of industrial roundwood in the Russian Federation was 137 million m³ in 2008. This accounted for 14.4% of the total industrial log supply in the entire UNECE region, up from 13.8% in 2007 and up from 12.7% five years ago.

TABLE 4.3.1

Roundwood balance in CIS, 2007-2008
(1,000 m³)

	2007	2008	Change %
Removals	234 894	209 290	-10.9
Imports	912	873	-4.3
Exports	54 225	41 706	-23.1
Net trade	53 313	40 833	-23.4
Apparent consumption	181 581	168 457	-7.2

Source: UNECE/FAO TIMBER database, 2009.

The Federal Government has, for the past two years, tried to assist its country's 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 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 (under 15 cm), which are particularly important to the Finnish pulp industry, were not taxed. The original plan was to increase softwood log export taxes further to 80% of the value, or a minimum of €50/m³, starting in January, 2009. If this step had been implemented, it would have eliminated practically all legal exports of logs from Russia. However, Prime Minister Putin decided to postpone the dramatic increase for 9-12 months, in part due officially to the economic crisis. Although the higher cost for Russian timber reduced the log flow to Europe and Asia and therefore benefited the domestic industry, the tax has been of limited value for Russia because demand for sawnwood, plywood and wood pulp has been plummeting both in Russia and internationally.

It would be a surprise if the log export tax of 80% (or minimum €50/m³) is ever actually implemented. There are a number of reasons for this:

- Russia needs the income from roundwood exports;
- Many Russian logging companies have had to shut down, resulting in increased unemployment;
- There is not enough domestic capacity, short-term or mid-term, to convert all logs that are now being exported; and,
- The rising export taxes, which restrict free trade, have only created uncertainty that discourages foreign investors from investing in manufacturing facilities in Russia.

The implementation and the threat of additional export taxes have definitely changed the way foreign forest companies source their logs. Companies in Finland, China and Japan, in particular, have sought alternative wood raw material sources and changed strategies for the future manufacture of wood and pulp products within their companies. Combined with the global economic recession, the companies have been able to reduce their dependence on imported Russian wood. Outdated processing capacity is now being shut down in countries neighbouring Russia, and trade may not return to previous levels, even without the taxes.

In 2008, Russian log export volumes were at their lowest level in six years, totalling 36 million m³. Just over 25 million m³ was softwood species mainly bound for markets in China, Finland, Japan and the Republic of Korea, while the remaining 11 million m³ of hardwood logs were destined for Finland, China and Sweden. In 2009, shipments promise to fall dramatically. During the first three months, exports of softwood logs were down 43% from a year earlier and hardwood log exports were as much as 79% lower as compared with the first quarter of 2008.



Source: T. Pahkasalo, 2009.

All sectors of the Russian forest industry cut back production in the first quarter of 2009, including pulp, paper, sawnwood and wood-based panels. According to data released by the Russian State Statistics Service, sawnwood output was 24% lower than the same quarter last year, market pulp production was down 26%, and the manufacture of wood-based panels had declined by about 40%.

In addition to reduced domestic consumption of both pulplogs and sawlogs, the log export market continued to weaken. Log shipments from the northwest, Siberia and the far east fell in the fourth quarter of 2008 to levels not seen in over six years. Softwood log exports to China were only 3.1 million m³ in the first quarter of 2009 as compared to 4.8 million in the same quarter last year, and 5.8 million m³ in the first quarter of 2007.

4.4 North America subregion

The North American forest industry cut back production substantially in 2008, resulting in decreased demand for sawlogs and pulpwood in all regions on the continent. In the US, harvests of industrial roundwood were down 11% to 337 million m³ in 2008, which was the lowest level in over 20 years. Canada also had a record-breaking poor year with logging activities being close to the lowest level since the 1980s. The total roundwood removals in North America, including fuelwood in 2008, were 529 million m³, 14% lower than in 2007 (table 4.4.1).

The consumption of roundwood in North America is heavily driven by the status of the US economy, and particularly by the strength of the housing market. US housing starts have fallen from over 2 million units (seasonally adjusted annual rate) in 2005 to 458,000 units in April 2009. With almost 40% of sawnwood consumed in the US going into new residential construction, it is understandable that recent developments have had a detrimental impact on the sawmilling sector and that demand for logs has fallen over the past two years. In the US south, which is the largest sawnwood production region in North America, sawmill production was 21% lower in 2008 than in 2006, which resulted in lowered demand and falling prices for sawlogs in the region.

TABLE 4.4.1

Roundwood balance in North America, 2007-2008 (1,000 m³)

	2007	2008	Change %
Removals	619 227	535 758	-13.5
Imports	7 527	6 291	-16.4
Exports	13 884	13 371	-3.7
Net trade	6 358	7 080	11.4
Apparent consumption	612 869	528 678	-13.7

Source: UNECE/FAO TIMBER database, 2009.

There has been plenty of pulpwood available throughout the south due to market-related downtime of pulpmills or reduced production through rolling machine outages. Demand for smaller logs from sawmills and OSB mills have also diminished, leaving plenty of logs for any pulpmill that was short on sawmill residuals. In many regions, loggers have stopped sorting logs for pulp, OSB and “chip-n-saw” grades (small-diameter sawlogs), and are instead sending all logs to the pulpmills.

With the hurricane season more intense than usual in 2008, wood raw material supply flow for both pulpmills and sawmills in the US south was interrupted last fall. Heavy rainfall following severe winds drastically reduced both logging activity and the transport of logs. Late summer and early fall is typically the season when manufacturing plants build their log inventory for the winter season. Unless logging can be increased when hurricane season is over, wood raw material supply usually becomes tight in the spring. In addition to better logging conditions, there is also the issue of finding enough loggers and truckers to move the wood. This is becoming an increasing problem not only in the US south but in other regions of North America as well. Many wood processors are worried that this is a problem that is not going to go away. However, the current economic crisis and the increasing unemployment rates could potentially make it easier to recruit personnel for the forest sector, at least in the short term.



Source: M. Hayes, 2006.

The US and Canada continue to export logs to Asia with net exports actually increasing in 2008 to 7.1 million m³ (approximately 85% softwood), up from 6.4 million m³ in 2007. Much of the gain was due to the Russian log export tax, which made Russian logs more expensive. Many log buyers in Japan, China and the Republic of Korea were considering alternative supply sources because of the uncertainty surrounding future log supply and pricing for Russian logs. When the market for forest products improves in Asia, opportunities should exist for log exporters from North America to increase shipments to the Asian market.

Last year, US pulp companies started to take advantage of a loophole in the US tax law. A tax credit was originally introduced in 2005 to encourage the use of alternative fuels over fossil fuels for cars and trucks. However, since late 2008, chemical pulp-producing mills have been able to receive a substantial tax credit for black liquor, a by-product when producing woodpulp. These additional funds for the pulp and paper industry, estimated to be valued between \$3 to 8 billion total in 2009, have been particularly helpful this year because many mills have been running with very low, if any, profit margins. The funds have been a timely injection into the struggling US pulp and paper industry, and have changed how many pulpmills have been running their plants over the past six months.

Without a doubt, many paper companies would have reduced their production of pulp this year had it not been for the black liquor tax credit. As a consequence of such circumstances, there would have been less demand for wood raw material and wood-fibre prices would probably have been lower in most regions than they actually are. It is still uncertain how much longer the tax credit, or subsidy, will be in place. The US administration and a number of senators would like to see this programme ended as soon as possible. Therefore, it may well be that from October 2009, the end of the fiscal year, US pulpmills will have to run without the benefits of the black liquor tax credit.

4.5 Wood raw material costs

4.5.1 Softwood sawlog prices

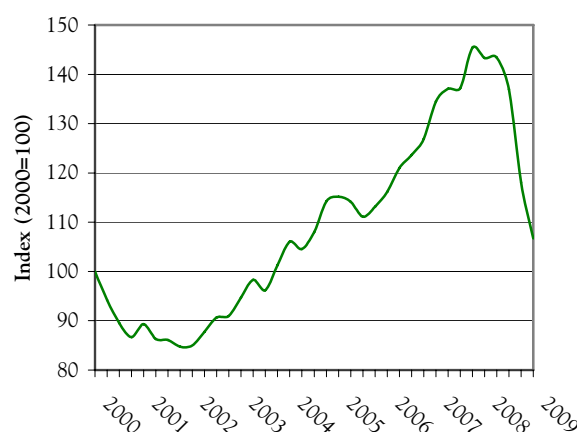
Sawlog and pulpwood prices have, as with most globally traded commodities, fallen substantially during 2008 and into 2009 because of reduced demand for most forest products. The Global Conifer Sawlog Price Index (GCSPI), published in the Wood Resource Quarterly, fell to \$67.51/m³ in the first quarter of 2009, which was down 26% from the same quarter the previous year and 67% below the price in the first quarter of 2007 (graph 4.5.1). In the first quarter of 2009, the GCSPI, which is based on a basket of sawlog prices in 19 regions worldwide, was at

its lowest level since 2004. In US dollar terms, the biggest price declines this past year have been in eastern Europe, Russia, the Nordic countries and western North America.

The reduced production of softwood sawnwood in both North America and Europe in 2008 has resulted in lower demand for sawlogs and declining prices for softwood timber in practically all markets. In western Canada, prices have fallen 37% in one year, and prices were also down substantially in the western US (-36%), Russia (-51%), Latvia (-56%), Sweden (-28%) and Finland (-32%), according to the Wood Resource Quarterly. Despite the decline in the Nordic countries, the region still has among the highest log costs in the world. Because wood costs account for 65-75% of the variable production costs when producing sawn softwood, they are the key factors in determining how competitive a region will be.

GRAPH 4.5.1

Global softwood sawlog price index, 2000-2009

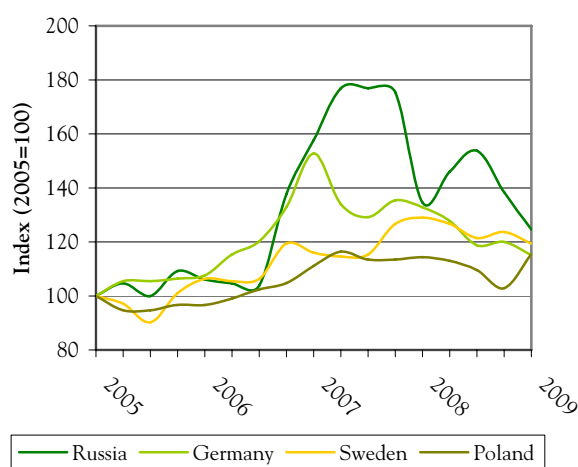


Source: Wood Resource Quarterly, Wood Resources International LLC, 2009.

The Russian economy started to slow in the third quarter of 2008, with a decrease in housing construction and reduced demand for sawnwood both domestically and in the export market. The declining demand for logs from the sawmilling sector and the weakening Russian rouble resulted in unprecedented cost reduction of sawlogs and pulpwood in early 2009. Average pine sawlog prices in northwest Russia were down almost 50% from the peak in the fourth quarter of 2007 and were among the lowest in the world in the first quarter of 2009 (graph 4.5.2).

GRAPH 4.5.2

Softwood sawlog prices in Europe and Russia, 2005-2009



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

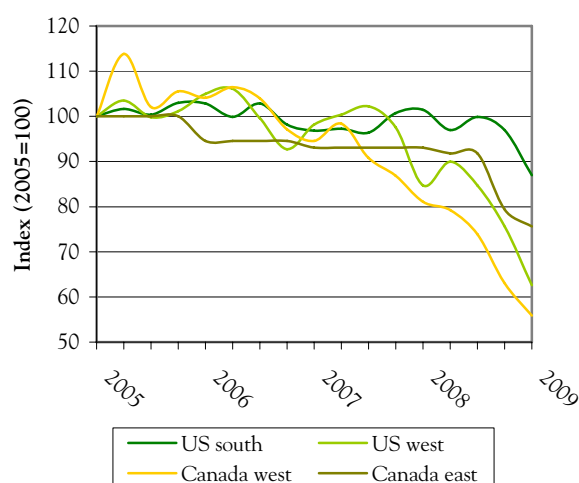
Source: Wood Resource Quarterly, Wood Resources International LLC, 2009.

Sawmills in North America have taken a great deal of market-related downtime in late 2008 and early 2009. Sawnwood production in the US south was 27% lower in the first quarter of 2009 as compared with the same quarter last year, while production in the western US was down 30% over the same period, according to the Western Wood Products Association (WWPA, 2009). As a consequence, log demand was down and sawlog prices have fallen substantially, particularly in the US northwest, where sawlog prices are currently 50% lower than two years ago (graph 4.5.3).

The biggest drop in sawnwood manufacturing in Canada has occurred in British Columbia (B.C.), where production in the first quarter of 2009 was 30% lower than the same quarter in 2008. Eastern Canada had only a 19% reduction in output. The reduced demand for sawlogs in B.C. has pushed log prices down to levels not seen in over 15 years.

GRAPH 4.5.3

Softwood sawlog prices in North America, 2005-2009



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

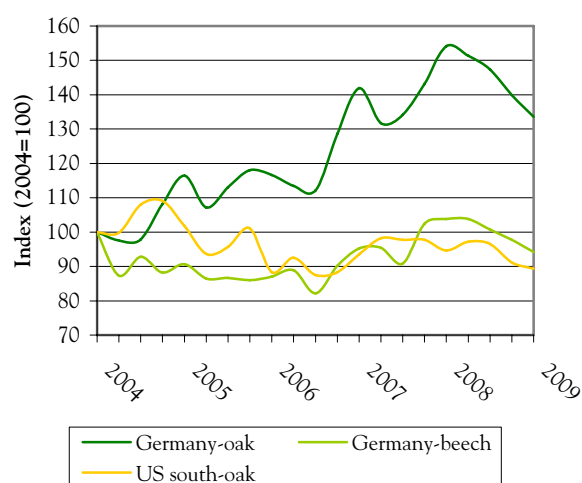
Source: Wood Resource Quarterly, Wood Resources International LLC, 2009.

4.5.2 Hardwood sawlog prices

Hardwood sawlog prices have followed the same trend as softwood sawlogs, although the downward movement has been less steep (graph 4.5.4). With unemployment on the rise, housing sales in decline and the future global economy uncertain, many consumers have put on hold remodelling and purchases of consumer goods, including furniture. This has resulted in reduced production of sawn hardwood, and declining log prices have followed. Many hardwood sawmills in Europe have reduced operating rates and there are expectations of expanded downtime during the summer months. Demand and prices for oak and beech sawnwood have weakened during 2009, not only in Europe but also in export markets in Asia and Africa. The slow markets for hardwood are expected to last, with no foreseeable increase in hardwood sawlog prices for the short term.

In the US, sawn hardwood prices in the first quarter of 2009 fell about 13% from a year ago and many sawmills have been struggling to find buyers for their products. As a consequence of weak demand, oak sawlog prices fell over 10% in 12 months and this trend will most likely continue in the second half of 2009.

GRAPH 4.5.4
Hardwood sawlog prices, 2004-2009



Note: Price index is based on prices in local currencies

Sources: Timber-Mart South, ZMP and EUWID, 2009.

4.5.3 Pulpwood prices

The pulp industry has been able to reduce production costs in 2008 and 2009. Wood costs, the largest cost component when producing wood pulp, have fallen substantially (in US dollar terms) in all regions of the UNECE the past year. The biggest reductions have occurred in western North America and the Nordic countries. The Global Average Wood Fiber Price Indices recorded their second sharpest quarterly decline since 1995 during the fourth quarter of 2008. The Indices are volume-weighted averages of delivered wood-fibre prices for the pulp industry in 17 regions worldwide. These regions, together, account for 85-90% of the world's wood-based pulp production capacity.

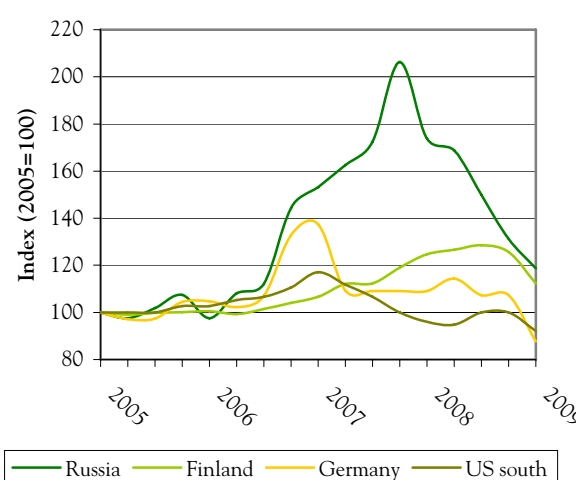
In the first quarter of 2009, the Global Average Conifer Wood Fiber Index (GACWF) was \$89.00/odmt (oven-dry metric ton), which was down 19% from a year earlier. The reduction was mainly the result of substantial price declines, as measured in the local currencies, in Finland, Germany, Russia and the western US. The Global Average Non-conifer Wood Fiber Index (GANCWF) fell 13% over 12 months, reaching \$91.99/odmt in the first quarter of 2009, the lowest level since early 2007. The largest declines, as measured in local currencies, occurred in Finland, Germany, France and Japan, while prices in Brazil, Chile, Indonesia and Australia have been fairly stable.

During the past two decades, global wood fibre prices were declining during most of the 1990's and early 2000, followed by a substantial increase from 2002 to 2008, according to Wood Resource Quarterly. Wood costs reached record levels in early 2008, but then fell rapidly for 12 months. The major drivers of wood-fibre prices

have been market pulp prices and the strength of the US dollar. The recent decline is most likely going to be temporary, and global wood costs should slowly increase again later this year or in early 2010 if the economy recovers soon.

Pulpwood prices have fallen substantially in practically all markets in North America and Europe in 2008 and 2009, both in the local currencies and in US dollars (graph 4.5.5).

GRAPH 4.5.5
Softwood pulplog prices in Europe and North America, 2005-2009



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

Source: Wood Resource Quarterly, Wood Resources International LLC, 2009.

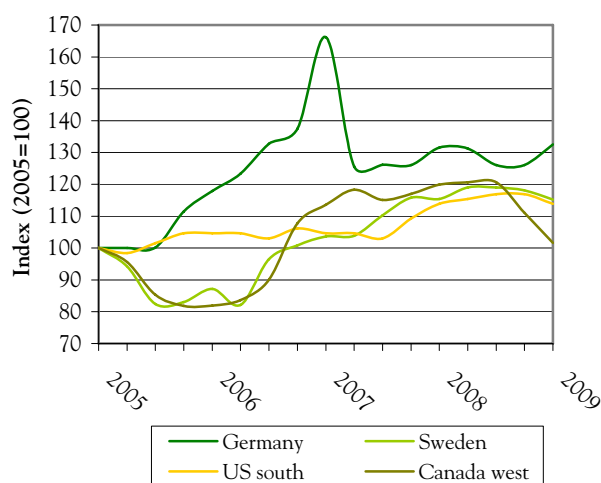
In the US south, wood costs have been surprisingly stable during the past few years, but even in this region wood fibre prices started to slide with the decreased demand. The largest declines in Europe occurred in Sweden, Finland, France and Germany, where softwood and hardwood prices were down 10-20% from the first quarter of 2008 through the first quarter of 2009. Pulpwood prices in Sweden have fallen 32% in 12 months, in US dollar terms, and prices were down to the same level as in 2006. Despite the sharp price decline, Swedish pulpmills still have some of the highest wood fibre costs in the world. In the first quarter, only eastern Canada, Norway and Finland had higher softwood pulpwood prices. Had it not been for a strong market for energy wood, it is likely that the price fall of smaller logs and wood chips would have been even steeper.

It is interesting to note that wood chip prices have not fallen as much in Europe and North America as have prices for pulplogs and sawlogs. In Germany, wood chip prices have actually gone up and in the first quarter of 2009 were at their highest level in two years, according to

the Wood Resource Quarterly (graph 4.5.6). This development can partly be explained by the increasing competition from the energy sector. The expanding wood pellet industry in Europe is gradually relying more on pulpwood and wood chips for its raw-material needs, as the supply of lower-cost sawdust cannot meet the rapid rise in demand for wood fibre in pellets production.

GRAPH 4.5.6

Softwood wood chip prices in Europe and North America, 2005-2009



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

Source: Wood Resource Quarterly, Wood Resources International LLC, 2009.

The increased demand for biomass from the energy sector has not only had an impact on prices of residual chips from sawmills (wood chips, sawdust and shavings) but also on small-diameter logs, which have increasingly been utilized for energy generation. These developments have been particularly prominent in Germany and Sweden this past year. In Germany, prices for sawdust, wood chips and hardwood logs converged during 2008 and 2009, and were in the first quarter practically the same (measured in dry tons), as reported in the Wood Resource Quarterly.

An interesting development is under way in Sweden, where increasing volumes of smaller logs that typically would go to pulp mills have been sold to energy plants in central and southern Sweden. With the demand and prices for pulpwood being in decline and the consumption of “energy wood” steadily increasing, competition for smaller logs has tightened in some markets. One forest landowner association reported that approximately 5% of its “pulpwood” harvest would be sold to local energy plants this year. The rise in demand for forest biomass, including branches, stumps and tops will encourage more intensive management approaches

with higher utilization of forest resources not only in Sweden but in the rest of Europe as well. (Also see chapter 9 on wood energy.)

With the energy sector emerging as a new and aggressive market player, floor prices for wood chips and pulplogs are not expected to ever return to the low levels of the late 1990’s again. The increased competition for raw material between the biomass sector, the composite board manufacturers and the pulp industry will result in relatively high fibre costs, even in weak markets for forest products in the future. The recent evolution of the wood raw material market in Europe is not unique to this continent but can be expected to take place in North America as well in the coming years.

Wood raw material costs for sawmills and pulp mills have declined considerably for most countries in the UNECE region during 2008 and 2009. This is good news for the forest industry but less positive for landowners. The downward price trend is not likely to continue much longer, but rather to bottom out during the second and third quarter of the year and slowly start increasing in late 2009 and in 2010.

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Chapter 5

Global financial collapse impacts all major regions:

Sawn softwood markets, 2008-2009²⁴

Highlights

- The global economic and financial crisis negatively affected sawn softwood markets in all UNECE subregions in 2008 and 2009 as demand fell sharply, creating weak prices, lower production and devastating effects on the sawnwood industry.
- An unprecedented reduction of over 75% in United States housing starts between 2005 and those estimated for 2009 had a drastic impact on the North American sawmilling industry output and trade, as well as on sawnwood prices, in 2008 and the first half of 2009.
- The current US housing market collapse has caused half of the North American sawmill capacity to temporarily curtail production or close in order to accommodate much lower demand levels that were evident near the bottom of the market cycle in early 2009.
- In line with the weak performance of the global economy, the European softwood sawmilling industry also developed negatively in terms of production volumes, prices and demand in 2008 and early 2009.
- Germany remained the leading European producer despite a significant decline in 2008; however, Sweden's sawmill industry was able to gain a competitive edge on major UNECE and non-UNECE export markets against the background of the Swedish krona's lower value.
- In 2008, European sawmills were trapped between weak market demand and an oversupply of finished goods, while log prices remained high – frequently resulting in weak profitability for mills.
- Russian sawnwood exports decreased 11.3%, as uncertainty from the log export tax schedule and the global financial crisis had negative impacts on sawmills despite projected increases in domestic consumption levels.
- North American output fell sharply by 18.8% to 89.9 million m³ in 2008, mirroring the 20.0% decline in demand, with the devastating supply effects felt almost evenly in both the US and Canada.
- In mid-2009 there was a significant oversupply in virtually all major export markets as sawnwood demand moved lower against a backdrop of many suppliers and low prices.
- The catastrophic market situation in North America and the worsening downturn in Europe continue to present challenges and the outcome will likely include significant industry consolidation, downsizing and other strategic changes.

²⁴ By Dr. Nikolai Burdin, OAO NIPIElesprom, Russian Federation, Mr. Thorsten Leicht and Mr. Mathias Lundt, both from Pöyry Forest Industry Consulting, Germany, and Mr. Russell E. Taylor, International WOOD Markets Group Inc., Canada.

Secretariat introduction

Coordination of this chapter was once again undertaken by Mr. Russell E. Taylor,²⁵ President, International WOOD Markets Group. We thank him for his work in assembling the information and expertise that went into the production of the chapter. He specializes in the North American markets as well as offshore markets. He regularly presents at international forums, including the Timber Committee Market Discussions. He is scheduled to present this chapter at the 2009 Timber Committee Market Discussions in Geneva in October.

The basis for the Russian sawnwood analysis was data presented by Dr. Nikolai Burdin,²⁶ Director, OAO NIPIElesprom, Moscow. He is our statistical correspondent for Russia and provided forecasts for 2009. Dr. Burdin was formerly Chairman of the UNECE Timber Committee and the UNECE/FAO 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.

Returning again to write the Europe subregion analysis are Mr. Thorsten Leicht,²⁷ Senior Consultant, and Mr. Mathias Lundt,²⁸ Analyst, Pöyry Forest Industry Consulting. Mr. Lundt is also scheduled to present this chapter, together with Mr. Taylor, at the Timber Committee Market Discussions. We sincerely appreciate their contributions in this analysis of the sawn softwood market and policy developments.

5.1 Introduction

In 2008, consumption of sawn softwood in the UNECE subregions experienced sharp declines as the ongoing housing market slump in North America, combined with the global economic collapse, impacted all regions (graph 5.1.1). This directly reduced the production of sawn softwood as the ripple effect caused

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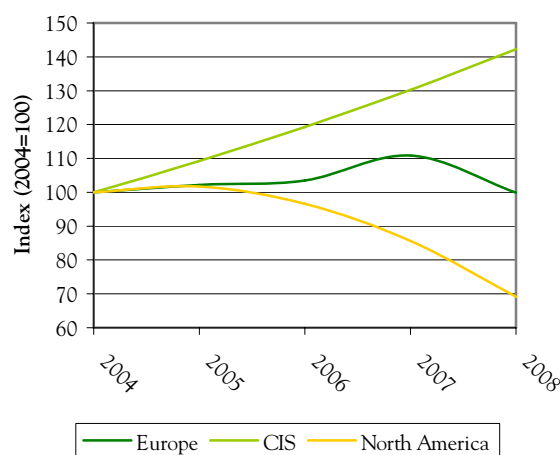
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domestic sales and imports and exports in almost all markets to erode steadily throughout 2008 and into mid-2009. The CIS was possibly an exception, in that CIS consumption was estimated by the secretariat to have increased, albeit more slowly than in recent years, in parallel with construction growth. The real impact of this global market collapse was borne by logging and sawmilling workers as well as forest-industry-dependent communities where ongoing layoffs and curtailments became prevalent. 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, 2004-2008



Note: CIS apparent consumption is a secretariat estimate.

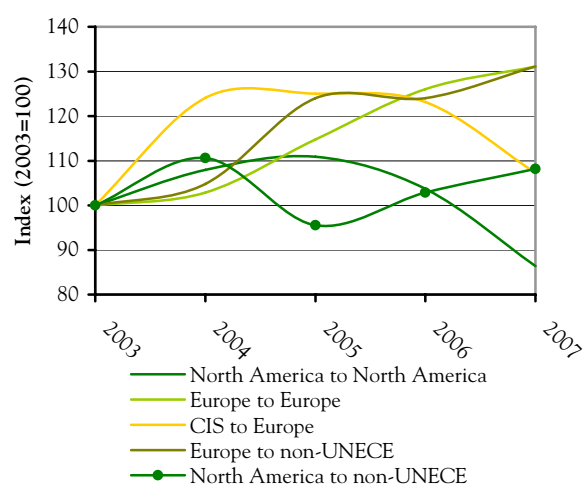
Source: UNECE/FAO TIMBER database, 2009.

In 2008, similar and declining trends in consumption of sawn softwood occurring on each side of the Atlantic were replicated in terms of production. European production declined by 8.2% to reach 103.6 million m³, whereas North American production fell by an even wider margin, or -18.8% to 89.9 million m³. European production exceeded North American output for the first time in 2007 and this gap widened even further in 2008. Notably, the year was characterized by a devastating global financial and economic collapse that eroded demand and prices and negatively affected sawn softwood producers in all UNECE subregions by the end of 2008, with more damage occurring into 2009. Key regional trends include extensive mill curtailments and closures that often were too slow to react to the global oversupply of sawn softwood. This resulted in price levels falling even further in Europe and North America, with sawmill earnings remaining close to zero, and in many subregions substantial losses were incurred.

Sawn softwood trade flows yielded differing trends. Until 2007, North American and European producers explored offshore export markets outside the region (graph 5.1.2). This trend was somewhat arrested by the global recession, which hit in late 2008. Intra-European trade was reasonably solid for most of 2007 but fell off in 2008 due to the weakening demand levels. (See chapter 3 on construction development details.)

GRAPH 5.1.2

Major sawn softwood trade flows in the UNECE region, 2003-2007



Note: Corresponding trade flow table in the electronic annex.

Source: UN Comtrade/EFI, 2009.

5.2 Europe subregion

Commensurate with the weak performance of the global economy, the European softwood sawmilling industry developed negatively in terms of production and consumption in 2008. Following the strong decline in demand for sawn timber at the end of 2007, mills were comparatively slow to adjust their production, resulting in a considerable oversupply and weakened prices and revenues. However, the economic crisis is not the only issue that is affecting the European sawmilling industry at the moment. Whereas the climate change benefits of sustainably managed forests are widely acknowledged, harvested timber processed into wood products are not recognised as carbon stores by the Kyoto Protocol and other emissions trading schemes. If the storage of carbon in wood products was accounted for in the next agreements, this would clearly provide incentives for the European sawmilling industry, promoting the production of wood products and encouraging corresponding trade.

Another challenge the European sawmilling industry faces is the implementation of CE marking for construction products in line with the requirements of

the European Construction Products Directive. As a result of technical problems in some countries, the implementation was recently postponed for three more years so that strength-graded structural timber will not have to be marked prior to September 2012. While some (smaller) sawmills might benefit from the delay, some industry representatives fear that building with wood remains complex compared with other construction materials due to unclear rules for standardization.

In 2008, sawn softwood production in Europe totalled 103.6 million m³. This was a sharp decline – of 8.2 % – from the peaks of 2007 and a production below the 2005 level. Germany remained the leading European producing country, followed by Sweden and Austria, which crowded Finland out of the top three producing countries in 2008. All over Europe, the industry was characterized by curtailments and mill closures caused by the global recession. Because of weak export and domestic markets the majority of European sawmills cut back their shifts in 2008, although the degree of production cuts differed regionally. Together with the lack of demand, sawmills all over Europe have been facing problems with log availability as forest owners reduced their harvest due to comparatively low price levels from weak demand for industrial roundwood. In addition, producers struggled with a lack of demand for sawmill residues from the pulp industry, which further hampered sawmilling operations if the demand shortfall was not offset by incremental demand from bioenergy companies.



Source: M. Fonseca, 2009.

At the same time, European consumption totalled approximately 95.9 million m³, demonstrating an even larger decline of 9.9% (-10.6 million m³) compared with production figures (table 5.2.1). Deteriorating consumption can mainly be attributed to substantial cutbacks in the building and packaging sectors all over Europe. Those countries with a high volume of building activity prior to 2007 faced particularly high economic struggles, and volumes of softwood purchases were very low. Consequently, countries such as Ireland, the UK and Spain ranked among those which showed the highest reduction in consumption (-50.1%, -25.4% and -20.3% respectively). However, other countries, such as Sweden (-1.8 million m³), Finland (-1.6 million m³) and Germany (-1.5 million m³) – where the already low building activity has further plummeted – also recorded major declines in consumption. In contrast to the countries listed above, only a limited number of countries reported a slightly positive development of consumption, with Romania leading the way. However, the apparent consumption has to be qualified. For instance, the Swedish and Finnish sawmill industry had been confronted with historical peaks in stock levels in 2007, raising the apparent consumption in that single year. Against the background of the production curtailments in 2008, it is more than likely that these stock levels have been significantly reduced, reducing the apparent consumption at the same time.

TABLE 5.2.1

Sawn softwood balance in Europe, 2007-2008
(1,000 m³)

	2007	2008	Change %
Production	112 872	103 643	-8.2
Imports	44 290	36 984	-16.5
Exports	50 721	44 757	-11.8
Net trade	6 431	7 772	20.9
Apparent consumption	106 442	95 871	-9.9
of which: EU27			
Production	103 906	95 038	-8.5
Imports	41 126	33 977	-17.4
Exports	49 350	43 282	-12.3
Net trade	8 224	9 305	13.1
Apparent consumption	95 683	85 734	-10.4

Source: UNECE/FAO TIMBER database, 2009.

The European net trade balance had been on an upward path for more than a decade until the trade surplus significantly declined by 34.3% in 2007. This trend reversed in 2008 when the aggregated trade surplus increased by 20.9%, totalling almost 7.9 million m³, primarily due to import volumes eroding even faster than

exports. While intra-European trade still remains of great importance for the European sawmill industry, producers were continuing to explore non-UNECE markets mainly to compensate for the large drop in domestic consumption.

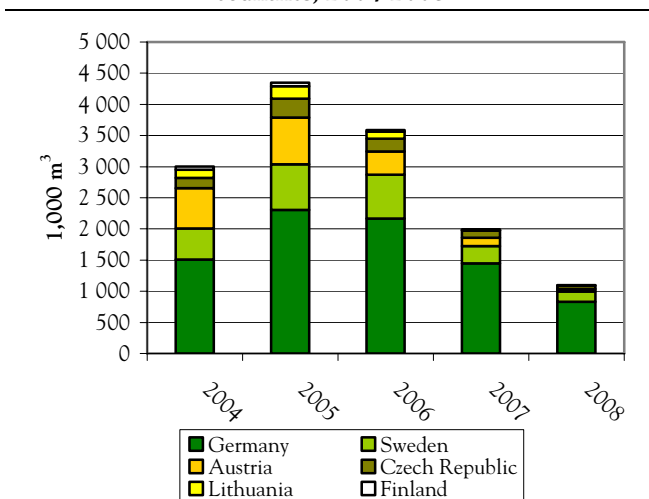
Sweden maintained its leading position as the largest European exporter, recording a growth in exports of 5.8% to almost 12.0 million m³. With the Swedish krona at a more favourable level against the US dollar and the British pound, Swedish producers were able to attract business away from many of their competitors who sell in euros or currencies such as the Latvian lat, which are directly linked to the euro. As a consequence, the Swedish shippers gained a competitive edge in major import markets such as the UK and Japan. In addition, some of the Swedish mills still benefited from the windthrown logs caused by the Per storm, at least in the first half of 2008. Germany was able to retain its position as the number two exporter, although it recorded a decrease of more than 1.5 million m³ (-16.8%) compared with the record year of 2007. This sharp decline in exports can be mainly attributed to the collapse in demand of major export markets such as the US and the UK. While German shippers had been comparatively successful in exploring additional export markets such as the UK in 2007, they lost substantial ground in 2008. Aside from the fierce competition with Swedish mills, the German shippers could no longer benefit from relatively inexpensive log costs, as was the case in 2007 when timber was felled by the Kyrill storm, resulting in cheaper logs. As in 2007, Sweden and Germany were followed in export volumes by Austria and Finland. As most of the other exporting countries also recorded major drops in export volumes that were often even larger, these four countries expanded their leading positions in the market.

European exports to the US continued to decline, which had already started in 2006. Compared with the previous year, European shippers were able to sell 44.8% less, as exports totalled only around 1.1 million m³ (graph 5.2.1). Hence, the collapsing US housing market has had a continuing negative impact on European shipments to North America, which have decreased by almost three quarters from their peak in 2005. German exporters were able to strengthen their leading position, accounting for 75.6% of all European exports to the US. Some of the reasons for their leading export position in the US market include the fulfilment of long-term sales contracts; moreover, the larger export-oriented mills continued to rely on volume to control unit costs. These mills' technical concepts rely extensively on economies of scale, which was a very promising approach, particularly with regard to the US market when the price levels there were adequate. But with prices sliding across the board, these business models are faced with a Hobson's choice: product

diversification eliminates economies of scale, and is often not technically feasible, e.g. because of limitations in the sorting lines. On the other hand, proceeding with their original strategy often meant sustaining losses against the background of weak price levels. As a consequence, many sawmills continued to deliver to the US market to generate cash flow and safeguard liquidity.

GRAPH 5.2.1

Sawn softwood exports to the US from selected European countries, 2004-2008



Source: Foreign Agricultural Service, US Department of Agriculture, 2009.

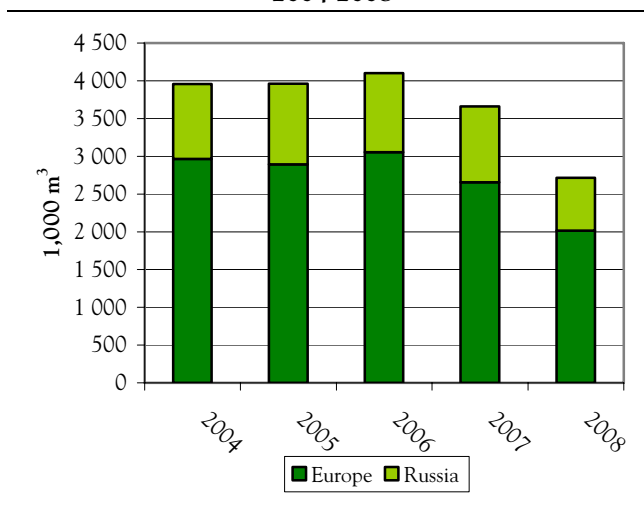
For European shippers, the market situation in Japan also remained unfavourable in 2008. The year was split in two, with weak building activity in the first half of the year, which then remarkably gained momentum in the second half. However, although shipping rates were falling substantially in the latter half of the year, most European exporters could not benefit from this development because, at the same time, the strong euro had a negative effect on exports. Consequently, European exports to Japan in 2008 totalled only 2.0 million m³ – a drop of 600,000 m³ or 24%, compared with the previous year (graph 5.2.2).

Against the background of the difficult market situations in both the US and Japan, European shippers continued to explore other non-UNECE export markets, as margins and demand were often substantially better in North Africa, Asia and the Middle East. In the first half of 2008, large construction programmes stimulated sawn softwood demand and corresponding shipments from European producers, particularly to the Middle East. However, as the landed stocks were relatively high and outpaced the demand, this region was also soon characterized by a severe oversupply situation in the second half of 2008. As a consequence, softwood purchasing

turned into a hand-to-mouth business, as in most other regions of the world. Importers were keeping their inventories as low as possible and delaying their usual orders as they were unsure how the prices might develop in view of the substantial oversupply.

GRAPH 5.2.2

European and Russian sawn softwood exports to Japan, 2004-2008



Source: Japan Ministry of Finance, 2009.

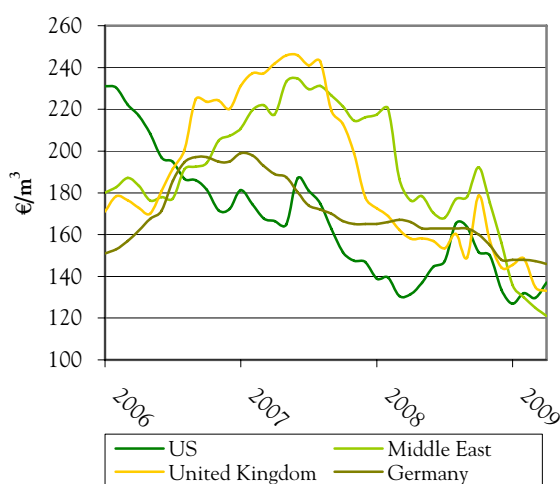
Following several capacity expansions and greenfield sawmill start-ups in central Europe in previous years, the investment activity more or less came to rest during 2008. Current economic conditions have already delayed some of those few projects that were scheduled for 2008-2009. In general, financing timber-processing investment projects has become difficult. One reason for this is that the recently installed sawmill capacities now exceed the original log availability projections, at least in some regions, creating intensified competition for logs. As a consequence, log prices remained comparatively high despite the fact that the global sawn softwood markets were already collapsing. However, some of the newly built large-scale sawmills had to operate and utilize their capacities in order to control unit costs. As these operations were mainly export focused towards the US, they were forced to search for market opportunities for those volumes in Europe as the US housing market collapsed. As in a chain reaction, markets worldwide became unbalanced and price levels significantly decreased (graph 5.2.3).

It still remains to be seen how the European sawmilling industry will be able to cope with the economically challenging months lying ahead. On top of weak demand and insufficient price levels in all major global markets, sawmills now also face complications with regard to necessary credit insurance. Against that

background it is clear that the economic downturn will accelerate the restructuring and consolidation process that is already taking place in the European sawmilling sector. Even if markets should partly recover sooner as a consequence of the global economic stimulus packages, it might take 12-24 months for the sawmill industry to return to the path of growth and profitability. Owing to the high volatility and uncertainty of raw material supply and market demand, the business environment of the producing companies will remain challenging.

GRAPH 5.2.3

Sawn softwood price development in selected regions, 2006-2009



Notes: United States 2x4 Eastern; Middle East: Scandinavian whitewood & pine; United Kingdom: Swedish carcassing; Germany: glulam stock.

Sources: EUWID Wood Products and Panels and Random Lengths, 2009.

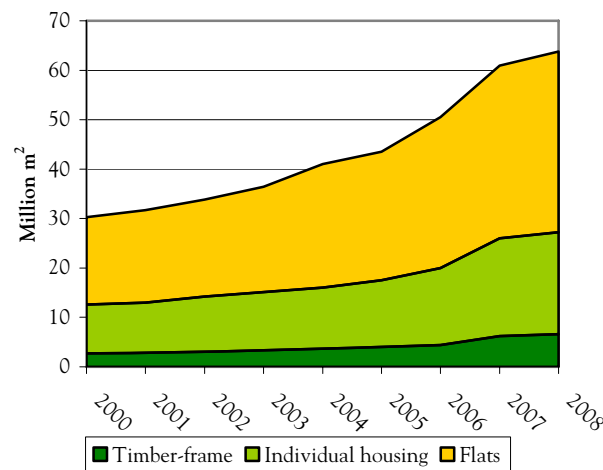
5.3 CIS subregion, focusing on Russia

Apparent sawn softwood consumption has been rising in the CIS, especially in Russia, where positive economic growth has spurred a building boom over the past years (graph 5.3.1). In 2008, total residential construction in Russia exceeded the level of 1990 measured by area (63.8 and 63.1 million m²/year accordingly) for the first time. Timber-frame construction has more than doubled over the last five years, reaching 6.62 million m² in 2008 and accounting for 10.4% of total residential construction (in terms of m²). Therewith, the increase in timber-frame construction clearly outpaced the total residential construction which, in turn, rose by around 75% over the same period. The growth in timber-frame construction over the last decade can be primarily attributed to the boom in the construction of single family housing. While timber-frame apartment building construction is still quite

uncommon in Russia, single-family house construction methods are more established.

GRAPH 5.3.1

Russian residential construction, 1990-2008



Source: Rosstat, 2009.

Exports of sawn softwood dipped in 2008 to 17.2 million m³ after reaching a new record of 19.1 million m³ in 2007 (table 5.3.1). Uncertainty about the proposed increase in export taxes (from 25% to 80%) on Russian sawlogs at the end of 2008 created considerable insecurity for loggers, sawmillers and traders, and this negatively impacted both exports and production in Russia. Coupled with the global economic recession and loss of credit, production collapsed in the fourth quarter of 2008. Apparent consumption is estimated to have risen by 9.2% per annum based on secretariat estimates for the growth rate of Russian residential construction from 2004 to 2008.

TABLE 5.3.1

Sawn softwood balance in CIS, 2007-2008 (1,000 m³)

	2007	2008	Change %
Production	29 178	28 385	-2.7
Imports	1 988	2 000	0.6
Exports	19 127	17 236	-9.9
Net trade	17 138	15 236	-11.1
Apparent consumption	12 040	13 149	9.2

Source: UNECE/FAO TIMBER database and secretariat estimates, 2009.

The official statistics received in May 2009 for Russian production were acknowledged by the statistics correspondent to be substantially underestimated. Analysts outside Russia attribute this to a lack of reporting, predominantly by small- and medium-sized sawmills, although some larger mills may not have included all of their production data by the deadline for

submitting statistical information. As exports have risen faster than recorded production, official statistics have shown falling apparent consumption, whereas the data related to rising housing starts indicates the opposite.

To more accurately portray the positive development of apparent consumption in the CIS, the secretariat used residential construction statistics for Russia. Graph 5.3.1 shows the upturn in construction, and for the past five years, from 2004 to 2008, an average of 9.2% per annum was calculated. 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 rather than the absolute volumes. Readers should also note that the tables in the electronic annex²⁹ contain only official statistics, and no secretariat estimates – therefore discrepancies exist in production and consumption for 2007 and 2008 between this chapter (which again are secretariat estimates) and the electronic annex tables. The secretariat is attempting to resolve this issue with the Russian statistical authorities at Rosstat.



Source: M. Jääskeläinen, 2009.

In 2008 Russian exports of sawn softwood decreased by 11.3%. Sawn softwood production was down by more than 20% for the first five months of 2009 and exports were down 13% due to consequences of the global recession and credit crunch that affected many Russian sawmill companies. For the full year of 2009, preliminary forecasts call for further declines in production of around 20% and a decline of 15% for exports. However, some sawnwood export market gains have been achieved, as in China, for example, where Russian exports increased by 40% in the first five months of 2009 to offset more expensive Russian logs that now incur a 25% export tax.

While Russia's export focus at the beginning of the millennium was on the European markets to a large

extent, Russia has recorded strong increases in its exports to North Africa, the Middle East, Asia, and the other CIS countries over the last few years. Consequently, these regions accounted for the majority of Russian exports in 2008. In particular, China's share of Russian exports rose to 20.6%. Much of this increase was the replacement of log exports by sawn softwood exports against the background of the Russian export duties on roundwood. The major destinations for sawn softwood and their shares of Russia's exports in 2008 were:

- CIS countries 27.4%
- China 20.6%
- Egypt 12.3%
- Other Middle East 9.8%
- Japan 4.0%
- Germany 2.8%
- Baltic countries 1.7%
- Others 21.4%

The Russian sawmilling industry has been partially caught up in working around the proposed increases in the log export tax schedule (with the Government's objective to support more processing in Russia) and the infrastructure impacts from a loss of financing options that caused many companies to shut down starting in late 2008. A number of new sawmill investments that were previously announced in 2008 have now been put on hold until business and financing options improve.

5.4 North America subregion

North American sawn softwood consumption fell sharply for the third consecutive year to 86.6 million m³ in 2008, down 20% from 108.4 million m³ in 2007 and off 32.7% from the record of 128.7 million m³ in 2005. From its peak in early 2006, the US housing market has continued to steadily decline through mid-2009 as a result of the US sub-prime mortgage crisis which, in turn, was a key contributor to the global financial and economic collapse starting in the fourth quarter of 2008. This has had a continuing, negative impact on North American sawn softwood consumption and production, as evidenced by a 21.7 million m³ reduction in consumption and a 20.8 million m³ reduction in production between 2007 and 2008 (table 5.4.1).

²⁹ www.unece.org/trade/timber/docs/fpama/2009/table-list-2009.htm.

TABLE 5.4.1

Sawn softwood balance in North America, 2007-2008
(1,000 m³)

	2007	2008	Change %
Production	110 652	89 853	-18.8
Imports	31 473	21 993	-30.1
Exports	33 767	25 208	-25.3
Net trade	2 294	3 215	40.1
Apparent consumption	108 358	86 638	-20.0

Source: UNECE/FAO TIMBER database, 2009.

The US accounts for up to 85% of North American sawn softwood consumption but in 2008 this level dropped to below 80% due to lower demand in new residential construction and repair and remodelling activity. US apparent consumption was 69.2 million m³ in 2008 – a massive decline of 20.1 million m³ (-22.5%) from 2007. Canadian consumption also declined to 17.4 million m³ (a decrease of 8.5%) as, since sub-prime mortgages were not used to stimulate housing, it was largely spared from the housing market collapse facing the US, though it was later affected by the plunging US economy and the consequences from the glut of home foreclosures³⁰.

New residential housing in the US dropped further in 2008, to reach just 904,000 units and averaged just over 500,000 units on an annualized basis for the first half of 2009³¹. Since housing starts are the key demand driver for wood products, plunging housing starts in the US continue to have a drastic effect on North American sawnwood consumption, given that the US housing starts peaked at 2.2 million in 2005 and where normal housing activity should be about 1.6 million units³².

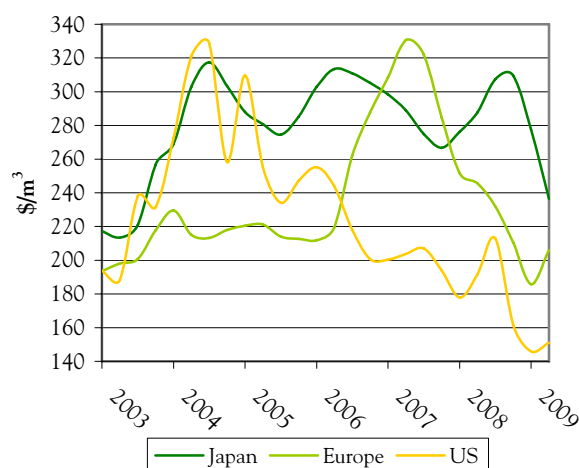
For parts of 2008 and also in the first half of 2009, sawn softwood prices were below break-even levels for many (and, at times, all) commodity sawnwood mills. This resulted in negative earnings for most sawmilling companies throughout all regions of North America and put more pressure on sawmills to curtail production or close. North American sawmill operating rates (sawnwood production as percentage of total capacity) eroded from a more standard rate of about 90% to just 65% in 2008 and were just 50% in early 2009. Canadian mills had slightly lower operating rates than US mills as a result of the strengthening of the Canadian dollar (in 2008) as well as strong US domestic competition after the Canadian dollar weakened markedly (in 2009). It is estimated that over 125 sawmills have permanently closed in North America since the market started to turn downward at the beginning of

2006³³. The only silver lining is that strong sawnwood prices are expected when demand outstrips the supply base (at some point in the next few years), which will no doubt benefit the surviving mills.

With low sawn softwood demand and production, North American sawnwood prices dropped further in 2008 and reached even lower levels in the first quarter of 2009 (graph 5.4.1). Not only have North American structural sawnwood prices in 2009 been at less than half of those in 2005, but these prices were below the total operating cost levels for most sawmills, causing financial losses and ongoing mill closures.³⁴

GRAPH 5.4.1

Sawn softwood price trends in Japan, Europe and US, 2003-2009



Notes: Japan: BC W-SPF 2x4, J-Grade, C&F; Europe: Swedish spruce 47x100mm, C&F; US: BC W-SPF #2 & Better, 2x4, delivered to Chicago.

Source: WOOD Markets Monthly Newsletter, 2009.

North American sawn softwood output slumped again in 2008 to reach 89.9 million m³, an 18.8% decline from the 2007 110.7 million m³. The reductions were fairly evenly distributed between the US (-17.3%) and Canada (-20.5%), with both countries reducing output by 10.4 million m³. Further reductions have already occurred in the first half of 2009, during which output has been substantially lower (by over 20% as compared to the same period in 2008).

US sawn softwood output in 2008 was 49.4 million m³ as opposed to 59.8 million m³ in 2007. All major producing regions of the US had double digit declines in 2008 (as in 2007) as mill closures and curtailments continued to be regular occurrences. The US inland-west (-7.6%) and US south (-12.6%) had the smallest

³⁰ WOOD Markets Monthly International Report.

³¹ US Census Bureau.

³² WOOD Markets Monthly International Report.

³³ Spelter, H.

³⁴ WOOD Markets Monthly International Report.

production decreases in 2008 while the US west coast (-21.1%) and California redwood regions (-36.9%) had the greatest reductions.³⁵ US exports were essentially unchanged after increasing 10% in 2007 as the US dollar strengthened during 2008, eroding its competitiveness. US imports decreased again, by a huge 31% (-9.7 million m³) in 2008 to 21.3 million m³ as compared with 2007, with the greatest impact being felt by European exporters as volumes plummeted by more than 45% (-625,000 m³) and Canadian exports dropped over 30% (-8.1 million m³) to 18.7 million m³.³⁶



Source: H. Bagley, 2009.

Canada's sawn softwood output was lower in 2008 at 40.4 million m³ as opposed to 50.8 million m³ in 2007. Production losses in western Canada (-23%) exceeded those in the rest of Canada (-18%)³⁷. The British Columbia (B.C.) interior region continued with its mountain pine beetle salvage programme, but the low prices in the US caused sawn softwood production to decline by 23.4% to 10.7 million m³ in 2008 from 14.0 million m³ in 2007. Latest estimates indicate that more than 600 million m³ of lodgepole pine trees have been killed by the mountain pine beetle so far out of a total of one billion m³ that is expected to be wiped out by 2017-2020³⁸. This represents about one third of the total volume of the B.C. interior's timber harvesting land base and has now spread into the neighbouring province of Alberta. As the mountain beetle is endemic to western North America, beetle infestations are also being reported in Montana, Colorado and other US states. As the beetle is only killed by extremely cold weather (-40 C), global warming is considered to be the main reason for this massive outbreak and is also considered to be responsible for other insect outbreaks affecting coniferous forests in other parts of North America.

³⁵ WWPA.

³⁶ WOOD Markets Monthly International Report.

³⁷ WOOD Markets Monthly International Report.

³⁸ B.C. Ministry of Forests.

Based on the cost structures of the provincial industries and the strategies of integrated versus independent sawmills, production reductions in eastern Canada were led by the Atlantic region (-33.1%) and the Province of Ontario (-27.6%) in 2008. Conversely, the smallest production declines occurred in the Canada Prairie Province region (-9.2%) and the Province of Quebec (-13.7%)³⁹.

Canadian exporters to the US continue to face an export duty (under the US-Canada Softwood Lumber Agreement signed in 2006, or the SLA) that has remained at its maximum level since early 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. As with European exporters, opportunities in export markets slowed dramatically for North Americans following the start of the global financial crisis and the common quest for offshore markets.

Under a dispute resolution process, in August 2007 a US Government request for arbitration was sent to the London Court of International Arbitration (LCIA) with regard to Canada's application of surge taxes and quota calculations under the SLA, which at that time was less than one year old. The LCIA confirmed that Canada incorrectly applied its calculation to surge taxes and quota volumes for the first six months of 2007 under the new SLA. The LCIA handed down a split decision that exempted B.C. and Alberta, but all other provinces (from Saskatchewan to Quebec, but excluding Atlantic Canada) were held responsible for repaying these duties, totalling US\$54.8 million (approximately CAN\$68 million). A second dispute arising from this decision was the method for paying this Judgement, but the US chose to unilaterally impose an additional 10% tax until the amount was paid off.

One of the few positive developments in the sawmilling business in 2008 was a series of announcements related to capital investments in biofuels, including wood pellets, cellulosic ethanol, bio-diesel and others. The objective of achieving higher revenues from log and sawmill residues was one of the few ways to yield higher margins from the business. This is different from the traditional strategy in which integrated sawmills produce wood chips for pulpmills, and sometimes as a necessity without regard to the real economics of sawmilling. Should pulpmills close, the next best financial option for sawmills may likely be to sell chips and other sawmill residuals to a new generation of biofuel plants.

³⁹ WOOD Markets Monthly International Report.

A number of factors are required before the US housing market will recover, including:

- A reduction in new and existing unsold housing inventories;
- A reduction in the level of housing foreclosures that continue to add to the housing inventory;
- An urgency for housing prices to bottom out in order to add stability to the housing market;
- A positive GDP to stimulate the US economy;
- A fall in the US unemployment rates, which are currently heading towards 10% and have already reached a 25-year high.

However, there are also some positive market and policy developments that might help US housing construction ramp up sooner, such as:

- Record-low mortgage rates have been in effect since the beginning of the first quarter of 2009;
- Housing affordability has improved substantially to its highest level in at least five years due to falling mortgage rates and much lower housing prices;
- The American Recovery and Reinvestment Act of 2009 provides a tax credit of up to \$8,000 for qualified first-time home buyers purchasing a principal residence in 2009;
- The Obama Homeowner Affordability and Stability Plan has the objective of slowing the rate of foreclosures and stabilizing housing prices;
- The Troubled Asset Relief Program buys mortgages and other assets from financial institutions to free up liquidity;
- The Energy-Efficient Home Improvement Tax Credit is a subsidy directed at energy-efficient home improvements.

The outlook for 2009 is for lower North American sawn softwood consumption as a continuing result of the depressed economy and housing starts. An excess of domestic sawmill capacity has created record low sawnwood prices that have closed many mills, to the point where supply and demand seem to be finally achieving a temporary balance by mid-2009 (but still at low prices). With the US housing market expected to make only a modest recovery in 2010, the prospects remain challenging for domestic producers as well as for offshore imports until price levels move higher, to at least break-even levels. Given the housing market and US economy forecasts, a return to more normal sawmilling conditions and business is not expected to occur until 2011.

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Chapter 6

Dramatic downturn in hardwood markets due to global economic crisis: Sawn hardwood markets, 2008-2009⁴⁰

Highlights

- Sawn hardwood production in 2008 across all three UNECE subregions amounted to a total of 42.8 million m³, which marks a decrease of 8.2% over the previous year.
- In line with production, total consumption of sawn hardwood across the UNECE region reached 44.2 million m³ during 2008, falling by 6.1% from the previous year.
- Production of sawn hardwood in Europe fell by 6.8% to a total of 14.3 million m³ in 2008 and this was accounted for by the overall downturn in sawn hardwood demand across Europe, North America and Asia.
- Hardwood flooring production and consumption in Europe decreased significantly last year, marking the first downturn in this sector for 18 years, due mainly to the slowdown in the housing sector.
- Despite an overall downturn in production and consumption, oak continued to dominate the global sawn hardwood market, with European and American white oak accounting for nearly 58% of all European hardwood flooring production.
- In 2008, production of sawn hardwood in North America reached a total volume of 24.6 million m³, having fallen by 9.1% from the previous year, due to weak demand in both the US domestic and export markets.
- The credit crunch, slow construction activity, reduced consumer confidence and spending across the United States and Europe, are likely to have a negative impact on demand for, and therefore on production of, sawn hardwoods for at least the next six to twelve months.
- The slow pace of certification in some areas, combined with increasing concern over the percentage of illegal traded timber, has led to a realization that the effectiveness of public- and private-sector green procurement policies can be increased by ensuring that uncertified wood does not derive from illegal forest operations.
- While the US has recently passed legislation making it unlawful to import or trade in timber and its derivatives harvested in contravention of the laws of any country, the European Union is currently reviewing a proposal for legislation that would impose a requirement to implement a due diligence system to minimize the risk of illegal wood entering supply chains.

⁴⁰ By Mr. Roderick Wiles, Broadleaf Consulting, UK.

Secretariat introduction

The *Forest Products Annual Market Review* profits from the detailed knowledge of Mr. Roderick Wiles of Broadleaf Consulting⁴¹. Mr. Wiles was again selected by the European Office of the American Hardwood Export Council to analyse sawn hardwood market developments in the UNECE region. He is a renowned specialist on the topic and has gained a wealth of information from years of experience working as a specialist in hardwood marketing. Mr. Wiles' research and authorship was supported by Mr. Rupert Oliver⁴², Forest Industries Intelligence Limited, and Mr. David Venables⁴³, European Director, American Hardwood Export Council (AHEC). Mr. Wiles, Mr. Oliver and Mr. Venables have all been working with the FPAMR for a number of years and have also presented their analyses at the Timber Committee Market Discussions. Furthermore, they are all members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

This chapter focuses on temperate hardwoods, although some passages also refer to the competition with tropical hardwoods. More information on tropical hardwoods can be found in chapter 13 of the *Review*.

6.1 Introduction

As with most sectors, the sawn hardwood industry across the entire UNECE region has been dramatically affected by the global economic downturn. In the United States, one can even go so far as to say that the sawn hardwood industry is in crisis, with production and sales facilities closing practically every week through the latter part of 2008 and into 2009. In Europe, both production and consumption have also, but to a lesser extent, been affected by the general economic downturn and by reduced consumer spending. Market commentators across North America and Europe talk of a 40% reduction in demand for sawn hardwoods, or a 40% contraction in overall market size.

Until mid-2008, China, Viet Nam and neighbouring South-east Asian countries had maintained their expansion of production and exports of hardwood products

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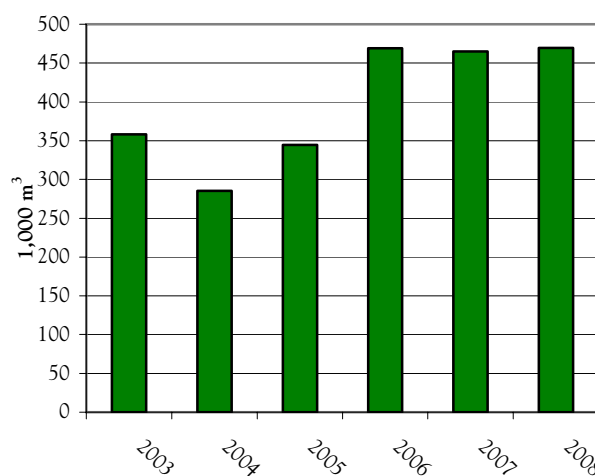
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other than furniture, such as panels, veneer, flooring and even sawn lumber, which created a significant diversion of hardwood raw materials (both saw and veneer logs) away from traditional processors, and had increased competition in export markets for traditional sawn hardwood suppliers. Since then, however, China's influence over the sawn hardwood industry in the UNECE region has also been affected by the global economic situation and the recession in North America and Europe. As both a consumer and producer of sawn hardwoods and, therefore, as a buyer of hardwood logs, China's position started to weaken in 2008 and continues to do so this year. Recent figures indicated that China exported some 470,000 m³ of sawn hardwood in 2008, which, although still up by 0.9% over 2007, signals a levelling off, rather than a major increase (graph 6.1.1). This is supported by January to May 2009 sawn hardwood export figures for China, which show a decrease of 20.0% as compared with the same five months in 2008, with the total volume down to 159,000 m³. Having reached record levels in 2007, last year saw China's imports of hardwood logs begin to decrease, falling by as much as 20.6% by the end of the year to a total of 11.0 million m³ (graph 6.1.2). This decrease has continued through the first five months of this year, with the total volume imported falling by 46.4%.

GRAPH 6.1.1

Chinese exports of sawn hardwood, 2003-2008



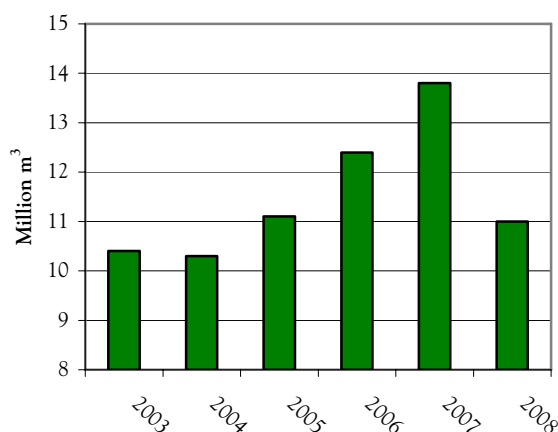
Source: Global Trade Atlas, 2009.

Overall production of sawn hardwood across the UNECE region amounted to a total of 42.8 million m³, which marks a decrease of 8.2% over the previous year. This overall decrease was spread across all three subregions, with production in Europe down by 6.8%, in the Commonwealth of Independent States (CIS) down by 7.5% and in North America down by 9.1%. While in previous years it has been possible to highlight the

growing importance of European hardwood resources and sawn temperate hardwoods in general, all producers and suppliers of sawn hardwood in the UNECE region have been affected to a lesser or greater extent by the slowdown in overall demand.

GRAPH 6.1.2

Chinese imports of hardwood logs, 2003-2008



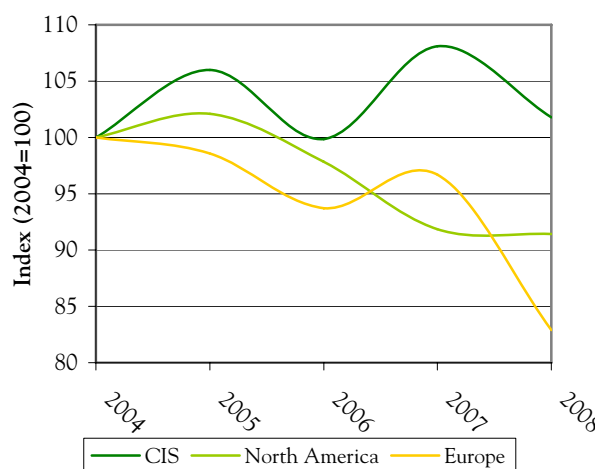
Source: Global Trade Atlas, 2009.

In line with production, total apparent consumption of sawn hardwood across the UNECE amounted to 44.2 million m³ in 2008 and signalled a decrease of 6.1% over the previous year. Consumption was down in all three UNECE subregions, with the greatest losses being seen in North America. Significant contraction in the US furniture sector, which accelerated through 2008, coupled with low housing starts and a difficult mortgage market, has heavily influenced American sawn hardwood production and imports. At the same time, however, sawn hardwood has become increasingly important to the European building sector, as architects and designers are becoming more willing to experiment with alternative materials despite a loss of consumption in the region's furniture industries. This has helped the overall consumption level remain somewhat more stable (graph 6.1.3).

According to the data available for 2007, some significant changes were recorded in sawn hardwood trade flows in the UNECE region (graph 6.1.4). North American buying of North American hardwoods saw a decrease, while European buying of European hardwoods greatly increased during the same period. At the same time, European buying of sawn hardwoods from outside the UNECE region also increased and this would have been mainly accounted for by a renewed interest in tropical hardwoods, as well as buying of temperate sawn hardwoods, which had been processed in Asia.

GRAPH 6.1.3

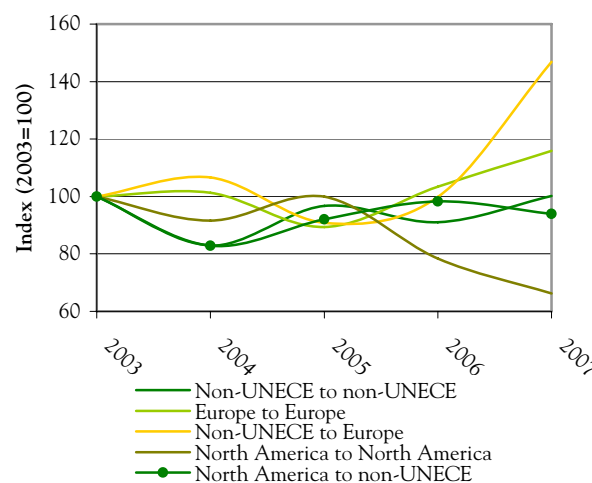
Consumption of sawn hardwood in the UNECE region, 2004-2008



Source: UNECE/FAO TIMBER database, 2009.

GRAPH 6.1.4

Major sawn hardwood trade flows in the UNECE region, 2003-2007



Note: Corresponding trade flow table in the electronic annex.

Source: UN Comtrade/EFI, 2009.

6.2 Europe subregion

According to available data, sawn hardwood production in Europe reached 14.3 million m³ in 2008 and marked a decrease of 6.8% over the previous year (table 6.2.1). Of this total, production in the EU accounted for 10.5 million m³, suffering a loss of 8.6% over 2007. None of Europe's major sawn hardwood producers saw increases in production last year, with the heaviest losses being seen in Spain, Slovakia and Romania. Production in Germany and France held up better than in other markets in 2008, falling by 4.1% and

3.3% respectively, but it is widely expected that their production will be considerably less in 2009 as demand inside and outside of Europe is reduced. The European Organisation of the Sawmill Industry (EOS) reports that sawmilling companies have been forced to respond to the changing situation rapidly and have accordingly taken all measures within their means. Production cuts and mill closures were unavoidable in 2008 and have had a negative impact on employment. Initial announcements about insolvencies have been made recently, and further restructuring is expected.

Sawn hardwood production in Europe, which focuses on beech and oak, has been widely affected by an overall reduction in demand, as well as by the continuing export of European hardwood logs to China, which has reduced available raw material for the European sawmilling sector. However, in 2008, shipments of French and German hardwood logs to China showed a marked decrease of 41.7% as compared with the previous year, and reached a total of 397,886 m³, of which 253,980 m³ were accounted for by beech and 112,322 m³ by oak. This decrease is mainly due to reduced demand for furniture in Europe and North America, which has relied heavily on Chinese manufacturing in recent years.



Source: F. Steierer, 2009.

TABLE 6.2.1

Production of sawn hardwood in Europe, 2004-2008
(1,000 m³)

	2007	2008	Change %
Europe	15 373	14 331	-6.8
of which:			
Turkey	2 373	2 221	-6.4
France	1 893	1 830	-3.3
Romania	1 984	1 763	-11.1
Germany	1 141	1 094	-4.1
Spain	1 152	847	-26.5
Slovakia	909	779	-14.3
EU27	11 441	10 462	-8.6

Source: UNECE/FAO TIMBER database, 2009.

Turkey remained the largest producer of sawn hardwood in Europe, with production reaching 2.2 million m³ in 2008. This volume is very significant and has a marked impact on the statistics for the region as a whole. However, the reality is that most of the hardwood lumber produced in Turkey is from low grade domestic forests, as well as small dimension plantation logs, with only a fractional percentage of output earmarked for export. Most of what is produced is for the pallet and packaging industry.

According to the available data, exports of sawn hardwood from Europe decreased by 8.8% from the previous year to 6.2 million m³ in 2008 (table 6.2.2).

TABLE 6.2.2

Sawn hardwood balance in Europe, 2007-2008
(1,000 m³)

	2007	2008	Change %
Production	15 373	14 331	-6.8
Imports	9 441	7 316	-22.5
Exports	6 838	6 239	-8.8
Net trade	-2 603	-1 077	...
Apparent consumption	17 977	15 407	-14.3
of which: EU27			
Production	11 441	10 462	-8.6
Imports	8 838	6 716	-24.0
Exports	5 477	5 147	-6.0
Net trade	-3 361	-1 569	...
Apparent consumption	14 803	12 031	-18.7

Source: UNECE/FAO TIMBER database, 2009.

Total apparent consumption of sawn hardwood in Europe shrank by 14.3% in 2008, demonstrating the impact of the global economic crisis on the European market. On the whole, very bleak market conditions are

reported from European hardwood traders and end users and there are reports of large-scale closures of furniture and joinery companies in the latter part of 2008 and beginning of 2009, with those still operating now only working short shifts. Furthermore, some of these victims of the economic crisis may remain closed, with some household names disappearing for good. Lack of credit as a result of the restricted lending policies of the banks has added to the difficulties created by declining consumption.

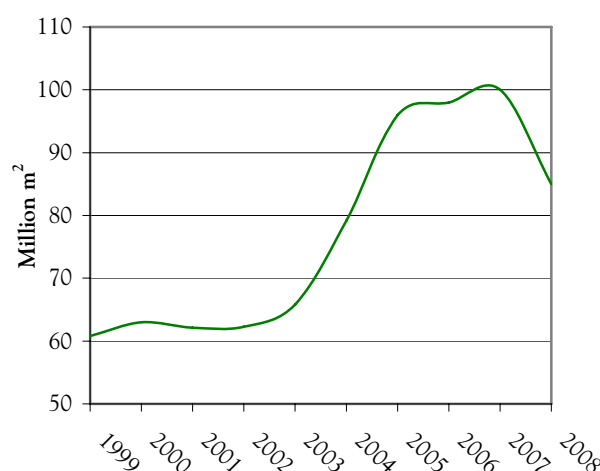
Many European wood-based companies are finding it difficult to obtain credit insurance. The absence of such insurance, designed to protect businesses from the risk of customers defaulting on payments, effectively makes it too risky for companies to provide goods on credit. The result is that more companies are insisting on trading on a cash-only basis or introducing much more restrictive payment terms, further discouraging consumption.

While overall consumption of sawn hardwood in Europe has been greatly affected by the global economic downturn, this has been especially evident in the hardwood flooring sector. In 2008, European hardwood flooring production reached 84.7 million m², which marks a decrease of 15.6% over the previous year. This is also the first time that year-on-year European hardwood flooring production decreased since 1991 (graph 6.2.2). As reported by the European Federation of the Parquet Industry (FEP), this development is not unexpected, as the industry was confronted with a steady slowdown in business throughout the past year. The weakening performance of the largest markets for hardwood flooring as a consequence of the global economic crisis, the unprecedented turmoil in the financial sector and the sharp drop in European construction activity, are crucial factors contributing to general market decline.

While overall consumption of sawn hardwood was down in Europe in 2008, data from the FEP for species used in flooring production, as well as trade data and general market intelligence, show that oak (European and, to a lesser extent, American white) continued to remain fashionable and dominated overall sales of sawn hardwood (graph 6.2.3). The FEP data indicate that oak accounted for nearly 58% of all European hardwood flooring production. At the same time, there are no signs of a resurgence of interest in Europe's principal hardwood species – beech.

GRAPH 6.2.2

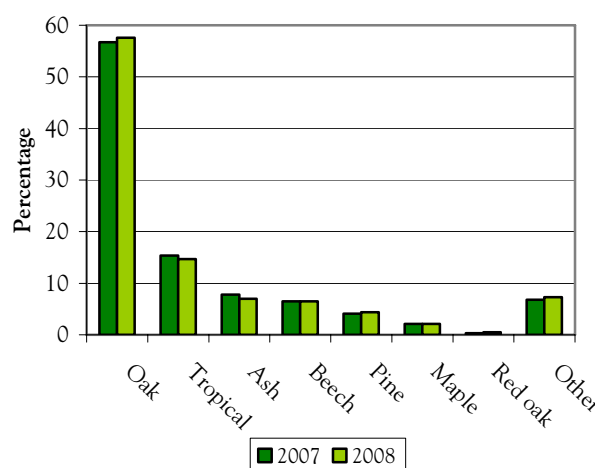
European hardwood flooring production, 1999-2008



Source: European Federation of the Parquet Industry, 2009.

GRAPH 6.2.3

European hardwood flooring species, 2007-2008



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

Source: European Federation of the Parquet Industry, 2009.

6.3 North America subregion

In 2008, production of sawn hardwood in North America reached a total volume of 24.6 million m³, having fallen by 9.1% from the previous year (table 6.3.1). While there was a decrease of 20.7% in Canadian production, the overall decrease was predominantly in the US, which made up some 95.5% of all North American production (and some 54.8% of total UNECE production). Dramatically more pronounced than during the past few years, the US hardwood industry faced recession during 2008, undergoing major restructuring and contraction. Numerous hardwood production facilities and sales organizations, as well as many sawmills,

faced buyouts or closures. The credit crisis and resultant substantial downturn in the US housing market, together with reduced consumer spending, compounded the already declining demand for sawn hardwood in the US domestic furniture and flooring sectors.

One particularly significant effect of reduced US domestic demand for sawn hardwood during 2008 was the decline in demand for red oak, which traditionally has been the mainstay of the industry. With overall demand for hardwoods down, red oak was especially affected due to its majority market share in end-user sectors. This decline can also be attributed to a change in fashion, with white oak and other, often imported, species becoming preferable. With almost all mills producing red oak and relying heavily upon this core business, many had to make a sudden shift to alternative species, to reduce production, or even to shut down altogether. During 2008, survival, rather than simply profitability, became the key business strategy across the US sawn hardwood industry. Numerous businesses attempted to diversify away from traditional species, products and markets. Whilst some have, so far, succeeded in maintaining profitability by promoting niche products for niche markets or by shifting more focus to exports, others have managed to increase cash flow by selling production facilities or by exporting logs rather than sawnwood.



Source: M. Fonseca, 2009.

In recent years, a major factor reducing the throughput of logs to mills has been the overall increase in exports of US hardwood logs. While exports of logs to Canada have, historically, been high, this trade started 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, marking a minor decrease of 2.2% from 2007. However, lower demand for sawn hardwood and for veneers has also had an impact on this trade, with reductions in exports of US hardwood logs to the main markets in Asia and Europe. Exports to East Asia (China, Hong Kong SAR, Japan, Republic of Korea and Taiwan,

Province of China) reached a total of 517,984 m³ in 2008 (361,060 m³ of which went to China) and this marked a decrease of 16.7% over the previous year. At the same time, exports of US hardwood logs to the EU reached a volume of 418,613 m³ last year, falling by 7.6% over 2007. At the same time, US hardwood log exports to the Middle East, South-east Asia and India increased last year.

TABLE 6.3.1

Sawn hardwood balance in North America, 2007-2008
(1,000 m³)

	2007	2008	Change %
Production	27 009	24 565	-9.1
Imports	2 330	1 977	-15.1
Exports	3 551	2 713	-23.6
Net trade	1 221	736	-39.7
Apparent consumption	25 788	23 829	-7.6

Source: UNECE/FAO TIMBER database, 2009.

With the decline in US domestic demand, export markets for North American sawn hardwoods have increased in importance in recent years, however, in 2008, demand in export markets also began to decrease, making it much harder for North American shippers to find markets for their products. Overall, 2.7 million m³ of North American sawn hardwood were exported in 2008 and this marks a 23.6% decrease in exports on the previous year. With the exceptions of the Middle East, North Africa, India and Indonesia, all of the traditional US major markets decreased their purchases of US sawn hardwood in 2008, with Canada down by 16.6% to 696,161 m³, the EU-27 down by 30.0% to 452,577 m³, China down by 14.9% to 424,973 m³ and Mexico down by 15.5% to 200,140 m³. At the same time, shipments to South-east Asia (Viet Nam, Thailand, Malaysia, Indonesia, Philippines, Singapore, Brunei Darussalam, Myanmar and Cambodia) showed a less severe decline, with total exports down by 8.8% to 251,950 m³. This can be accounted for by a 1.4% decrease in shipments to the region's largest market, Viet Nam (158,141 m³) and by an 8.1% increase in shipments to Indonesia. The major downturn in shipments to China and the less significant decline in exports to South-east Asia are indicative of the ways in which manufacturing has been continuing to shift to locations where labour is most competitive, such as Viet Nam. Increases in exports to Indonesia, as well as to India, the Middle East and North Africa can be accounted for by the relatively low exposure of these markets to the global economic crisis due to less reliance on international trade.



Source: T. Pahkasalo, 2009.

Despite the downturn in both North American production and exports of sawn hardwood, the relative importance of export markets remained high in 2008, with 11.0% of the total volume of sawn hardwood produced being shipped overseas. Although significantly higher than a decade ago, when they accounted for just 7.5% of total production, exports were lower than in 2006, when they reached an all time high at 11.4% of production.

Not unexpectedly, considering US economic contraction, imports of sawn hardwood into the US fell by a substantial 30.5% to 852,000 m³ in 2008, as compared to the previous year, and having reached a peak of 4.0 million m³ in 2004. Significant decreases were seen in imports from Europe and South America. The former is mainly accounted for by beech from Germany, while the latter is made up of numerous tropical hardwood species for the US flooring sector.

6.4 CIS subregion

During 2008, total sawn hardwood production in the CIS subregion dropped to 3.92 million m³ (7.5% drop over the previous year), marking this the first decline in 15 years (table 6.4.1). The figure equated to 9.1% of production in the UNECE region as a whole, which remains unchanged from the previous year. Production in the Russian Federation accounted for some 2.6 million m³ of total reported production in the CIS last year. However, the total production figure is far from accurate, due to unreported 2008 data from Belarus and Ukraine. Market intelligence would suggest that, based on trends and analysis from market commentators in Europe and elsewhere, production of sawn hardwood in both the Ukraine and Belarus has almost certainly increased in recent years and was probably in the region of 550,000 to 650,000 m³ in each market last year.

Until 2008, sawn hardwood production in the Russian Federation was increasing steadily year-on-year, while still reflecting a fraction of its eventual potential and remaining low in relation to its hardwood resource. Indeed, it has been developing in line with efforts to boost overall wood processing in Russia, but the industry has not been evolving rapidly. However, reduced demand in export markets has also affected Russia, halting the effects of the significant government incentives and both public and private investment in the sector which have been introduced in recent years.

While 2007 was a pivotal year for the Russian wood sector, with the introduction of the first of a three-phase log export tax, reduced global demand for sawn hardwood in 2008 seems to have limited any increase in Russian sawn hardwood production. The statistics show that exports of hardwood logs from Russia dropped by 7.3% in 2007 to 12.9 million m³ and then again by 8.6% to 11.8 million m³. Russia's (declared) exports of hardwood logs to China also dropped by 26.8% last year to a total of 3.3 million m³. This change would seem to suggest that the log export tariff may well be working to some degree, but it is also an indication of how demand for hardwood logs, such as sawn hardwood, was down in general last year.

TABLE 6.4.1

Sawn hardwood balance in CIS, 2007-2008
(1,000 m³)

	2007	2008	Change %
Production	4 233	3 915	-7.5
Imports	119	120	0.6
Exports	1 002	878	-12.4
Net trade	883	759	-14.1
Apparent consumption	3 350	3 157	-5.8

Source: UNECE/FAO TIMBER database, 2009.

Once again, reduced global demand for sawn hardwood has had a negative effect on any developments within Russia's own domestic wood-processing sector. Exports of Russian sawn hardwood, which showed a marginal increase in 2007, decreased once again in 2008, falling by as much as 25.2% to 382,000 m³. While this drop is almost certainly a direct result of a decrease in global demand, it remains unclear whether Russia will ever become a significant player in the future trade in sawn hardwoods around the world, despite having significant resources.

Demand for sawn hardwoods from overseas in 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 in the CIS subregion were low once again last year, amounting to

an estimated 120,000 m³ in total. Although updated statistics have not yet been supplied, the main sawn hardwood importers in the CIS last year were Kazakhstan and Tajikistan. Much of their import volume would have been intra-CIS and would have come from Russia. However, there was a slight increase in Russian imports of sawn hardwoods in 2008, with the statistics showing a rise of 40.0% to 14,000 m³. This is likely to have been stimulated by increased activity in the construction sector.

6.5 The 2009 sawn hardwood market

6.5.1 United States

2008 was a year of dramatic adjustment for almost all sectors and regions of the UNECE sawn hardwood market and, so far, 2009 has continued to present further challenges and changes. Last year, the US sawn hardwood industry faced some very tough challenges and these have continued through the first half of this year. Loggers, sawmillers, traders and end-users have all been hit by the recession. Housing markets remain depressed—US housing starts in May 2009 were 47.0% below the level achieved in May of last year, while sales of new, single-family homes were the lowest since October 1991—remodelling activity has slowed, and commercial business is not enough to keep the entire industry occupied. Consequently, a rebound in demand for cabinets, flooring, furniture and millwork is not likely until at least the latter part of this year. 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. Although fuel prices did ease through the first part of 2009, this seems to have been only temporary and frequently suppliers did not pass on their lower production costs. In addition, flatbed and oceangoing vessel space shortages have crippled cash flow and caused order cancellations, while bankruptcies are hurting hardwood producers and wood-product manufacturers alike.

Some market commentators are predicting that relief from this difficult scenario appears to be around six months away and that US sawn hardwood producers and sales organizations should operate under the assumption that demand will not show real improvement until the final quarter of 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 2009 will be around 20% below the level achieved in 2008.

One strategy adopted by some US companies through recent years has been to sell hardwood sawlogs to overseas markets. This has been one way of ensuring a certain level of cash flow and, since domestic demand has tailed off, this has also been a way of avoiding having to find markets for

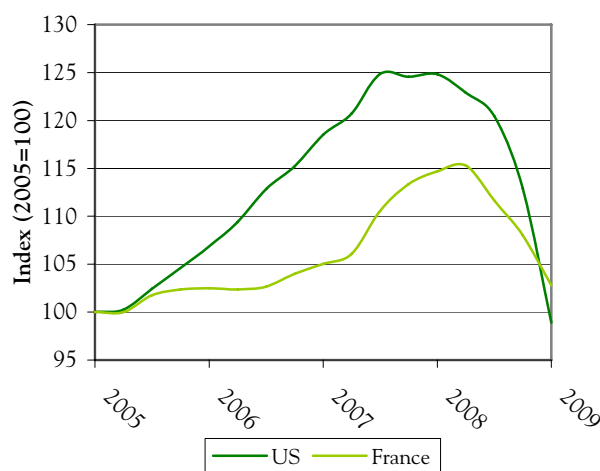
the lower grades of sawn lumber, which they cannot export. However, demand for sawlogs in export markets has also been widely affected by the global downturn, with the consequence that even this strategy is failing to produce significant results. Whether sawlogs will continue to be exported from the US in such volumes in the future remains uncertain, but it is likely that, when the market does pick up, there will be a serious lag in production of sawn hardwood due to lower industry capacity.

During 2008 some market commentators suggested that demand for American white oak was one of the few factors keeping the US hardwood industry afloat. With domestic and export demand for almost all other species down, white oak production and exports became the mainstay of the industry. However, with the dramatic downturn in the Spanish construction sector, which used white oak almost exclusively for doors and with the general decline in demand across Europe and Asia, even demand for white oak has been greatly affected. The result is that prices for white oak, as for all other US hardwood species, were much lower in the first half of 2009 than they were exactly one year ago (graph 6.5.1).

Looking ahead, the potential recovery from the current situation in the US sawn hardwood industry may also be affected by problems in the availability of logs. Many logging companies, which have found it particularly hard to remain in business during recent years, have now moved on to other business ventures. Once demand for US sawn hardwood picks up, it is widely expected that mills will find it difficult to purchase logs, as they are not being cut at previous levels.

GRAPH 6.5.1

European and American white oak sawnwood prices, 2005-2009



Sources: Centre d'Economie du bois and Weekly Hardwood Review, 2009.

6.5.2 Europe

There is little doubt that the credit crunch and global economic downturn have created a depression in the European housing sector, while the rising costs of fuel and food are also having a negative impact on demand for furniture, joinery and other sawn hardwood end-user sectors. Market commentators believe that overall demand for sawn hardwood in Europe will fall considerably during the remainder of 2009 and that this trend could continue well into 2010.

A few European sawn hardwood importers and end users suggest that one disturbing impact of the credit crunch is that it seems to be encouraging some European furniture and joinery manufacturers to switch away from real wood products in favour of alternatives. The long lead times between ordering of some wood products (particularly from tropical countries), combined with the current difficulties of assessing future consumption levels, means that ordering these products is seen as particularly risky under current market conditions. Hence, manufacturers are being encouraged to switch to materials that can be more easily supplied on a little-and-often basis and more easily adapted at short notice to changing consumption patterns. Thus, for example, Italian kitchen furniture manufacturers are being encouraged to switch away from solid hardwood surfaces in favour of laminates. However, this trend is not necessarily universal. For example, in northwest Europe, where the hardwood importing sector is more consolidated, the presence of companies operating very large concentration yards, particularly in the Benelux region, has helped to mitigate the problem of long lead times for manufacturers. Furthermore, particularly in Italy, it would seem that the European furniture sector is, if anything, increasing its emphasis on high quality, high value, design-led production as a means of countering the ever present threat from Chinese and other non-European manufacturers. The continuing use of high quality solid hardwood lumber and real wood veneer seems to be very much part of this high-end strategy for many manufacturers, given the strong fashion now for “natural materials” and for products that are more “timeless” and durable.

On the whole, very bleak market conditions were reported from most European hardwood traders and end users. There are reports of large-scale closures of furniture and joinery companies, with those still operating now only working short shifts. Lack of credit due to the restricted lending policies of the banks has added to the difficulties created by declining consumption. However, there were a few reports of a brief flurry of forward orders for hardwood sawn lumber during late April and into May and June, as some importers, concerned about reports of extremely low logging levels and mill closures in key supply regions, and having bought very little over the last six months, took the opportunity to restock. However, the volumes involved are

relatively small, with few operators willing to make speculative purchases and most focused merely on riding out the storm by reducing stocks and operating costs.



Source: T. Pahkasalo, 2009.

Demand for hardwood flooring in Europe is also likely to continue to decrease over the coming months. Based on reports from FEP member companies and currently available economic indicators, FEP estimates that 2009 will remain a difficult year for the European flooring sector. The European Commission is forecasting an improvement in the wider EU economy during the course of 2010 (recent developments in the US have already provided some encouragement) and, although an end to the current situation seems to be in sight, real recovery is still a long way off. In addition to the current problems faced by the European flooring sector, a further possible complication may arise from mandatory CE marking, which will be introduced as of 1 March 2010.

6.5.3 Policy issues

Environmental issues are becoming an increasingly important determinant of competitiveness in some markets. There has been a noticeable shift in attitudes towards environmental timber procurement in recent years. The slow pace of certification in some areas, combined with increasing concern over the proportion 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 these products derive from legal sources came into sharp focus with passage by the US legislature of an amendment to the Lacey Act as part of the Farm Bill of May 2008. This 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 the threat of 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 minimize the risk of suppliers delivering wood products from illegal sources (see related discussions in chapters 2 and 10).

The EU is currently reviewing a proposal for legislation that would impose a requirement on all operators who “first place timber and timber products” to implement a due diligence system to minimize the risk of illegal wood entering supply chains. There is much pressure from the European Parliament, ENGOs and some member state politicians to reduce the focus of the legislation on risk assessment and to impose a requirement on operators at every stage of the wood chain to provide proof of legality through independent legality verification and chain-of-custody systems. But other Member States seem to have a greater appreciation of the costs and practical implications of the latter approach. A compromise approach has been suggested by the Government of the UK – to link the legislative requirement for due diligence procedures with a Lacey Act-like prohibition on placing illegally harvested timber on the EU market. Under this approach, the burden of proving such an offence would remain with the authorities. An EU regulation is expected to be introduced before the end of 2009 with a period allowed for development of appropriate regulatory capacity following passage of the law.

While these measures will tend to give a boost to those temperate hardwood suppliers able to provide PEFC- or FSC-certified wood products, they will also encourage the development of alternative mechanisms to demonstrate that wood is a low risk with respect to illegal supply. Last year, for example, the American Hardwood Export Council pioneered an approach based upon 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 policy makers continue to invest considerable time and effort into refining the details of public-sector timber-procurement policies. The Governments of Belgium, Denmark, France, Germany, the Netherlands and the UK have developed elaborate criteria for central government procurement of timber products. While these differ widely in 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 about 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.

Despite all of these developments, 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 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 Europe, has meant that public-sector construction projects have become relatively more significant. Furthermore, since overall demand for sawn hardwood decreased in 2008 and continues to do so this year, hardwood suppliers are becoming ever more conscious of the need to use environmental issues as a way of capturing a larger share of a shrinking market.

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Chapter 7

Global recession impacts panel markets more severely in North America than in Europe:

Wood-based panels markets, 2008-2009⁴⁴

Highlights

- North American panel production and consumption continue to be strongly affected by the United States housing collapse, with demand projected to remain weak throughout 2009; the resulting closure of sawmills in the western US and Canada caused raw material constraints for non-structural panel manufacturers.
- The European panel market is demand driven and by end-use applications; the crisis first hit demand for OSB, but with several months of delay also affected demand for particle board, MDF and at a later stage, plywood.
- Despite lower production volumes, wood availability continues to be a major concern for wood-based panel producers in all regions.
- During 2008, the North American panel industry closed 15 mills and opened two OSB mills, resulting in a net capacity loss of 2.2 million m³, bringing capacity utilization down to its lowest levels since the early 1990s.
- The European panel industry operated in an extremely difficult context of rising input costs and declining demand in 2008, especially in the last months of the year.
- Escalating petroleum costs during the first half of 2008 imposed significant cost constraints on panel producers in all regions, although they began moderating towards the end of the year.
- The California Air Resources Board formaldehyde emission regulation came into effect in January 2009 and had little impact on the prepared North American panel producers, but many foreign panel producers, particularly those in South-east Asia, struggled to gain accreditation.
- Russian panel exports, which had been expected to increase as a result of the increase in the Russian log export tax, actually declined, although MDF exports increased substantially.
- In 2008, European and Russian MDF producers consumed more roundwood than in previous years in response to the reduced availability of industrial wood residues.

⁴⁴ By Dr. Ivan Eastin, University of Washington, US, Ms. Bénédicte Hendrickx, European Panel Federation, Belgium, and Dr. Nikolai Burdin, OAO NIPIEllesprom, Russian Federation.

Secretariat introduction

This chapter presents market and policy developments for wood-based panels in the UNECE region, and is divided into our three subregions, CIS, Europe and North America. A new section analyses price trends for panels. The secretariat greatly appreciates the continued collaboration with the three authors of this market analysis on the panels sector in the UNECE region. They are members of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing.

Dr. Ivan Eastin,⁴⁵ Director, CINTRAFOR, coordinated the chapter's production and analysed the North American markets. As an international market expert he frequently presents his analyses at various forums, including the UNECE Timber Committee Market Discussions.

Ms. Bénédicte Hendrickx,⁴⁶ Economic Adviser, European Panel Federation (EPF), wrote the European analysis, based primarily on the EPF *Annual Report, 2008/2009* and the *Annual Report, 2008/2009* of the European Federation of the Plywood Industry. Ms. Hendrickx will present the analysis of this chapter in 2009 at the UNECE Timber Committee Discussions to be held 13-14 October 2009 in Geneva. At times the EPF statistics differ from UNECE/FAO TIMBER database statistics because their scope differs for some products from the 41-country Europe subregion of the UNECE; the trends, however, are consistent.

Dr. Nikolai Burdin,⁴⁷ Director, OAO NIPIEIllesprom, 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.

7.1 Introduction

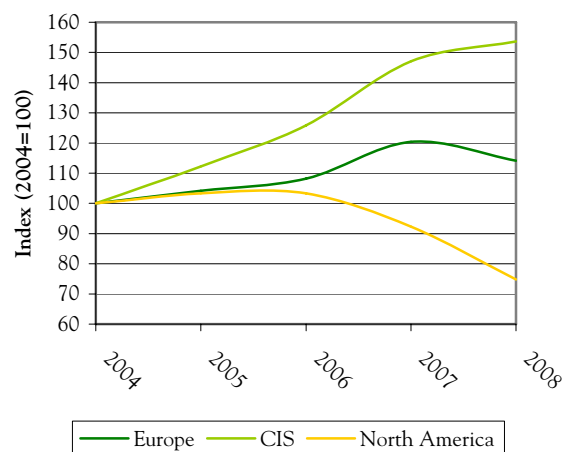
Growing weakness in the US housing sector was caused by a combination of factors, including the start of the recession (which officially began in December 2007) plunging real-estate values, and the financial crisis which took hold of the markets in September 2008. As a result, consumption of panel products in North America dropped by almost 20% in 2008 (graph 7.1.1). The financial crisis began to affect the European economy in 2008 and, while

real-estate values did not fall as much as in the US, consumption of panel products did decline by about 6% in 2008. Similar to North America and the EU, economic growth was severely affected in the CIS region, although panel consumption actually increased by a modest 4.4%.

Consumption of panels in North America is expected to decline even further in 2009. APA – The Engineered Wood Association and the Composite Panel Association suggest that panel consumption in North America will decline by almost 18% in 2009. Continued competition for wood materials, such as sawdust and wood chips, from the bioenergy sector, will continue to increase raw material costs throughout 2009.

GRAPH 7.1.1

Consumption of wood-based panels in the UNECE region, 2004-2008



Source: UNECE/FAO TIMBER database, 2009.

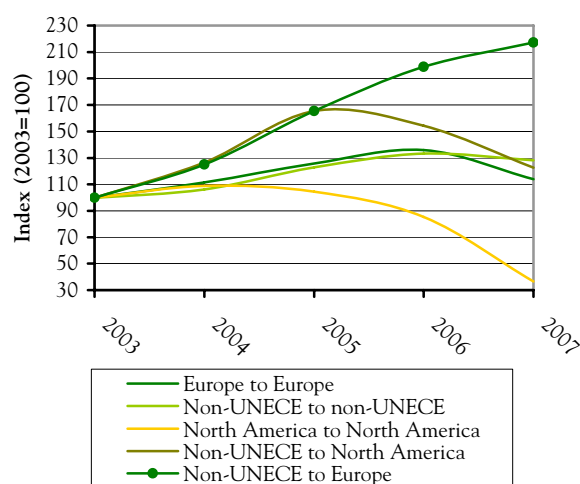
The market outlook for international trade in panels is relatively pessimistic. While the US economy is expected to bottom out in 2009, housing starts will remain at historically low levels throughout the year. This will considerably reduce imports of structural panels from Canada and, to a lesser extent, Europe. In addition, the implementation of the California Air Resources Board (CARB) formaldehyde regulations in January 2009 will substantially reduce imports of non-structural panels in 2009. As a result, imports of all panel products into the US will drop by approximately 20%, although Canadian imports of non-structural panels should increase slightly. Panel trade within Europe generally declined in 2007, with the exception of trade from non-UNECE countries with Europe (graph 7.1.2). In contrast, the projection for increased panel consumption within Europe in 2009 suggests that there may be a modest increase in intra-European panel trade.

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GRAPH 7.1.2
Major wood-based panels trade flows in
the UNECE region, 2003-2007



Note: Corresponding trade flow table in electronic annex.

Source: UN Comtrade/EFI, 2009.

7.2 Europe subregion

The wood-based panel market is demand driven and was adversely impacted by the lack of demand in 2008. The global financial crisis, which first hit the US, subsequently affected Europe and the rest of the world. Although Europe is not confronted with a subprime mortgage problem as is the US, the real-estate markets have stagnated and new construction orders have been postponed. As a result, demand for construction materials, furniture and laminated flooring was subdued during 2008. With the decline in demand, the performance of the European panel industry deteriorated, with consumption declining by 5.2% (table 7.2.1).

The lack of demand forced panel producers to cut production by scheduling production shutdowns, with many producers extending plant downtime and scheduled maintenance periods at the end of the year. On an annual level, European particle board production was down 3.3% in 2008 and reached 40.9 million m³. Most of the EPF member countries registered a decrease in output from 6% to 10%. Spain and Ireland, countries particularly hard hit by the economic crisis, each saw production shrink by more than 20%. Annual particle board consumption decreased at a similar pace, reaching just 36 million m³. The main reason for the deceleration was the weakening of construction activity. Especially in western Europe, construction activity cooled due to the emerging international financial and economic crisis, higher interest rates and the strengthening euro.

All of this influenced consumer confidence and consumer spending, causing the furniture industry to

postpone its orders, especially at the end of the year. In order to adapt to the decreasing demand, particle board production capacity shrank in western Europe. In Germany, two lines were closed permanently, while one production line was closed in both Belgium and Spain. In contrast, new production capacity became operational in some eastern European countries, bringing the overall production capacity to 47 million m³.

TABLE 7.2.1
Wood-based panels balance in Europe, 2007-2008
(1,000 m³)

	2007	2008	Change %
Europe			
Production	76,217	71,976	-5.6%
Imports	35,943	37,836	5.3%
Exports	33,986	35,706	5.1%
Net trade	-1,957	-2,130	8.8%
Apparent consumption	78,174	74,106	-5.2%
of which: EU27			
Production	68,530	64,324	-6.1%
Imports	32,435	34,549	6.5%
Exports	31,951	34,144	6.9%
Net trade	-485	-404	-16.6%
Apparent consumption	69,014	64,728	-6.2%

Source: UNECE/FAO TIMBER database, 2009.

Weakening demand had a double effect on trade: on the one hand, export market demand weakened because of the worldwide scope of the financial crisis, but on the other hand competition intensified in response to decreasing transport costs. Most particle board is traded within the European Union and trade flows within the EU-EFTA zone are most significant in absolute terms. Nevertheless, the EU has for many years been a net exporter of particle board in spite of losing market share in 2007. In 2008, particle board net exports increased again to total 1.6 million m³.

Medium density fibreboard (MDF) is produced in 21 European countries and for the first time since its introduction into Europe, production decreased in most European countries except Turkey. On the other hand, Turkish production continued to increase, bringing overall production to 14 million m³ in 2008. The crisis in industrial activity and the construction sector affected all MDF end-user market segments. As a result, overall MDF consumption shrank by 8.4% in Europe. In Turkey, panel consumption continued to grow, increasing total MDF consumption to 13.8 million m³. The weakening construction industry and the lower demand for laminate flooring, interior finishing and furniture reduced MDF demand and postponed orders by traders. At the end of

2007, the average inventory level for MDF producers was already relatively high. The subdued production of MDF, together with other wood-based panel production, helped to alleviate the impact of the wood supply shortage caused by demand in the bioenergy sector. Sawmill by-products are the main source for wood raw material input in MDF production, and competition for raw materials was already tight due to declining sawmill activity even as the woody biomass utilizing energy sector continued to increase its demand. As a consequence, in some regions such as Austria, Slovenia and Sweden, adequate wood supply in 2008 continued to be a major challenge for the MDF industry.

Production of OSB shrank by 9.0%, dropping to 3.7 million m³. OSB is used in a wide variety of applications, most of which are construction related. Therefore, OSB demand is very closely related to construction activity, with smaller volumes being used for furniture and packaging purposes.



Source: European Panel Federation, 2007.

Within the EU27, plywood production decreased by 7.2% in 2008 while demand shrank by 10%. In 2008, plywood imports from China decreased, but imports from South American countries (such as Chile and Uruguay) and South-East Asian countries (such as Malaysia and Indonesia) continued to increase. With the North American market struggling, and in the absence of domestic demand, South American and South-east Asian plywood producers have continued targeting the European market to an increasing extent.

The hike in production costs for panels ended in 2008, although wood-raw-material prices did not become less expensive. Since the sawmill industry was working at significantly lower capacity, roundwood availability improved temporarily, although not in all regions. The lower production activity caused forest owners to defer harvesting and caused wood-supply problems in some regions. Costs for energy and resin rose sharply throughout 2008, by 30% and 20% respectively, but stabilized by the end of the year. In this context of high production costs and shrinking demand, wood-based panel producers are experiencing difficult times. Wood-based panel producers are trying to turn the crisis into an opportunity for reorganization to increase their competitiveness.

The wood-based panel sector is recognized as an energy-intensive industry. In 2013 the revised EU Emission Trading System (EU ETS) will come into force, implying that industrial producers will have to pay substantially more for their CO₂ emissions. An exception is accorded for industry sectors that are seen as a risk for “carbon leakage”, that is, the risk that a large amount of companies within one sector will relocate to regions outside the EU where there are less stringent CO₂ emission regulations. The panel industry has applied for such an industry designation and a quantitative and a qualitative assessment has been performed. In the case that the panel sector receives this designation, it will receive CO₂ allowances for free, based on the best available technology benchmark.

Finally, it is important to recognize that wood products store carbon, producing a mechanism that plays an important role in enhancing the effectiveness of the forest as carbon sinks, both by extending the period that the CO₂ captured by the forests is kept out of the atmosphere (through carbon sequestration of long-lived wood products) and by encouraging increased growth in managed forests.

7.3 CIS subregion, focusing on Russia

The Russian log export tax, which was increased to 25% (or minimum of €15/m³) in early 2008, was expected to increase international demand for processed wood products from Russia. The planned increase in the log export tax to 80% (or minimum of €50/m³), which had been scheduled to be implemented in January 2009, was deferred for at least a year as a result of the global financial crisis. As a result, log exports from Russia declined from 36.4 m³ to 25 million m³ between 2007 and 2008. The decline in log exports was expected to translate into investment and increased demand for Russian processed wood products, including panels. However, the expected increase in international demand for Russian panels did not materialize, with panel exports declining by 7.5% in 2008 and projected by OAO NIPIEIllesprom to decline by an additional 14.3% in 2009 (table 7.3.1).

The plywood industry in the Russian Federation had been developing in a dynamic way until 2008, with production expanding by 87% between 2000 and 2007. However, the decline in plywood demand in domestic and foreign markets caused by the global financial crisis caused production to fall by 7% in 2008. Continued weak demand in 2009 (particularly in the US market) is expected to cause plywood production in Russia to fall by an additional 183,000 m³ (down 5.2%). The largest importer of Russian plywood is the US, which accounted for 17% of Russian exports in 2008. US imports of Russian plywood fell by 29% from 2007 levels as a result of the housing crisis. US imports of Russian plywood are expected to fall substantially in 2009 as a result of this and the implementation of the CARB formaldehyde regulation in January 2009. Total plywood exports are projected to decline by 11.8% (NIPIEIllesprom).



Source: A. McCusker, 2009.

TABLE 7.3.1

Wood-based panels balance in Russia, 2007-2008
(1,000 m³)

	2007	2008	Change %
Production	13,437	13,561	0.9%
Imports	3,746	3,984	6.4%
Exports	3,381	3,129	-7.5%
Net trade	-365	-855	134.4%
Apparent consumption	13,802	14,416	0.9%

Source: UNECE/FAO TIMBER database, 2009.

According to NIPIEIllesprom, 40 production lines for particle board were running in Russia during 2008, three more than in 2007. Their total production capacity was about 6.2 million m³, up from 5.7 million m³ at the end of 2007. A large majority of the particle board production was melamine-faced panels (72%), with 5% of the panels having another surface overlay and 3% being moisture resistant particle board. About 27% of the output was produced from older Russian-made multi-daylight presses which were put into operation between 1962 and 1970. These production lines have an average annual production capacity of about 1.5 million m³. However, the financial crisis and fierce competition from manufacturers using more modern particle board production technology strongly undermined the competitiveness of companies using this older technology. Therefore, it is probable that some of these older companies will be closed between 2009 and 2011. On the other hand, large-scale production plants commissioned after 2005 have seen their market share grow.

In 2008, demand for particle board in Russia continued to increase, albeit at a slightly slower pace (+5%). However, Russian demand for particle board is expected to decline in 2009. The furniture sector is the largest market for particle board, absorbing 88% of domestic particle board production. Russian particle board exports were lower in 2008 because of the improving domestic demand but are expected to regain momentum in 2009 in response to increased output of the recently installed new capacity. In 2008, Russia's largest export markets for particle board were Kazakhstan (36%) and Uzbekistan (27%), with smaller volumes being exported to other neighbouring countries. While there was a slight reduction in particle board production in 2008 (-1.5%), particle board production is projected to increase somewhat in 2009 and is forecast to reach 6.2 million m³ in 2010. However, particle board exports are expected to decline by 14.2% in 2009 (NIPIEIllesprom).

Although Russia has been producing MDF since 1991, the strongest expansion has taken place over the past three years. Currently, 10 MDF plants operate in

Russia, with a combined annual production capacity of 1.4 million m³. As a result, MDF production more than doubled between 2006 and 2008 to reach 1.2 million m³. About 40% of the MDF panels produced in Russia are less than 9 mm thick. In 2008, MDF production consumed approximately 3.2 million m³ of roundwood and no longer relied exclusively on industrial wood residues. The production increase was underpinned by a sharp growth in demand, with MDF consumption increasing by 24%. A substantial amount of MDF production (about 40%) was processed into laminated flooring. Another one third of production was used in furniture applications, with the Russian furniture industry showing a strong performance in 2008. Another 20% was used for building purposes, especially interior finishing (such as wall panels) in offices and in public administrative buildings.

To meet the growing domestic demand for MDF, imports soared by 47% to reach almost 1 million m³. In 2008, China became the main foreign supplier of MDF (replacing Germany), accounting for 29% of MDF imports. Up until 2007, China exported only minor volumes of MDF to Russia. Germany's Imports decreased in absolute terms and its share fell from 80% in 2007 to 28% in 2008. Furthermore, smaller volumes of MDF were imported from Poland, Belgium and Ireland. Russian exports of MDF increased rapidly in 2007 (+35%) and again in 2008 (+23%) to reach 190,000 m³. The main export markets for Russian MDF were Uzbekistan (36%), Kazakhstan (17%), Belarus (10.5%), Tajikistan (6.3%) and Azerbaijan (5.8%).

Russian MDF consumption is projected to decrease significantly in 2009 in response to the global financial crisis. Production, however, is expected to increase by 2% in 2009 and by another 20% in 2010 to reach 1.5 million m³. Two new MDF plants are expected to be commissioned by the end of 2010. With domestic production of MDF expected to increase, imports are forecast to decline by 39% in 2009, falling to 600,000 m³. However, increased international demand is expected to offset this decline, with MDF exports projected to increase by 58% in 2009.

Russia has no OSB production lines yet. In 2008, Russia imported about 250,000 m³ of OSB. It is mainly used for load-bearing elements in the construction of wooden houses. The limited consumption of OSB for construction purposes in Russia is a result of high import prices and the fact that OSB is not a well-known construction material due to a lack of information in Russia. A Russian company had planned to set up an OSB plant in the Kirov region in 2008, but this project was postponed because of the economic crisis. There are also several other OSB projects in Russia at various stages

of planning, but none of them have advanced to a building stage.

7.4 North American subregion

The US housing market plunged into unfamiliar territory in 2008 with housing starts falling to a post-war low of 407,000 units. Record numbers of home foreclosures continued to increase housing inventories. Falling home prices, high inventories and economic uncertainty kept many potential homebuyers on the sidelines waiting for a sign that the market had bottomed out. As a result, housing inventories remained at historic high levels, with the inventory of new unsold homes increasing to 10.9 months in early 2009 while the unsold inventory of existing homes fell slightly to 9.6 months of unsold inventory. Prior to 2007, inventories of new and existing homes were typically in the 4 to 4.5 month range, suggesting that the recovery of the housing industry is still some time off. The low level of new housing starts has completely undermined the demand for both structural and non-structural panels in North America. Consumption of panels was down almost 19% in 2007 (table 7.4.1). The weak demand for panels resulted in steep price declines (see section 7.5). Structural panel consumption in the new housing sector fell from 16.3 million m³ in 2007 to 10.5 million m³ in 2008, and is projected by APA–The Engineered Wood Association to drop to a mere 6.1 million m³ in 2009 (APA, 2009).

TABLE 7.4.1

Wood-based panels balance in North America, 2007-2008 (1,000 m³)

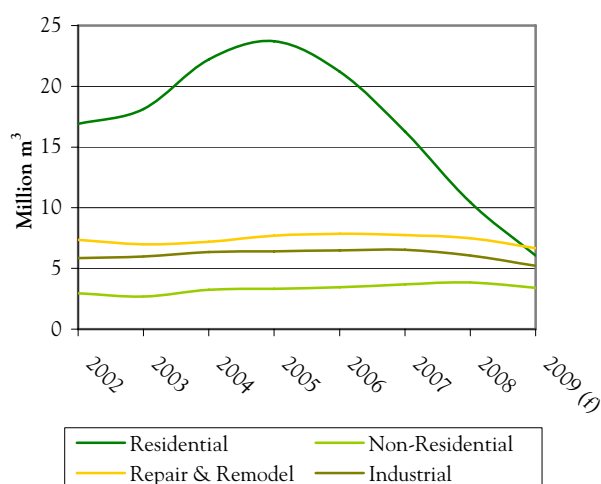
	2007	2008	Change %
Production	58,548	48,003	-18.0%
Imports	18,305	12,901	-29.5%
Exports	14,547	10,393	-28.6%
Net trade	-3,758	-2,508	-33.3%
Apparent consumption	62,306	50,512	-18.9%

Source: UNECE/FAO TIMBER database, 2009.

The decline in structural panel consumption has been largely driven by the drop in new home construction in the US (graph 7.4 1). Consumption in this sector plunged from approximately 22.1 million m³ in 2005 to less than 10 million m³ in 2008 and is projected to fall to 6 million m³ in 2009, dropping below consumption in the repair and remodel sector for the first time. While consumption in the other three sectors has declined somewhat, these drops in consumption have been dwarfed by developments in the new home sector.

GRAPH 7.4.1

Consumption of structural panels in North America, 2002-2009



Note: f = forecast.

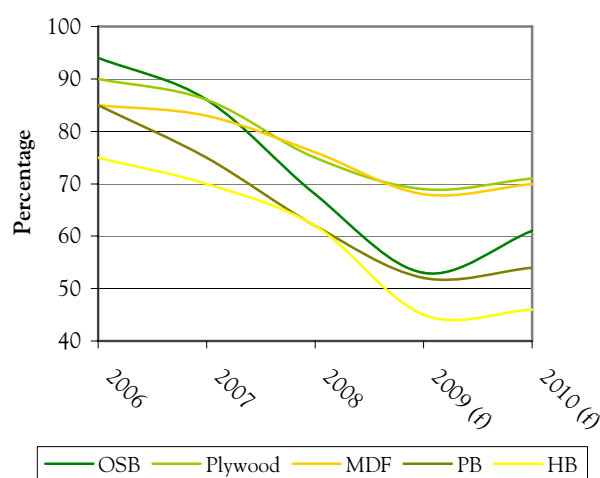
Source: APA – The Engineered Wood Association, 2009.

Despite the poor market conditions, two new OSB mills opened in 2008 because they had been previously planned and were too far in the development phase to delay; one in the US and one in Canada. The additions were offset by the closure of four OSB mills (three in Canada and one in the US) as well as the closure of three plywood mills (two located in Canada and one located in the US). The net result of these changes in production capacity was the loss of 690,000 m³ of plywood and 490,000 m³ of OSB in North America. The poor outlook for housing in 2009 means that further plant closings will likely remove an additional 830,000 m³ of plywood capacity and an additional 1.5 million m³ of OSB production capacity. Given the continued weak market in North America in 2008, the capacity utilization rate for the structural panel industry reached a new low, dropping to 75% for the plywood industry and 68% for the OSB industry. With housing starts projected to be at post-war record lows in 2009, it is projected that the capacity utilization rate for the plywood sector will fall to 69%, while for the OSB it will plunge to 53% (graph 7.4.2).

With domestic demand down substantially, panel manufacturers have increasingly looked offshore for new sales. Their efforts to increase exports have been aided considerably by the relative weakness of the US dollar. As a result in 2008, US exports of OSB grew by 15% and those of plywood by 34%. The largest export markets for OSB all recorded increases and included Canada (16.6%), Mexico (32.9%), Russia (237%) and Turkey (116%). For plywood, the largest markets were Canada (-4.3%), Australia (315%) and Mexico (19.6%).

GRAPH 7.4.2

Capacity utilization rates for panel sectors in North America, 2006-2010



Note: f = forecast.

Sources: APA – The Engineered Wood Association, Composite Panel Association, 2009.

The combination of the weak dollar and the new CARB requirements on formaldehyde emissions reduced imports of plywood and OSB into the US from 11.2 million m³ in 2007 to 6.9 million m³ in 2008. Softwood plywood imports dropped by approximately 30% in 2008. Between 2005 and 2008, US imports of softwood plywood dropped by 68.5%; falling from 2.1 million m³ to 663,000 m³. In 2008, imports of softwood plywood from Brazil and Canada declined by 42% and 44%, respectively. In contrast, imports from Chile rose by 2%, making Chile the largest supplier of softwood plywood to the US.

Hardwood plywood imports dropped by about 30% to 2.3 million m³ in 2008, with the largest decreases occurring with imports from China (-21%), Malaysia (down 51%) and Indonesia (-27%), although substantial decreases were also recorded from Russia (-18%) and Canada (-23%). OSB imports from all countries declined in 2008 with the singular exception of China, which increased its exports to the US by 81%, although still at a low level in terms of volume. Canada, the major supplier of OSB panels to the US, saw its OSB exports decline by 2.9 million m³ (-47%).

Production of non-structural panels (hardboard, MDF and particle board) declined by 12.7% in 2008, continuing a five-year decline that saw a decrease from 17.3 million m³ in 2004 to 12.5 million m³ in 2008. Decreases were observed for all three product categories: hardboard (-13%), MDF (-9.3%) and particle board (-14.5%). Continued weak demand led to the permanent closure of one particle board mill and the temporary

closure of two other mills (representing 219,000 m³ of production); the permanent closure of one MDF mill and the temporary closure of an additional three mills (representing 305,000 m³ of production) and the permanent closure of one hardboard mill (representing 484,000 m³ of production) in 2008. Also, the capacity utilization rates within the non-structural panel industry plunged in 2008, dropping to 62% for hardboard and particle board and 72% for MDF. The Composite Panel Association projects that these rates will fall dramatically in 2009, reaching 45% for hardboard, 52% for particle board and 68% for MDF.



Source: APA – The Engineered Wood Association, 2008.

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 2008. The share of total panel production for particle board dropped from 64.3% to 58%, while the share of hardboard declined from 8.2% to 7.6%. In contrast, the production share for MDF jumped from 27.5% to 34.4%. 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. Perhaps of more concern for the non-structural panel industry is the greater attention being paid to the use of low quality wood and wood waste as a raw material supply for bioenergy. This diversion of the traditional raw material for the non-structural panel industry was listed as the industry's greatest concern in 2008 as well as for the future.

Finally, the entire panel industry received some respite as high oil prices, which peaked at over \$140 per barrel in mid-July 2008, fell back to \$36 per barrel by the end of the year. However, oil prices have almost doubled during the first half of 2009.

US imports of hardboard, MDF and particle board were down by 34% in 2008, falling from 2.5 million m³ to 1.6 million m³. Most of the decline in MDF imports can be attributed to Canada, Chile, Argentina and Viet Nam. In the case of fibreboard, most of the decline can be attributed to Canada, China and Germany. Exports of non-structural panels increased by 3.1%, reaching 981,000 m³ in 2008. A 22.8% drop in exports to Canada was offset by increases in exports to Ukraine, Russia, New Zealand, Mexico, India, China, UAE and Israel.

Phase I of the CARB formaldehyde emissions regulation began being enforced on 1 January 2009. The Composite Panel Association estimates that almost all North American panel producers were certified as being CARB compliant by the beginning of 2009. In contrast, CPA estimates that only about 10% of offshore producers were certified as being CARB compliant, which will significantly reduce US imports of non-structural panels in 2009.

Green building remains an important demand driver in North America despite the overall problems of the housing sector. Two national green-building programmes focused on residential construction were introduced in the beginning of 2008. The National Green Building Program developed by the National Association of Home Builders (NAHB) was introduced in January 2008 while the LEED for Homes Program was introduced by the US Green Building Council in February 2008. Both programmes include a rating system that allows builders to achieve different levels of green certification for the homes they build by awarding points based on the inclusion of different types of green products, materials and technologies into a house. Under the LEED for Homes Program, builders can have their projects certified at one of four levels based on the number of points awarded under the programme (platinum, gold, silver and certified). Similarly, the NAHB National Green Building Program awards four levels of certification ranging from emerald down to gold, silver and bronze. Both programmes have begun to gain acceptance in regional markets and over 3,000 homes are being certified under both green building programmes.

In a recent survey of deck builders conducted by the Center for International Trade in Forest Products (CINTRAFOR) at the University of Washington, which complements the survey of home builders reported last year, a total of 380 deck builders were asked questions about their awareness and use of environmentally certified wood. The survey results indicated that overall approximately 48% of the builders reported that they were aware of certified wood, and 28% of the respondents had actually used certified wood. The average percentage of decks built using certified wood was reported to be 25%. These survey results clearly demonstrate that,

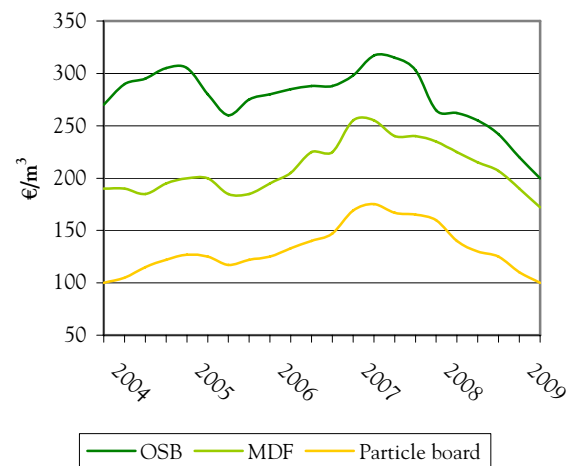
similar to home builders, a substantial number of deck builders are aware of certified wood and many are already using it to build decks. As with home builders, their increased use of certified wood is largely being driven by several factors, including the introduction of green building codes at the national and local levels and the environmental concerns of their customers.

7.5 Panel price trends

Throughout 2008 the European panel industry was operating within an extremely difficult context of rising input costs and declining demand, especially in the last quarter of the year. The lack of demand first hit the OSB sector, where demand began to weaken at the end of 2007 and continued to decline throughout 2008. At the beginning of 2008, particle board demand from the construction sector weakened, although stable demand in the furniture sector in the first half of 2008 helped offset this decline. However, in the second half of the year demand for all panels, OSB, particle board, MDF and plywood, began to decline significantly. The quarter on quarter production decreases for all product sectors in 2008 were substantially higher relative to the same period in 2007. As a result, European panel prices (as reported by EUWID) declined precipitously throughout 2008 and into the first quarter of 2009, reaching their lowest levels since the end of 2003 (graph 7.5.1).

Steep declines in US housing starts in the second half of 2008 and into 2009 seriously undermined demand for structural panels and sent prices for structural panels tumbling (graph 7.5.2). With housing starts projected to be below 500,000 in 2009 (compared with 2.1 million in 2005), prices for structural panels will likely be at or near historic lows. One interesting development is the price spread between plywood and OSB. During the high growth period of 2003-2005, the average price spread between plywood and OSB panels was as low as \$5 per thousand square feet. The recent drop in demand within the residential housing sector has disproportionately hit the OSB sector since half of all OSB is consumed in this sector, whereas just 20% of plywood is consumed in the residential housing sector. As a result, the price differential between OSB and plywood was as high as \$170 per thousand square feet, although it began to moderate by the end of 2008 and into 2009.

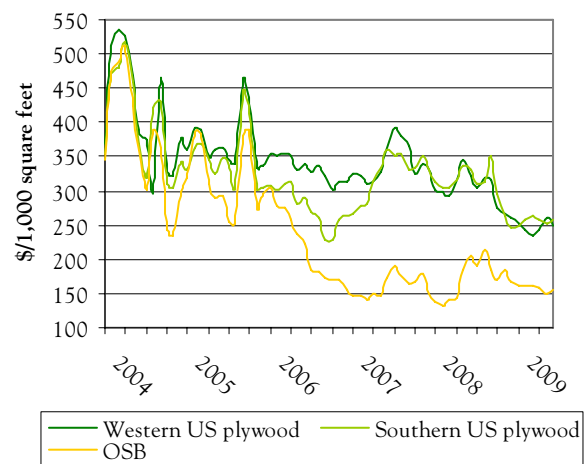
GRAPH 7.5.1
European panel prices, 2004-2009



Source: EUWID, 2009.

The impact of plant closures and production cutbacks in North America stabilized plywood prices during the first half of 2008 and actually increased prices for OSB. However, the second half of 2008 saw prices for all structural panels drop substantially. In fact, the price decline for plywood was the most severe since the recession of 1990-1991, when housing starts dropped to one million.

GRAPH 7.5.2
US structural panel prices, 2004-2009



Source: Random Lengths, 2009.

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Chapter 8

Pulp and paper demand deteriorates as global economic crisis takes hold: Markets for paper, paperboard and woodpulp, 2008-2009⁴⁸

Highlights

- Pulp and paper production and consumption in both Europe and North America declined in 2008 and 2009 as the global economic crisis took hold.
- In early 2009, leading trade associations were reporting year-over-year declines of 17% in total paper and paperboard production in both Europe and the United States, considerably more than the 2008 drop.
- Capacity-utilization rates deteriorated in Europe and North America, leading to a wave of capacity withdrawals in the form of mill downtime and mill shutdowns.
- By mid-2009, pulp and paper commodity prices were beginning to stabilize or increase slightly, although prices remained generally well below peak levels of the preceding year.
- Energy and climate policies gained industry attention in North America via alternative fuel tax credits (applicable to black liquor), renewable fuel standards, and energy and environmental improvement assistance.
- European Union political developments relevant to pulp and paper included an energy and climate package, illegal logging, and reclassifying recovered paper as “secondary material” instead of “waste”.
- In June 2009, the Confederation of European Paper Industries called for a temporary moratorium on new environmental rules for the sector in response to the economic crisis.
- Negative impacts of the economic crisis on importers of Russia’s timber combined with consequences of Russia’s rising roundwood export tax, have prompted discussion of further postponing or even cancelling the log export tax.
- The European paper industry called on the European Commission to take leadership or risk jeopardizing the industry’s future.
- Global forest products industry CEOs, who represent the pulp and paper industry worldwide, have called for a level playing field to reboot the global economy.

⁴⁸ 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,⁴⁹ Research Forester, USDA Forest Service, deserves special thanks for coordinating the contributions 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,⁵⁰ 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,⁵¹ Trade and Competitiveness Director, Confederation of European Paper Industries (CEPI), is well placed to analyse trends in western Europe. Mr. Tomáš Parik,⁵² 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 the analysis, but also validates 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-country region, the EU27 or the UNECE European subregion of 41 countries. Due to small discrepancies between CEPI and UNECE definitions, figures may vary slightly, but trends remain the same.

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8.1 Introduction

Global pulp, paper and board markets experienced an abrupt transition over the past year. A year ago (mid-year 2008) economic conditions indicated markets and prices were peaking amid a slowing economy, rising input costs, and erosion of profits. That was on the heels of a global energy crisis but just before full onset of the global financial crisis later in the year. In the second half of 2008 and continuing into the first half of 2009, global paper and paperboard demand deteriorated rapidly as the financial crisis abruptly reduced consumer spending, international trade flows and industrial production. The downturn was most severe for graphic papers and significant also for packaging paper and board, while tissue and sanitary paper markets were only modestly affected.

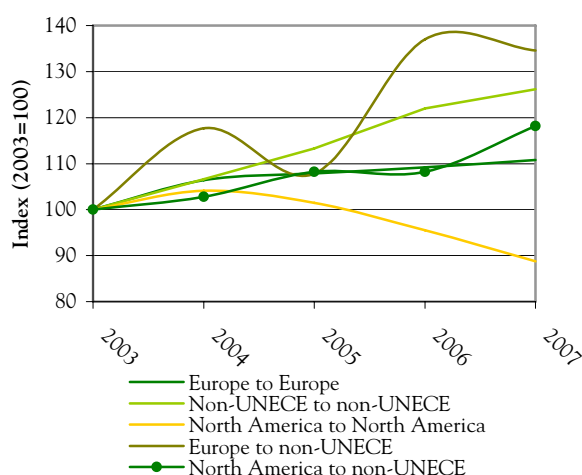
With capacity withdrawals in the form of mill shutdowns and downtime, pulp and paper commodity prices appeared to be stabilizing or slightly increasing by mid-2009, but pulp, paper and board prices were still well below peak levels of the preceding year. In the UNECE region and throughout the world, the economic downturn resulted in reduced woodpulp production, even in China, which reportedly experienced a 17% year-over-year decline in woodpulp output as of April, 2009 (BOABC, 2009).

Negative impacts of deteriorating pulp output on pulpwood markets varied in timing across the UNECE region. Negative price effects of declining fibre demand were offset to varying degrees by increasing demand for wood energy or declining fibre supply due to declining sawnwood and plywood production. Pulpwood prices globally were reported to be in a substantial decline by the first quarter of 2009 (Wood Resource Quarterly, 2009). North American pulpwood prices were heading lower by the first half of 2009, but trends also varied by region (see chapter 4 for more analysis).

Major paper and paperboard trade flows within the UNECE region in recent years reflect ongoing developments in competitiveness and growth, influenced also by shifts in currency exchange rates. For example, the notable decline in trade flows from 2003 to 2007 between US and Canada (North America to North America) clearly reflect both the decline in Canadian exports to the US as a result of the stronger Canadian dollar in recent years and negligible growth in US demand (graph 8.1.1). The powerful influence of expanding Asian markets and competitiveness of producers in non-UNECE regions is also reflected in large increases in trade flows between Europe and non-UNECE countries, and between non-UNECE countries and other non-UNECE countries, for both paper and paperboard and woodpulp (graph 8.1.2).

GRAPH 8.1.1

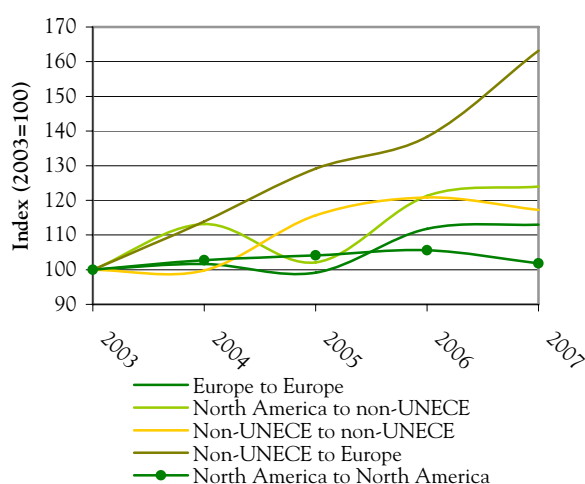
Major paper and paperboard trade flows in the UNECE region, 2003-2007



Note: Corresponding trade flow table in electronic annex.
Source: UN Comtrade/EFI, 2009.

GRAPH 8.1.2

Major woodpulp trade flows in the UNECE region, 2003-2007



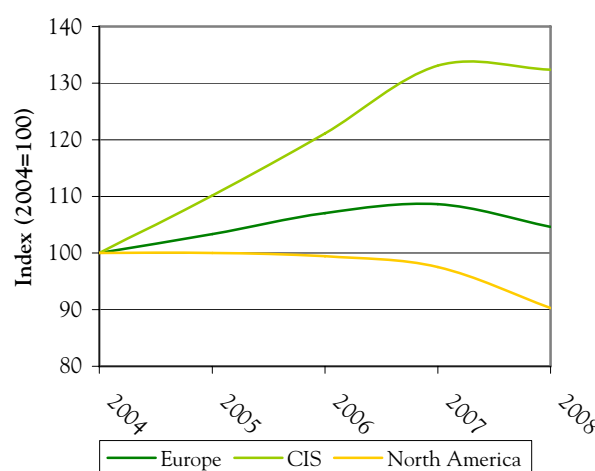
Note: Corresponding trade flow table in electronic annex.
Source: UN Comtrade/EFI, 2009.

8.1.1 Paper and paperboard demand deteriorates

In 2008, paper and paperboard demand deteriorated throughout the UNECE region, and in three subregions (graph 8.1.3). North America experienced the largest percentage decline in consumption (-7.4%), followed by Europe (-3.7%), and lastly the CIS (-0.5%). The decline was a reversal of growth trends for Europe and the CIS in preceding years, while North America continued a downturn that was already under way in 2007.

GRAPH 8.1.3

Consumption of paper and paperboard in the UNECE region, 2004-2008

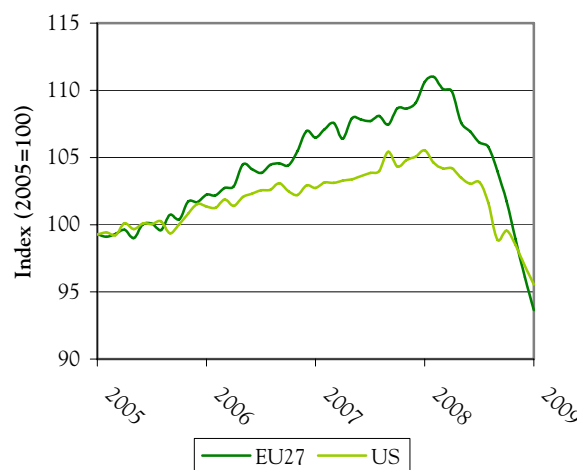


Source: UNECE/FAO TIMBER database, 2009.

Pulp, paper and paperboard prices had actually reached cyclical peaks in 2008, but global demand conditions deteriorated rapidly towards the end of 2008 and into early 2009. Global manufacturing had become increasingly stressed in 2008 as manufacturers faced record increases in manufacturing costs driven by higher energy prices. The global financial crisis in late 2008 had a crushing impact on both European and North American industrial production, which is a leading driver of paper and paperboard demand in both regions (graph 8.1.4).

GRAPH 8.1.4

Industrial production for Europe and the United States, 2005-2009



Note: Industrial production excluding construction.
Sources: EUROSTAT and US Federal Reserve, 2009.

The recent plunge in industrial production was actually greater for Europe (-20%) than for the US (-15%), in large part because of a reversal of relative currency valuations. The US dollar was quite strong relative to the euro in 2001-2002, but the opposite was the case over the past year, reducing the competitiveness of European producers. As a result, paper and paperboard markets in Europe and North America deteriorated, paralleling the rapid drop in industrial production. According to data from industry trade associations, paper and paperboard production declined by about 17% from early 2008 to early 2009 in both Europe and in the US.

8.2 Europe subregion

8.2.1 Paper and board demand declined in 2008 as the global financial crisis took hold

Overall European paper and paperboard consumption fell by 3.7% in 2008 (table 8.2.1), a trend that became more pronounced as the global financial crisis took hold. European (EU27) GDP, in volume, rose by a bit less than 1% in 2008, but that masked a 1.7% fall in the final quarter (Eurostat, 2009). In the CEPI-member countries of Europe, paper and board demand fell by 4.0% in 2008, with a similar drop in production (-4.0%), reflecting a weakening global economy, and causing down-time and closures in most parts of the industry, particularly in the final months of the year. Demand for graphic papers was most severely affected by the economic downturn in 2008 and into early 2009.

Imports of paper into CEPI countries remained virtually unchanged at 5.4 million tons and contributed 6.2% of total European paper consumption in 2008 (5.9% in 2007). North America accounted for 43.7% of total imports (41.0% in 2007) and increased by 6.7% to 2.4 million tons in 2007. Imports from "non-CEPI" Europe fell by 2.5% and took a 27.9% share of imports (28.7% in 2007). Imports from Asia fell by 23.8% compared with a sharp rise in the previous year and accounted for 10.3% of imports (12.8% in 2007). Despite the decline in exports, CEPI countries maintained an overall positive trade balance (exports exceeding imports) in paper of 11.6 million tons in 2008 (12.2 million tons in 2007).

There was an overall decrease in consumption of graphic grades of 4.5% in 2008 when compared to 2007, a fall of 2 million tons. Imports of graphic grades from outside CEPI countries fell by 3.9% and exports to countries outside CEPI decreased by 6.4%. Overall demand for packaging grades fell by 3.3% (-1.2 million tons) compared to 2007. Imports from outside CEPI rose by 1.2% whilst exports decreased by 1.0%.

Consumption of newsprint by CEPI countries decreased by 3.0% to 10.3 million tons (-315,000 tons) in 2008 while demand for uncoated mechanical grades actually rose by 0.4% (+22,000 tons). Demand for coated mechanical grades fell by 5.4% (-466,000 tons). Consumption of coated woodfree grades fell by 2.8% (-248,000 tons) to 8.7 million tons and demand for uncoated woodfree grades fell by 10.1% (-971,000 tons) to 8.6 million tons. Overall demand for coated grades fell by 4.1% to 16.9 million tons in 2008 while uncoated grades decreased by 6.1% to 14.5 million tons. Consumption of mechanical grades fell by 3.0% (-444,000 tons) whilst consumption of woodfree grades fell by 6.6% (-1.2 million tons).

The decline in demand accelerated toward the end of 2008 and into early 2009. Year-to-date estimates for the first five months of 2009 from the Association of European Publication Paper Producers showed European demand for newsprint down by 16% relative to the same period of 2008, while total demand for supercalendered magazine paper, coated and uncoated mechanical paper was down by 19% over the same period (CEPIPRINT, 2009). Statistics for the first four months of 2009 showed European coated woodfree paper demand down by 19% and uncoated woodfree paper demand down by 16%, relative to the same period in 2008, considering all EU27 countries plus Norway and Switzerland (CEPIFINE, 2009).

TABLE 8.2.1

Paper and paperboard balance in Europe, 2007-2008
(1,000 m.t.)

Europe	2007	2008	Change %
Production	108 798	105 662	-2.9
Imports	62 660	57 568	-8.1
Exports	71 788	67 203	-6.4
Net trade	9 128	9 635	5.6
Apparent consumption	99 670	96 027	-3.7
Of which: EU27			
Production	102 333	99 299	-3.0
Imports	57 126	52 464	-8.2
Exports	68 793	64 252	-6.6
Net trade	11 667	11 789	1.0
Apparent consumption	90 666	87 511	-3.5

Source: UNECE/FAO TIMBER database, 2009.

8.2.2 Paper production decreases in all sectors except sanitary and household papers

Production of paper and paperboard by CEPI countries fell below 100 million tons for the first time since 2005 and was at its lowest since 2003. The number of mills in production has fallen from 1,135 in 2007 to 1,080 in 2008. With paper and board production capacity

standing at 109 million tons (-1.5% on 2007) this means that the operating rate for 2008 was 90.9%, which is 2.3 points lower than in 2007. By the end of the first quarter of 2009, CEPI member countries of Europe had experienced a 16.8% decline in total paper and board production on a year-over-year basis.



Source: Stora Enso, 2007.

Total paper deliveries to domestic and export markets by CEPI countries fell by 3.8% in 2008 to 99.2 million tons. Of these deliveries, exports to non-CEPI countries accounted for 17.1%. Exports to outside the CEPI area decreased by 3.9% at 17 million tons. Export shipments to European countries who are not members of CEPI fell by 2.3% to 6.2 million tons and accounted for 36.5% of all exports (38.7% in 2007). Deliveries to Asian markets represented a further 27.6% of exports (4.7 million tons), an increase of just 0.1% compared to 2007. Deliveries to North America continued to decrease (-19.7%) and represented 12.4% of total exports compared with 18.5% in 2004.

8.2.3 Declines in European pulp production match declines in paper demand

Woodpulp production declined by 3.9% in 2008 for Europe as a whole (table 8.2.2). Pulp production in CEPI countries fell by 4.6% in 2008, and total output of both integrated and market pulp was 41.9 million tons. Exports of pulp to countries outside CEPI were 2.1 million tons (+2.6%), with Asia representing the main destination (62.6%).

Overall production of chemical pulp in CEPI countries fell by 2.9% to 27.5 million tons in 2008. Production of sulphite pulp fell by 4.8% to 2.2 million tons, while output of sulphate pulp fell by 2.7% to 25.3 million tons. Mechanical and semi-chemical pulp output decreased to 13.5 million tons (-8.7%), the lowest annual output since 1996. Market pulp

production for 2008 was 13.8 million tons, virtually unchanged from 2007. Reflecting closures and downtime, pulp production capacity fell to 46.1 million tons (-3.4%) resulting in an operating rate of 90.8%, 1.2 points lower than in 2007.

TABLE 8.2.2
Woodpulp balance in Europe, 2007-2008
(1,000 m.t.)

	2007	2008	Change %
Europe			
Production	51 020	49 015	-3.9
Imports	19 919	19 641	-1.4
Exports	12 909	12 533	-2.9
Net trade	-7 009	-7 107	1.3
Apparent consumption	58 029	56 122	-3.3
Of which: EU27			
Production	48 104	46 275	-3.8
Imports	18 562	18 287	-1.5
Exports	12 122	11 751	-3.1
Net trade	-6 440	-6 536	1.5
Apparent consumption	54 544	52 811	-3.2

Source: UNECE/FAO TIMBER database, 2009.

Pulp consumption in CEPI countries declined by 4.2% to 48.5 million tons in 2008. Imports of pulp fell to 7.8 million tons (-3.8%), with primary sources remaining Latin America (55.3%) and North America (34.9%). Consumption of mechanical and semi-chemical pulp decreased to 13.6 million tons (-8.3%) while consumption of chemical pulp was 33.4 million tons, a decrease of 2.6% over 2007. Among CEPI countries, output of pulp fell by 18.3% on a year-over-year basis from the first quarter of 2008 to the first quarter of 2009, reaching the lowest quarterly output figures since 2001.

Pulpwood prices in Europe reportedly declined over the past year, along with a more generalized decline in timber and sawlog prices (Wood Resources International, 2009). Meanwhile, the Government of Russia discussed a one-year delay in the planned escalation of the roundwood export tax. The roundwood tax has already resulted in higher wood costs for European pulp and paper producers – particularly in 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.

8.2.4 Eastern European pulp and paper market trends and policy issues

Eastern Europe's pulp and paper industry still enjoys some cost advantages, but cost trends are moving rapidly in favour of western EU Member States. Eastern European countries are now, for the most part, members of the EU, which necessitates compliance with all EU regulations, and in particular for the pulp and paper industry this has resulted in the rapid erosion of some regional cost advantages. Hence, some EU policies are seen more as a hindrance than as opportunity within the region. Eastern Europe also has ageing forests, relatively high forest inventories and expanding areas of forested land that are being less utilized for raw-material harvest. The forests are under relatively high risk of damage due to probable consequences of climate change.

Storm damage is among those forest threats that can rapidly change business opportunities in forestry and forest industries, but market shifts can just as rapidly affect competitiveness. Eastern Europe experienced relatively calm weather in the period from 2008 through the first half of 2009, avoiding major forest damage, although wood fibre availability in early 2008 was still influenced by salvaging of wood from earlier storms. However, significantly lower production of sawnwood and sawmill chips in 2008, together with less willingness of forest owners to harvest wood at lower prices, created a more difficult supply situation for wood-fibre consumers, including pulp manufacturers. Thus, a relative surplus of wood-fibre raw material quickly disappeared during the winter of 2008 and spring of 2009.

EU policies in areas such as energy production, labour protection and environmental issues are seen as creating a difficult situation for pulp and paper producers of Europe in general, while the EU market is relatively liberal and open to competing producers from other regions that have clearly different policy standards for energy, labour and the environment. While EU protectionism is not a good solution, the situation calls for a thorough and cross-sectoral approach, taking all consequences into account. Among key policies that are clearly affecting pulp and paper competitiveness in the UNECE region are the "green energy production" policies in member countries. Heavily subsidized green energy production allows energy producers in some cases to pay higher prices for wood than pulp producers can afford. Significantly lower added value and employment effects of green energy production compared with pulp and paper production are obvious, and under current economic conditions, production of pulp and paper in the entire EU region is significantly threatened by costly government policies.

8.2.5 EU political developments: Energy & Climate Change Package, illegal logging, end of "waste" paper classification, and water issues

At the EU level, the year 2008 was dominated by important political discussions about climate change and bioenergy under the Energy & Climate Change Package, issued by the European Commission (EC) in January 2008. The package sought to reduce EU greenhouse gases by at least 20% and increase to 20% the share of renewable energy in total energy consumption by 2020, as agreed by EU leaders in March 2007. Discussions have been ongoing since then, particularly on the ways to raise the various targets and the burden sharing, but also on the effects on the industry sectors and particularly the energy-intensive sectors, such as the pulp and paper industry. Much will depend on the discussions and a possible agreement at the Copenhagen Climate Change summit to be held in December 2009.

Legislation was developed during the spring of 2009 to fight illegal logging. It will most probably include more restrictive requirements, and is expected to be adopted in 2010 (see chapter 2 for more information).

The EC, while revising the Waste Framework Directive, has been working on the status of recovered paper to be reclassified as secondary material instead of waste. This will benefit the industry in many ways, particularly by reducing administrative and permit costs, and by supporting work for quality management which the supply chain would more readily understand if the material is no longer classified as "waste". Many initiatives also indicate that water is going to be the next major issue on the EU policy agenda.

8.2.6 European paper industry calls on European Commission to take leadership or risk jeopardizing the industry's future

On 29 June 2009, European leaders of the pulp and paper industry launched a manifesto for competitiveness and employment in Brussels. They sounded a stark warning that unless solutions are found quickly to respond to the economic crisis and unless a more rational policy making approach is introduced, the competitive transformation of their industry, and indeed all European industries, will not be sustained.

The key areas in which the industry urged the EC to act include: ensuring a better balance in policy making between advocates of environmental, competitiveness and employment interests; allowing Europe to compete with lower energy cost competitors; creating opportunities in the EU Emission Trading System; boosting the availability of raw materials and market access; applying flexibility to competition rules to facilitate restructuring; fighting protectionism in competing countries; and turning innovation into a reality.

8.2.7 Global forest products industry CEOs call for a level playing field to reboot economy

In May 2009, global leaders of the forest products industry meeting within the International Council of Forest & Paper Associations (ICFPA) in London sounded a warning that Governments' efforts to offset the environmental challenges and economic crisis facing the world today may have the perverse impact of exacerbating the problems. According to the ICFPA, Government subsidies risk creating deep distortions in competition and inhibiting investment flows needed for rebooting the economy. Protectionism and a focus on regional economics will lead to reduced global trade and may deepen the current crisis. Looking to the longer term, CEOs were optimistic that the industry would adapt. At a moment when people of all nations are questioning the economic and environmental direction of the global business model, 20 CEOs from the forest industries of 12 countries called for innovation in business models to adapt to changing environments (ICFPA, 2009).

The forest products industry model may hold answers to many of the questions. Increasingly, markets are demanding products that respect nature, while meeting human needs and earth's carrying capacity. Only industries that live within nature's cycles will prosper in the future. The participants pointed to a set of lessons that have emerged from the forest industry model (CEPI, 2009):

- Sustainable production contributes to prosperity in rural areas;
- Economic activities that are based on sustainable forest management will mitigate deforestation and forest degradation;
- Industrial processes that rely on nature's carbon cycle will help reduce greenhouse gas emissions;
- Use of renewable materials that are recyclable and return to nature will meet society's needs within nature's carrying capacity.

The CEOs noted that the forest sector itself has not yet reached its full potential in terms of providing a model of sustainable production and consumption, but also felt confident that the future of all industrial production will need to be based on the models that are evolving in their industry.

8.3 CIS subregion, focusing on Russia

8.3.1 Russia and the CIS subregion experience slower growth

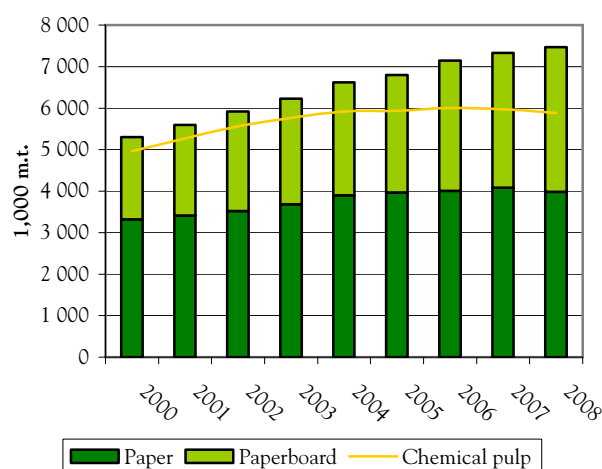
Growth in Russia's output of pulp, paper and paperboard has been much slower in recent years (graph 8.3.1). Both China and Finland have demonstrated more rapid growth in recent years, based in large part on expanded wood-raw-material imports from Russia. Growth rates have, however, moderated over the past year. Between 2007 and 2008, in Russia only paperboard production increased (by 5.6%), while annual production levels declined for the first time in a decade for both paper (-2.5%) and chemical woodpulp (-1.6%). Russia's total production of paper, paperboard and market pulp edged upward (by 0.2%) to 9.75 million m.t. in 2008, the slowest aggregate growth in more than a decade.

8.3.2 CIS and Russian balance of trade

Exports of paper and paperboard, as well as woodpulp, increased in 2008 for Russia and the CIS region as a whole (table 8.3.1). Russia has been running a negative balance in the value of net trade in paper and paperboard since 2001, and in 2008 the trade deficit was estimated at \$2.1 billion (up from \$1.6 billion in 2007). The value of Russia's pulp exports greatly exceeds the value of imports, but a deficit has nevertheless arisen since 2006 in Russia's total pulp and paper trade balance (reaching a net deficit of \$1.0 billion in 2008).

GRAPH 8.3.1

Production of pulp, paper and paperboard in the Russian Federation, 2000-2008



Sources: Federal State Statistics Service, Goskomstat, PPB-express, and author's data interpretation, 2009.

TABLE 8.3.1

Paper, paperboard and woodpulp balance in the CIS,
2007-2008
(1,000 m.t.)

Paper and paperboard	2007	2008	Change %
Production	9 023	9 098	0.8
Imports	2 798	2 797	0.0
Exports	2 821	2 942	4.3
Net trade	23	146	538
Apparent consumption	9 000	8 952	-0.5
Woodpulp			
Production	7 097	7 006	-1.3
Imports	250	222	-11.1
Exports	1 900	2 036	7.2
Net trade	1 649	1 813	9.9
Apparent consumption	5 447	5 193	-4.7

Source: UNECE/FAO TIMBER database, 2009.

The recent global economic crisis has had a large impact on Russia's forest sector. In the period from late 2008 to early 2009, a dramatic change occurred both in the volume of exports and in domestic shipments. The slump in industrial production in countries that are importers of Russian roundwood, coupled with increased duties on roundwood exports, resulted in a decrease in roundwood exports, mainly to Finland. Falling sales of consumer goods in the US and western Europe led to decreasing growth of industrial output in China, and consequently decreasing growth in consumption of packaging paper and paperboard, with a reduction in kraft-liner exports from Russia to China. The global surge in market pulp inventories resulted in falling global market pulp prices and simultaneous drastic shrinkage of market pulp exports from Russia to China. The recent economic crisis has actually produced a stoppage of a number of so-called priority investment projects developed in recent years that were oriented towards expanded processing of wood in Russia.

At the same time, because of a significant downturn in the exchange value of the ruble, as related to the euro and US dollar from August of 2008 to March of 2009, the cost competitiveness of a number of Russian paper products has likely increased (e.g. office paper, newsprint) both in internal and external markets. Since March, the ruble exchange value has increased modestly, but by June 2009 still remained at least 20% lower than a year earlier (in terms of the euro and dollar).

8.3.3 Russian policy on roundwood and sustainable forest management

Whereas Europe is discussing problems of wood mobilization, Russia needs new enterprises such as pulp and paper for integrated in-depth processing of wood to sustain forest management in the regions where the resources are obtained. The growing stock of timber in Russia amounts to 89.3 billion m³, with annual growth exceeding 900 million m³. The harvest potential of accessible forest area is about 540 million m³ a year, but felling volume has never been above 300-350 million m³. In the recession of the 1990s, it dropped, for instance, to a low of 75 million m³ in 1998. Harvest was 135 million m³ in 2007, and 105 million m³ in 2008 (a 12% decline). Roundwood exports accounted for about 35% of the harvest in 2008. Thus, no more than about 20% of Russia's allowable cut is currently being used. Several obstacles exist to increasing the harvest level, including accessibility of the forest areas.

The forests of Russia represent over 20% of the global forest resource, larger than any other Country's forests, but they are not in full use. At present, the entire Russian pulp and paper industry is within the private sector, while Russian forests generally remain State property, with forest management implemented on a rental basis supported by local industry. Implementation of a major programme to increase forest growth through intensified forest management would contribute, apart from climate change mitigation, to employment and continued economic stability in Russia. This would require major investment (billions of dollars) in Russian forest industry development as well as greater attention from the world's financial institutions.

In the context of the global atmospheric carbon balance and mitigation of greenhouse gas emissions, it also makes far more sense to process wood as close as possible to the forest source, rather than export roundwood from Russia, because transport costs and power consumed to transport the wood are reduced. Consequently, Russian policy, such as the export tax on roundwood, seeks to channel forest enterprise development to Russia.

Unfortunately, the combined effects of the roundwood export tax and global economic downturn have had a very negative economic impact on timber-exporting regions of Russia, leading to discussions of postponing export tax increases, or cancelling the export tax for companies that construct processing facilities in Russia.

8.4 North America subregion

8.4.1 Prices retreat from 2008 peaks as demand and production decline

North American paper and paperboard production and consumption declined in 2008, while exports and net trade increased. Combined US and Canadian production of paper and board declined by 5.3% in 2008 (table 8.4.1), while separately US output declined by 4.3% and Canadian output declined by 9%. However, generally North American paper and board production plunged further in the second half of 2008 and early 2009, with US output down by 17% in the first five months of 2009 relative to the same period in the previous year (AF&PA). It can be noted that this year-over-year percentage decline was almost identical to the year-over-year decline in production for CEPI member countries of Europe as of the first quarter of 2009 (CEPI).

US price indices for paper, paperboard and woodpulp all peaked in the third quarter of 2008, and then retreated from 2008 peaks in the fourth quarter of 2008 and first half of 2009 (graph 8.4.1). The data in the graph of US price indices extend only to May of 2009, but in June woodpulp prices were reportedly levelling out and actually beginning to increase, according to some industry sources, while some recovered paper prices also increased modestly after bottoming out earlier in the year. Prices continued to decline for many commodities, but at a slower pace in many cases. Thus, it appeared that demand was beginning to stabilize at lower levels by mid-year, at least for pulp and recovered paper, although pulp, paper and board prices in general remained well below peak levels of the preceding year.

TABLE 8.4.1

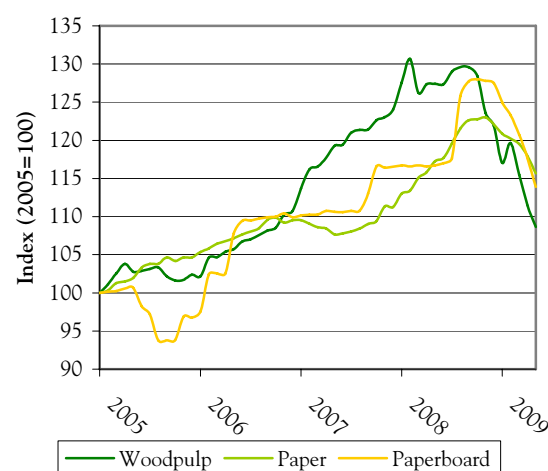
Paper, paperboard and woodpulp balance in North America, 2007-2008
(1,000 m.t.)

Paper and paperboard	2007	2008	Change %
Production	101 283	95 951	-5.3
Imports	17 288	15 694	-9.2
Exports	22 384	22 617	1.0
Net trade	5 096	6 923	35.9
Apparent consumption	96 187	89 028	-7.4
Woodpulp			
Production	78'147	73'328	-6.2
Imports	6'870	6'008	-12.6
Exports	16'816	16'671	-0.9
Net trade	9'946	10'663	7.2
Apparent consumption	68'201	62'664	-8.1

Source: UNECE/FAO TIMBER database, 2009.

GRAPH 8.4.1

US monthly price indices for woodpulp, paper and paperboard, 2005-2009



Source: US Department of Labor, Bureau of Labor Statistics, Producer Price Indices, 2009.

8.4.2 US and Canadian net trade continues to reflect shift in currency values

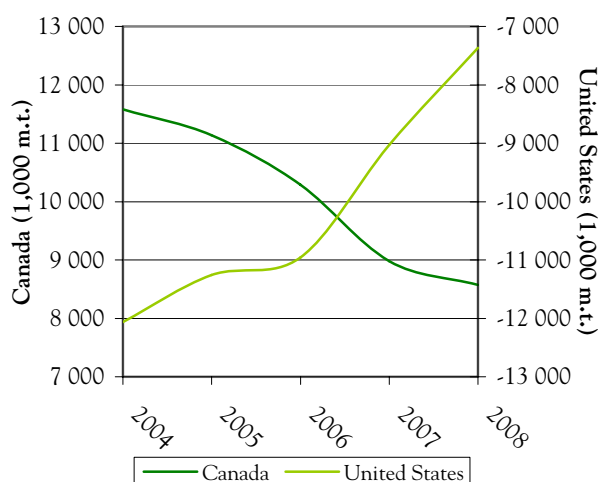
Net trade tonnage (exports minus imports) continues to reflect the shift in currency values. The Canadian dollar gained value in recent years relative to the US dollar as crude oil prices increased (Canada is the leading source of US crude oil imports). Although Canada continues to be a large net exporter of graphic papers and the US a large net importer, Canadian net exports of graphic papers declined by 3 million m.t. from 2004 to 2008, while US net exports increased by nearly 5 million m.t. over the same period (graph 8.4.2). However, despite lower tonnage the US dollar value of Canada's graphic paper exports actually increased in 2008 (by 9%).



Source: K. Kadam, National Renewable Energy Laboratory, 2009.

GRAPH 8.4.2

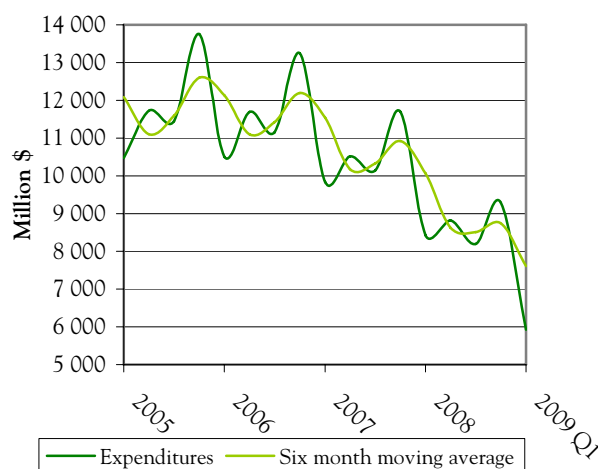
Canadian and US net trade in graphic paper,
2004-2008



Source: UNECE/FAO TIMBER database, 2009.

GRAPH 8.4.3

US quarterly newspaper print advertising expenditures,
2005-2009



Source: Newspaper Association of America, 2009.

8.4.3 Graphic papers lead the downturn

The downward spiral of newsprint production and consumption in North America accelerated in 2008 and 2009. Newspaper publishers are the primary consumers of newsprint in North America, and advertising expenditures are their primary source of revenue. Print advertising expenditures at US newspapers have declined in recent years, a trend that accelerated as the global financial crisis unfolded (graph 8.4.3). In the first quarter of 2009 these expenditures were 30% lower than in the first quarter of 2008 (Newspaper Association of America, 2009). Rapid deterioration of newspaper advertising over the past year is attributable largely to declines in advertising for automobiles, transportation, travel, and consumer goods, as consumer credit, consumer spending and travel were deeply affected by the financial crisis.

Consequently, North American newsprint demand and output in the first four months of 2009 declined similarly by about one third relative to the same period in 2008 (Pulp and Paper Products Council, 2009). US newsprint capacity had already declined by about one third to 4.5 million m.t. in 2008 after reaching an all-time high of 6.8 million m.t. in 2000 (AF&PA, 2009a). Thus, in early 2009, newsprint production was running at less than half its historical peak level of a decade ago. The secular decline of North American newsprint demand is associated with declining newspaper circulation and a structural shift in advertising expenditures from newspapers to electronic media. The publishers of several large North American newspapers have declared bankruptcy in the past year.

Printing and writing paper demand also experienced significant deterioration in North America in 2008-2009. According to UNECE data, total North American (US and Canadian) graphic paper consumption declined in 2008 by 12% relative to 2007, but the decline in total US printing and writing paper demand accelerated to double that rate on a year-over-year basis by early 2009. According to the American Forest & Paper Association's March 2009 Printing-Writing Paper Report, total US printing and writing paper shipments to domestic and export markets from January through March of 2009 were 22% lower than in the same period of 2008, while US domestic purchases were similarly down by 24% (AF&PA, 2009b). Larger percentage declines (over 30% on average) occurred in coated paper and uncoated mechanical paper demand (associated with declining print advertising expenditures), while a significant but smaller percentage decline (16%) occurred in uncoated freesheet paper demand (AF&PA, 2009b).

Apparent consumption of packaging paper and board in North America declined by 5.6% in 2008 relative to 2007, while production declined by 4%. The decline in production was greater for Canada (down 7.4%) than the US (down 3.7%). The decline accelerated in the second half of 2008 and into early 2009. According to the American Forest & Paper Association's May, 2009 Paperboard Report, total US paperboard production was down by 14% in May, 2009 compared to May, 2008 (AF&PA, 2009b). By contrast, North American consumption of sanitary and household paper was much less affected by the overall economic downturn, declining by just 0.9% from 2007 to 2008.

Apparent consumption of all paper and paperboard in North America declined by 7.4% (7.2 million m.t.) in 2008 relative to 2007, and the decline accelerated in late 2008 and early 2009. Monthly data on production and demand through May of 2009 suggest that the decline for 2009 will likely be larger than the decline in 2008, perhaps twice as large, unless markets improve substantially in the second half of the year. Stabilization and modest increases in prices as of June 2009 suggest that the market downturn may be nearing bottom.

8.4.4 Woodpulp, pulpwood, and recovered paper trends

North American production of woodpulp declined by 6.2% from 2007 to 2008 (down by 9.2% in Canada and 4.9% in the US) according to UNECE data. Exports from the US actually increased by 14%, to 7.1 million m.t., while Canadian exports declined by 10% to 9.6 million m.t., a trend driven in part by relative currency values. From 2004 to 2008 US pulp production declined by 1.6 million m.t. while Canadian pulp output declined by 6.0 million m.t.



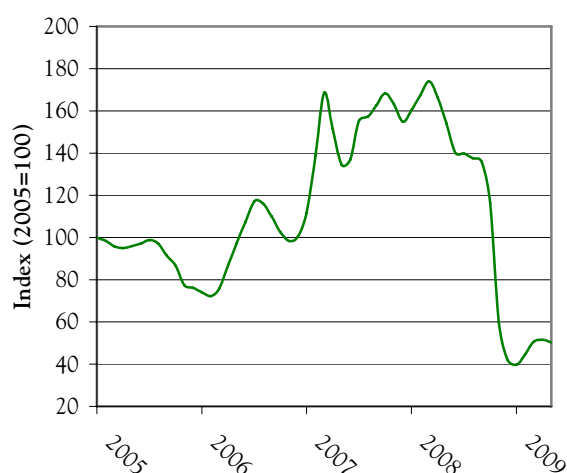
Source: W. Gretz, National Renewable Energy Laboratory, 2009.

North American pulpwood supply had been negatively impacted since 2006 by the housing downturn and lower sawnwood and plywood production, which reduced supplies of chips from sawmills and plywood mills, but recent declines in pulp output and fibre demand have overshadowed the market. Thus, the latest pulpwood price cycle generally peaked in North America in the second half of 2008 in most US regions (or earlier in the year in Canada). By May of 2009 US delivered pulpwood prices had dropped by more than 10% from the peak levels of October to November 2008 (according to the US Bureau of Labor Statistics, Pulpwood Producer Price Index) (US Bureau of Labor Statistics, 2009).

US exports of recovered paper edged upward in 2008 to nearly 18 million m.t., but the recovered paper export market was in transition over the year. Exports were growing rapidly in the first quarter, primarily driven by booming exports to China. The booming Asian demand contributed to substantially higher US prices for recovered paper commodities in 2007-2008 (graph 8.4.4), but by the end of 2008, prices had collapsed along with overall paper and board demand. Whereas the year began with Asian export demand pushing prices to near historical peaks, the year ended with bargain prices sustaining US export volume to Asia. The general decline in US consumption of paper and board was also beginning to affect recovery volumes, so supply was beginning to tighten and prices appeared to be stabilizing (at lower levels) in early 2009.

GRAPH 8.4.4

US price index for recovered paper, 2005-2009



Note: Recovered paper price for old corrugated containers (OCC).

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

8.4.5 Energy and climate policies gain attention

Energy and climate policies gained attention for the pulp and paper industry in North America in the form of US alternative fuel tax credits and renewable fuel standards, and Canadian energy and environmental improvement assistance programmes.

US kraft pulp producers were taking advantage of a temporary alternative fuels tax credit that was set to expire on 31 December 2009. Black liquor, combustible spent pulping liquor containing wood residuals from kraft pulping normally burned in the kraft chemical recovery process, became qualified for a tax credit under the US Tax Code. The tax credit law was passed by the US Congress several years earlier, originally as part of the

2005 highway bill, which provided tax credits for a range of alternative fuels, including liquefied petroleum gas, compressed or liquefied natural gas, liquefied hydrogen, and liquid fuel from coal, as well as biomass-based fuels (but not ethanol, methanol, or biodiesel, which have separate tax provisions). The tax credit was set at 50 cents per gallon of gasoline equivalent energy, which is much less per gallon of black liquor because of lower energy content than gasoline. In June, two high-ranking US senators proposed legislation that would end the tax credit for fuel derived from production of paper or woodpulp (including lignin, wood residues, or spent pulping liquors), claiming that it was not intended for that purpose. But in the meantime the tax credit remained available to kraft pulp producers who utilize black liquor for energy.

Separately, the US Energy Independence and Security Act of 2007 introduced the US Renewable Fuel Standard, which mandated expanded production within the next 15 years of “advanced biofuels”, meaning, specifically, fuel made from cellulosic biomass (such as wood or agricultural biomass). The concept of integrated forest biorefineries to produce cellulosic biofuels is also being explored at several pulp mill locations in the US. However, as the energy bill included provisions that disqualified biomass from public forest lands and from naturally regenerated forests (which collectively are the majority of forest lands in the US), so the potential impact in terms of future competition for pulpwood resources remains uncertain.

Meanwhile, in June of 2009, the Government of Canada announced its “Green Transformation Program” that will reportedly provide funds of up to \$1 billion over the next three years for capital expenditures to improve energy efficiency or environmental performance at any pulp or paper mill in Canada. Canada is also providing \$170 million under its Economic Action Plan to help companies develop new products and processes, and has provided the \$1 billion Community Adjustment Fund and \$1 billion Community Development Trust to help communities mitigate effects of economic restructuring during the current economic recession.

The current economic crisis has focused attention on those energy and environmental policies that affect the pulp and paper industry, whether by considering the impact of the crisis on the rationale for Russia’s export tax on roundwood, proposals for carbon credits, delayed introduction of emission limits in Europe, or effects of energy and environmental policies in North America.

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Chapter 9

Continued growth expected for wood energy despite turbulence of the economic crisis:

Wood energy markets, 2008-2009⁵³

Highlights

- The economic crisis has not reduced the demand for wood energy, which is expected to continue to grow.
- The downturn in sawmill production caused a shortage of raw material supply for wood pellet producers.
- With decreased demand for pulpwood-quality roundwood for wood and paper products in 2009, some pulpwood is being converted into wood energy.
- Economies of scale are being increasingly utilized in both production and logistics to further expand the market volume.
- The pellet production level in Russia is gradually rising again, after stagnation in 2008.
- An ambitious policy of the Russian Government on the use of renewable energy sources is contributing to the development of the domestic wood biomass market.
- North American wood pellet production is increasing swiftly and is primarily focusing on the European market.
- Canada continues to be the world's largest wood pellet exporter, shipping large amounts to power stations primarily in western Europe, but also in Japan.
- A proposed phase-out of electricity generation from coal in Ontario, Canada, is expected to increase domestic demand for biomass as power stations are converted from coal to biomass.
- 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. Rens Hartkamp, Consultant, Netherlands, Dr. Bengt Hillring, Swedish University of Agricultural Sciences (SLU), Dr. Warren Mabee, Queen's University, Canada, Mr. Olle Olsson, SLU, Dr. Kenneth Skog, USDA Forest Service, US, Mr. Henry Spelter, USDA Forest Service, US, Mr. Johan Vinterbäck, SLU and Ms. Antje Wahl, FPInnovations-Forintek Division, Canada.

Secretariat introduction

While the economic crisis in late 2008 and early 2009 reduced the demand for energy, as evidenced by a steep decline in the price of oil, government policies to promote renewable energy sources have kept the wood energy market strong. With oil prices rising in mid-2009, market demand for alternative fuels, including wood, is growing. Government policy measures enacted to counter economic recessions often include funding to improve energy independence from fossil fuels. Subsidies aimed at improving the environment are part of what is termed the green new deal. This includes, for example, building infrastructure to produce and use carbon-neutral wood-based fuels. During its session scheduled for 12-16 October 2009, the UNECE Timber Committee will hold a policy forum entitled "The forest sector in the green economy". Wood energy will be an important topic during the forum.

The UNECE/FAO Timber Section has other activities in the field of wood energy in addition to this chapter. We are conducting a second Joint Wood Energy Enquiry in the UNECE region and expect to publish results in 2009. We held a workshop on "Estimating potential sustainable wood supply"⁵⁴ in March 2009; this subject was driven by the need to produce more wood fibre to meet energy policy targets while satisfying wood industry needs. Together with partner organizations and Governments, we conducted a workshop in June 2009 on "Strategies for increased mobilisation of wood resources from sustainable sources."⁵⁵ We are embarking on a new long-term outlook study for the forest sector, which will include scenarios for wood-energy supply and demand, something not included in the 2005 outlook study.

We express our sincere appreciation to the collective work of the authors and contributors to this chapter. It was coordinated, again, and partly written by Mr. Olle Olsson,⁵⁶ Ph.D. student and his advisor Dr. Bengt Hillring,⁵⁷ Associate Professor, Department of Energy and Technology, Swedish University of Agricultural Sciences (SLU). They were joined for the first time by Dr. Johan Vinterback,⁵⁸ Researcher, SLU.

⁵⁴ <http://timber.unece.org/index.php?id=128>

⁵⁵ <http://timber.unece.org/index.php?id=158>

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Once again we benefited from the Canadian analysis by Dr. Warren Mabee,⁵⁹ Assistant Professor, Energy & Environmental Policy, Queen's University, Ontario, Canada. Dr. Christopher Gaston,⁶⁰ National Group Leader, Markets and Economics, FPInnovations-Forintek Division, Vancouver, British Columbia, reviewed the chapter. Ms. Antje Wahl,⁶¹ Scientist, FPInnovations-Forintek Division, Vancouver, joined the team for the first time.

For the update of the US analysis, we once again thank Dr. Kenneth Skog,⁶² Project Leader, Economics and Statistics Research, USDA Forest Service, Forest Products Laboratory. He was joined again by Mr. Henry Spelter,⁶³ Research Scientist, Economics and Statistics Research, USDA Forest Service, Forest Products Laboratory. Mr. Spelter was previously an author for sawn softwood and panel chapters of the *Review*.

For the first time the Russian energy section was written by Dr. Rens Hartkamp,⁶⁴ Project Leader, SMK (formerly Stichting Milieukeur). He has experience in Russian wood-energy markets and policies. We welcome him to the *Review* and thank him for the insight which he brought to the chapter. Dr. Hartkamp works together with our colleague at UNECE, Mr. Hans Jansen, in Cooperation in Biomass Enterprise Development and Trading.

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9.1 General energy-market developments

The financial turbulence began to affect the real economy in the second half of 2008, and substantially slowed down global economic activity. The resulting decrease in energy demand led to a sharp drop in energy prices (IMF, 2009). The price of oil dropped from the all-time high at \$147/barrel in July 2008, to below \$40/barrel in late 2008, and a similar development could be seen for coal (graph 9.1.1). During the first half of 2009, the price of oil slowly recovered and in May 2009, the price of oil is about \$60/barrel. Although this is less than half the peak price of summer 2008, it is a high price level in a long-range perspective, which will continue to favour alternative energy sources, including woody biomass.

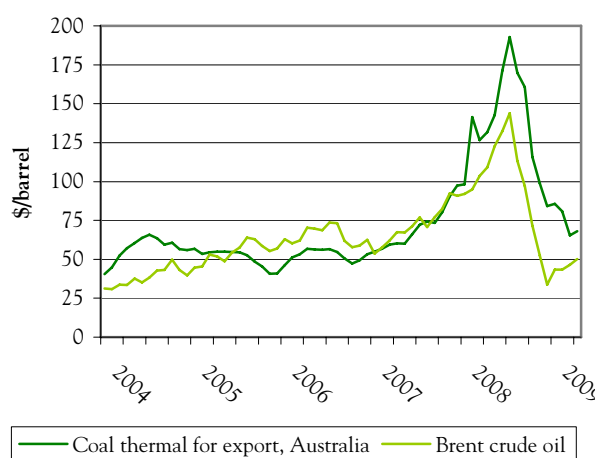
As the seriousness of the economic crisis began to become clear in late 2008, there were fears that this would lead to a lower priority being given to the mitigation of climate change (Kanter, 2008). However, many argued that the “green economy” would prove less vulnerable to the economic crisis and that the political weight behind the efforts to mitigate climate change would ensure continuing demand for renewable energy. As it turns out, many Governments, as well as the European Union (EU), have indeed included large programmes focused on renewable energy and energy efficiency in their economic recovery packages (European Commission, 2008).

The economic downturn has had severe effects on most sectors in the global economy. However, it seems that the wood energy sector – as an important share of the renewable energy sector – is currently strongly influenced and supported by energy policies. These energy policies aim at mitigating climate change and diversifying the national energy portfolio to enhance energy security. The Russo-Ukrainian dispute, focused on the transfer tariffs for Russian gas being transported over Ukrainian territory, again increased the sense of urgency of European Governments and consumers for diversifying their energy supply.

A probable consequence of the financial crisis is an increased consolidation in the renewable energy industry. This would be a possible development as small companies have difficulties obtaining financing – especially in the form of venture capital – and thus instead may have to form different kinds of alliances with big energy companies.

GRAPH 9.1.1

Brent oil price and Australian coal export price, 2004-2009



Sources: IMF, US Department of Energy, 2009.

9.2 European wood energy developments

9.2.1 Europe: Policies driving markets

9.2.1.1 EU agrees on long-term energy and climate package

Some of the most important developments in European policy measures regarding wood energy since last year's *Review*, have been affiliated with the EU energy and climate package. The process towards an agreement on the EU's future energy and climate policy has been several years in the making since being initiated with a Green Paper in March 2006 (COM(2006) 105). In early 2008, the European Commission put forward several proposals for measures to promote renewable energy, EU limits for greenhouse gas (GHG) emissions and the post-2013 structure of the EU Emission Trading System (EurActiv.com 2008a; EurActiv.com 2008b).

During the second half of 2008, the policy package was heavily debated, but in mid-December, the European Parliament endorsed the package, thereby in practice removing the final obstacle for its entry into EU legislation. The aim of the package is to reach the so-called “20/20/20” goals – a 20% reduction of GHG emissions, a 20% increase in energy efficiency, and 20% of energy from renewable sources – by 2020.

Wood energy and other forms of bioenergy constitute an important part of the package, especially in the so-called renewables directive (European Commission, 2008). Apart from being included indirectly as an important tool to reach the 20/20/20 goals, details on energy from biomass are dealt with explicitly. The

directive sets a goal for 10% of energy in transportation to be from renewable sources by 2020, of which a large share probably will consist of biofuels; however, the directive also specifies that biofuels must save 35% of GHG emissions compared with fossil fuels, a limit that will be increased to 50% starting in 2017 (AEBIOM, 2008). There was speculation as to whether the directive would also include similar conditions for biomass used as fuel for heat and electricity production, but in the end this was not included.

9.2.1.2 Increased market transparency

An enduring problem with wood-energy markets is the lack of transparency resulting from the relative immaturity of the market. Market information such as available resources, trade flows and price statistics is often either not available at all or of less-than-superior quality. Research projects and initiatives such as UNECE/FAO's Joint Wood Energy Enquiry (UNECE/FAO, 2009), the EU-supported projects Pellets@las and EUBIONET, as well as the IEA Bioenergy projects, have helped to spread knowledge about international bioenergy markets, and recently quite a few companies have started to show interest, especially in the establishment of benchmark price indices for bioenergy. The Dutch company European Energy Derivatives Exchange (ENDEX) established a price index for industrial wood pellets in late 2008 which was recently used as a reference in a large wood pellet contract (Endex, 2009; Platts, 2009). Additionally, the Finnish company FOEX is also in the process of establishing price indices for wood pellets as well as for cutting residues. The company expects to begin publishing a Nordic wood pellet index before summer 2009 (Prezioso, 2009). Finally, it can also be mentioned that Argus Media, which for a long time has been publishing business reports and other types of studies on energy markets, has begun publishing a weekly report on bioenergy markets, including price data (Argus Media Website, 2009).

It is also worth mentioning that a project aiming to establish a global standard for solid biofuels – such as pellets – has been initiated. A global standard could be in place by 2011 (Norrby, 2008).

Another important step towards increased market transparency in wood energy is the establishment of a Combined Nomenclature (CN) code for wood pellets (44013020, "Sawdust and wood waste and scrap, agglomerated in pellets"). CN codes are used to represent different goods in international trade within the EU as well as in imports and exports to and from the EU. The revised CN will be implemented in 2009, so that data on trade in pellets will be available in 2010. The CN code for pellets greatly increases the possibility for wood-pellet trade patterns to be tracked through official statistics.

9.2.2 Europe: Market developments

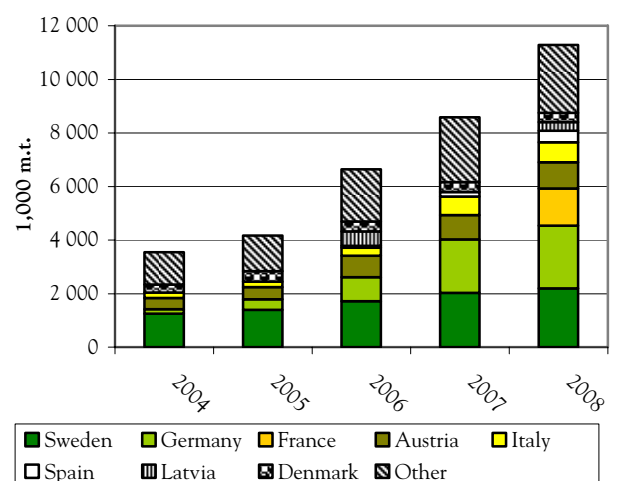
9.2.2.1 Wood-pellet market size and growth potential

Demand for wood pellets has grown remarkably in Europe in recent years, and market analysts expect it to continue to grow rapidly in the coming decade (Wild, 2009). The current size of the world wood-pellet market is around 10 million tons, but at the current growth rate of over 20% per annum, the market will double in four years (Wild, 2009; Wood Resources International, 2009).

Europe remains the largest consumer of wood pellets, and production capacity is also expanding fast. From 2005 to 2008 European wood pellet production capacity almost tripled, in particular due to large capacity growth in Germany (graph 9.2.1).

GRAPH 9.2.1

European wood pellet production capacity, 2004-2008



Source: Pellets@las, 2009.

A major share of wood energy consumption is co-firing of wood pellets with coal in power stations. A recent study (Hansson et al., 2009) estimated the potential for co-firing of biomass with coal in Europe, reaching the conclusion that 180-320 petajoules (PJ) of electricity could be produced annually from biomass co-fired with coal. This would require a fuel input of 500-900 PJ/annum (30-50 million tons of wood pellets) at an assumed conversion efficiency of 36%. Some analysts, however, predict that in a few years East Asia will overtake Europe as the world's largest wood-pellet market (Wild, 2009). All in all, it is expected that world wood-pellet markets will continue to grow at a strong rate in the medium term.

9.2.2.2 Economic crisis impacts on the wood energy market

The financial crisis and the ensuing economic downturn have reaffirmed the importance of seeing wood energy not as a separate entity but as an integrated part of many other systems. The financial crisis has had a major effect on European wood pellet markets, despite the fact that demand shows no sign of slowing down. Rather, the effects on the wood pellet industry are of a more subtle nature.

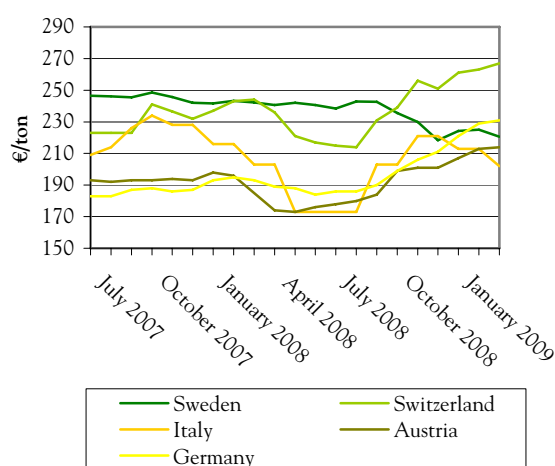
The dominant raw material for wood-pellet production has traditionally been residues from the forest products industry, especially sawdust. In the wake of the economic downturn, sawmills have decreased production, including sawdust. As a consequence, some wood pellet producers have had problems with raw material supply. Owing to lack of raw material, some pellets producers, e.g. in northern Sweden, had to stop production (Andersson, 2009).

The shortage of traditional raw material has also led to increased prices for wood pellets in most parts of Europe (graph 9.2.2). Pellet producers are increasingly looking toward non-traditional raw material sources, such as pulpwood. This has occurred as a result of strong wood energy markets and weak markets for traditional forest products such as paper and panels.

It is reported that forest owners in central Sweden in spring 2009 get more money by selling typical pulplogs as energy wood than as pulpwood (Ostelius, 2009). Pulpwood or energy wood consequently also has been adopted as a new raw material source by major pellet producers to an increasing extent.

GRAPH 9.2.2

European residential wood pellet prices, 2007-2009



Notes: Prices include value-added tax. The drop in Swedish wood pellet prices in late 2008 was heavily influenced by the weakening of Swedish currency relative to the Euro.

Source: Pellets@las, 2009.

9.2.2.3 Economies of scale

As the wood-pellet market continues to expand, more and more market actors are beginning to realize the potential gains made from economies of scale. This can be seen in the growing production capacity of new “supersize” wood-pellet plants, especially in North America. Currently, however, the world’s largest pellet plant (located in Cottondale, Florida, and run by Swedish-owned Green Circle Bioenergy Inc.) has an annual production capacity of 500,000 tons (Ljungblom, 2008b). The raw materials used for this plant are mainly whole trees from plantation-grown southern pine. This makes the plant independent of sawmill business cycles. On the same scale, a plant opened in 2008 and run by Dixie Pellets in Selma, Alabama, has an annual production capacity of about 454,000 tons. Several other large North American projects are in various stages of development (Mill Product News, 2009). As for new European production facilities, it is worth mentioning that a plant with a planned annual production capacity of 450,000 tons currently is under construction at Averøy near Kristiansund, Norway. The raw material for the plant will consist of imported Russian aspen chips (Münter and Verma, 2008; Biowood Norway A/S, 2009).

What these new large pellet plants have in common is that they are conceived primarily for export purposes, which may also signal a new trend. The majority of plants previously built – except in Canada and Russia – have been geared towards domestic markets in Germany, Sweden and Austria.

The importance of utilizing economies of scale can also be seen in wood-pellet logistics. In order for the long-distance bioenergy trade to become economically sustainable and less vulnerable to volatility in shipping costs, it is critical that all steps in the production and distribution chain be conducted as efficiently as possible. Approximately 7 GJ or 40% of the energy content is required to produce pellets in Canada and ship them to Europe (Magelli et al. 2009). Halving of transport costs per ton would require an increase in ship size from 40,000 dead weight tons (dwt) to 120,000 dwt, assuming no change in the price of bunker fuel oil (Bradley, et al., 2009).

9.2.2.4 Vertical integration in the wood-energy industry

With the expected increase of wood-energy demand, competition for wood fibre is bound to become increasingly fierce. Producers of wood panels, MDF and particle boards, as well as the pulp and paper industry, have for several years been concerned about the increasing competition for wood due to the expansion of bioenergy.

Vertical integration is a well-known strategy both to increase security of supply of raw materials (backward integration) as well as to increase market power by taking control of product distribution (forward integration). An example of this is the recent expansion of Finnish-Swedish forest industry company Stora Enso into the wood pellet market. Stora Enso is planning to produce in total 330,000 tons of wood pellets annually from plants located in Sweden, Finland, Russia and the Czech Republic. The raw material for the pellets will come exclusively from Stora Enso's own sawmills, which up until now have supplied other pellet manufacturers with raw material. By being able to utilize the sawmill by-products internally in the company, Stora Enso expects to have a competitive edge over other pellet producers as competition for raw material sharpens (Englund 2009; Isaksson 2009). In these integrated operations there are also other important synergistic gains, i.e. possibilities to share heat sources for drying between sawnwood drying and drying of sawdust for pellets.



Source: Stora Enso, 2009.

Several wood-pellet producers have initiated projects aiming to increase security of raw material supply. Latvian pellet producer SIA Latgran – owned by Swedish and Finnish interests – has started planting energy crops, and a similar strategy has been pursued by the Finnish bioenergy company Vapo (Ljungblom 2008a). On a similar note, the municipally-owned Swedish energy company Jämtkraft has recently started to acquire forest land for the purpose of producing wood fuel in order to increase available fuel supply for the company's heat and power production facilities (Vestun 2009).

9.3 Russian wood-energy developments

In Russia, the general perception on using wood biomass for energy purposes has improved over the last decade. The use of bioenergy was previously regarded as a reverse development. Today, the bioenergy market is taken seriously by the federal and regional governments.

The EU, the US and several other countries have policies stimulating the use of renewable energy sources (RES). The transition to RES is subsidized, in order to decrease the ecological footprint and dependency on fossil fuel imports. In Russia, however, the interest in RES is mainly economic: Russia's goal is to cut costs and increase export revenues by increasing efficiency and by using local RES (instead of fossil fuels) which is often cost efficient by itself. Moreover, the economized volumes of fossil fuels can be exported at higher international prices, and thus revenues at the national level can be increased.

Wood biomass is the most important and promising form of bioenergy in Russia. Fuelwood, industrial waste wood and also wood pellets are increasingly used in conventional heat production installations (on a commercial basis). Combined heat and power (CHP) and other advanced technologies are hardly used yet. Practically all energy pellets are produced from industrial waste wood, i.e. sawdust and chips.

Experts expect the bioenergy sector of Russia to grow rapidly; however, these positive forecasts have not been realized yet. Often the economic crisis is considered to be the main obstacle. Indeed, many investments were put off due to the economic downturn.

9.3.1 Russia: Policies driving markets

Russia consumes about twice as much energy in relation to its GDP as its Nordic neighbours Finland and Sweden, and the US. Improving energy efficiency in Russia is estimated to be three times less expensive than increasing the extraction of fossil fuels. Moreover, payback periods are expected to be short (World Bank, 2008; Shmatko, 2009). In June 2008, President Medvedev signed a decree on improvement of energy intensity. By 2020, the ratio between energy use and GDP should have improved by 40% (Rossiyskaya Gazeta, 2008).

A decree on the use of RES for electricity production was accepted by the federal government in January 2009. Currently, less than 1% of the nation's electricity is produced using RES, excluding hydropower. RES is planned to account for 1.5% in 2010, 2.5% in 2015, and 4.5% in 2020 (Russian government, 2009). The decree recommends that the regional and municipal Governments incorporate measures into their development programmes.

Most Russian district heating utilities were built 20 to 50 years ago and have not been modernized since. They are often highly inefficient and account for 25% of Russia's total energy consumption (Fedorov, 2009). About half of the Russian population inhabit areas that are not connected to gas or oil transmission pipelines. These regions have, however, great resources of wood (Energy & Enviro Finland, 2007).

Russian energy policy aims at the rational use of local RES and wide-scale decentralization. Wood biomass is often the most cost-efficient resource (Komarova, 2009). Its use would diversify the energy market, develop know-how and new technologies, improve local employment, and increase the profitability of the forestry sector. Because GHG emissions are considerably reduced, cooperation within the framework of the Kyoto Protocol can be considered also.

National energy goals are to be implemented on the regional and municipal levels. Normative acts and regulations are to be adapted or established. Numerous regions have already started development programmes to increase the use of wood biomass for district heating. In 2009 a Russian norm on "Untraditional technologies, energy and biowaste, terms and definitions" came into effect. It mainly deals with biofuels and biogas.

A new draft law "On implementing changes in separate Russian laws, with the goal to increase the energy and ecological efficiency of the Russian economy" is now in its second reading in the Duma. The law offers economic incentives to enterprises that use RES and develop environmentally-friendly technologies. Several mechanisms of tax discounts and subsidies are considered (Komarova, 2009; Russian Parliament, 2008).

Internationally-discussed sustainability criteria related to the production of biomass are considered by the federal government. Social prosperity, and the "food versus fuel" discussion received the greatest attention. The issue of GHG reductions is less prevalent.

Export duties on unprocessed wood were increased from 20% (or a minimum of €10 per m³) to 25% (or a minimum of €15 per m³) in April 2008. The third phase of the tax was postponed until at least until 2010 (Russian government, 2008). The custom duties are to rise to 80% (or a minimum of €50 per m³). The government expects this policy to influence the development of the sector for years to come. As a result, pellet producers temporarily benefit from a surplus of raw material on the market. However, this advantage could be of short duration, as the export tariffs will also contribute to the existing trend of decreasing harvest and production volumes.

Export duties for fuelwood are €4 per m³. However, no export tariffs are levied on pellets. This exception for pellets is not specified in the customs-tariffs regulations (Federal Customs Service of the Russian Federation, 2007). A tariff on pellets would decrease production and export rates immediately. A tariff could become concordant with governmental interests in the future, as public procurement increases.

The EU RES Directive states sustainability requirements for biofuels and bioliquids. Requirements on solid biomass should be developed also in 2009. The

Directive needs to be implemented by May 2010 and only "sustainable biomass" will contribute to the European goals. This will become important to Russian pellet exports, as most of the European market is dependent on subsidies provided by the member states.

In Europe several initiatives are focused on the development of a generic certification system for sustainable biomass. Some biomass certification systems, such as the Green Gold Label, already certify wood pellets. These relatively new biomass certification systems usually recognize international forestry certification systems, such as FSC and PEFC (Hartkamp, 2009). Pellets can already be marketed with a FSC or PEFC certificate. In Russia more than 19 million ha were FSC certified as on mid-2009. In March 2009, PEFC endorsed the Russian national certification system RNCFC; the first certificates are expected to be awarded at the end of 2009 (Metsälitto, 2009).

9.3.2 Russia: Market developments

The Russian wood-pellet market is considered to be immature and unstable. The wood-pellets sector attracted little private investment in 2008. Production capacity increased only slightly to about 1.5 million tons a year. However, at approximately 550,000 tons, the production level in 2008 remained unchanged from 2007. At the end of 2008, the export price rose to approximately €100 per ton FOB (port of St. Petersburg). In June 2009 it was at €110 per ton, and large suppliers could even realize higher prices (Ivin, 2009). Although the export price gradually rose in early 2009 it is not yet considered a trend.

Most of the exports go through the port of St. Petersburg. Relatively little is exported via the ports of the Baltic States or by road. Much is expected of the new Russian port of Ust-Luga, which is open all winter.

When assessing the possible growth rates of the Russian wood pellets sector, one needs to consider that the accessibility of forest and wood residues resources is often overestimated. Many feedstock locations are economically uninteresting to exploit because of the poor infrastructure and high transportation costs. Often the pellets need to be packed and transported in large bags first, before they can be unpacked and exported in bulk in containers or ships.

An indicator that the market could be reaching a new development stage is the increased interest in larger production capacities per enterprise (of 8, 12 and 16 tons per hour). Especially promising is the greater interest in investment shown by large wood-processing enterprises. At present there are six production plants with a capacity exceeding 220,000 tons per year, of which four are located in north-west Russia (Ivin, 2009). The planned production plant of 500,000 tons per year in Siberia,

which was mentioned in last year's *Review*, has not been built.

Oil and gas prices on the domestic market have risen gradually. This decreased the profitability of transporting and exporting pellets and increased the interest in the local use of bioenergy. However, most wood-processing enterprises with large quantities of their own feedstock and a good connection to export routes made profits on the pellet trade throughout the whole year. Advantageous for pellet exports was the devaluation of the ruble against the euro by approximately 27% between December 2008 and March 2009. Another advantage was a drop in prices for raw materials.

Governmental organizations are increasingly interested in bioenergy. They are cautiously looking for possibilities to cooperate with local business to convert central heating facilities to biomass. The domestic bioenergy market is still in development and transport distances are long. Unprocessed local wood waste is currently the easiest accessible resource for supplying this market. However, pelletizing is also profitable for this domestic use.

Wood-processing enterprises are increasingly using their own waste wood for heat production. These investments have a short payback period and low risk. Often only heat production equipment needs to be transformed. Building a pellet production line is not required. Surplus energy can be provided to the local municipality.

An increasingly large number of private consumers and enterprises are buying central boilers for waste wood, or pellets. This year, a few CHP installations using pellets (and biogas) have also been commissioned. On several important markets, the local pellet price is already higher than the export price.

In 2009, the Russian government confirmed its strategic interest in the use of RES, and wood biomass in particular. The present pellet-production capacity in Russia is about three times the actual production level. However, market infrastructure and regulation are insufficiently developed. Mostly organizational issues need development. The examples of pioneering cooperation between local Russian governments and private enterprises are therefore all the more promising.

It can be expected that the Russian domestic bioenergy and export-driven wood pellet market will continue to grow as public procurement increases and the investment climate improves in the long run.

9.4 United States' wood energy developments

9.4.1 United States: Policies driving markets

Although aggregate wood use for energy has remained relatively constant over the last several years, legislative initiatives and projections of high or moderate fossil fuel prices could potentially increase wood use for liquid fuels, power and heat.

United States Department of Energy (USDOE) projections indicate, for example, how fossil fuel prices could influence the amount of biofuels production. USDOE projections for world oil prices in 2030 range from \$50 to \$200 per barrel (2007 dollars) with a reference case projection of \$130 per barrel. For the reference case, biofuels production would fall short of the 136 billion litre (36 billion gallon) per year goal for 2022 (under the 2007 Energy Independence and Security Act (EISA)) but exceed the goal by 2030. For the low and high oil price projections, biofuels would reach 102 or 151 billion litres (27 or 40 billion gallons) in 2030, respectively (USDOE EIA, 2009a).

As part of the 136 billion litre per year goal for 2022, the 2007 EISA (PL 110-140) calls for 61 billion litres (16 billion gallons) of cellulosic biofuels. An assessment of feedstock supply suggests agricultural and forest biomass could meet the 61 billion litre target with feedstocks that cost about \$44 per oven dry ton (odt) at roadside or farmgate, with forests supplying about 36 million odt per year and agricultural sources providing 181 million (BRDi, 2008). The assessment suggested that at \$40 some of the forest feedstock could come from pulpwood sized material but most could come from currently unused small trees, tops and branches. In that assessment, short rotation woody crops are part of energy crops, which are considered generically and would likely include a combination of perennial grasses, short rotation woody crops, and annual energy crops. As such, the woody crops contribution was not specifically identified. If wood demand increases above this level and prices increase, supply from pulpwood sources and currently used mill residue sources would increase.

In 2007 renewable electricity production was 9% of total production and wood provided 11% of renewable electricity using about 38 million odt of wood and bark (USDOE EIA, 2009b, 2009c). If renewable electricity production were 15% of the 2007 level and wood provided 11%, then wood and bark use for electric power would be about 66 million odt, or approximately 70% more than the 2007 level.

A key factor that will be a driver in markets for wood feedstock for energy is the definition of "biomass" in legislation, which determines what materials can obtain

an incentive for energy use. As a result – depending on the legislation – wood from different kinds of stands and different forest ownerships will or will not qualify for incentives to produce wood-based liquid fuels, heat or power. The definition varies between the 2007 Energy Independence and Security Act; the Food, Conservation, and Energy Act of 2008 (PL 110-234, Farm Bill); and numerous pieces of draft legislation currently being debated.

EISA 2007, which promotes biofuels production, allows wood biomass feedstock only from non-federal land – with the exception of material adjacent to buildings or public places. Allowable wood from non-federal land includes previously established actively managed tree plantations and slash or pre-commercial thinnings.

The Farm Bill, which supports biomass supply for energy and investments in biomass energy production, allows use of wood from federal lands taken to reduce fire hazard or improve forest health and any wood from non-federal land available on a renewable basis.

As an example of legislation being debated, the current draft of the American Clean Energy and Security Act of 2009 (HR2454) allows some wood from federal and non-federal land with many specific permissions and restrictions. (US Committee of Energy and Commerce, 2009).

9.4.2 United States: Market developments

In 2008, wood biomass use for energy in the US was 2,152 PJ (approximately 237 million m³), which is down from 2,283 PJ in 2007. Aggregate use has been relatively constant since 2001 but below the recent high of 2,848 PJ in 1985. Since 2000, wood biomass has accounted for about 3% of US energy production (USDOE, 2009b). Other sources of biomass account for an additional 1% of energy production. Wood-energy consumption declined steadily as a share of all renewable energy consumption, from 45% in 1981 to 28% in 2008. Since about 2000, wood biomass use for energy has been relatively constant in residential, commercial and industrial uses, but increasing from a relatively low level in electricity production. Wood-based electric power production increased from 137 PJ in 1990 to 194 PJ in 2008. The Energy Independence and Security Act of 2007 has set targets for biofuels production using non-corn feedstocks through 2022 that could result in substantial wood use to make biofuels.

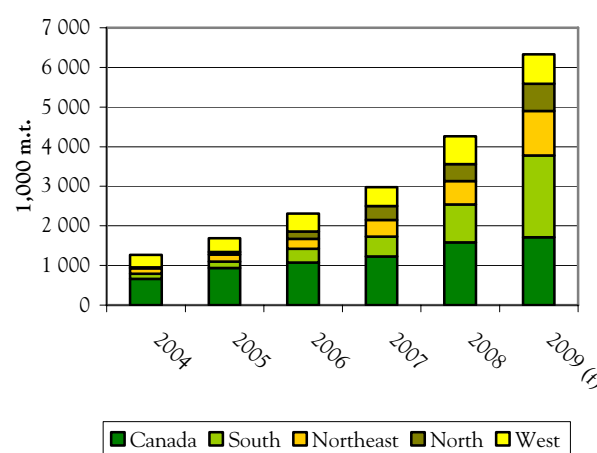
While total wood energy use has been relatively stable overall, wood-pellet production and use has been increasing. Pellet fuel has several advantages for heat and power production. Wood in its raw state has low energy density, contains half of its weight in water and, because of its low bulk density, makes handling and transportation costly. Pelletization improves on these handicaps.

Through densification, the energy content per unit volume is increased to near that of coal. In the process the moisture content is also lowered from approximately 50% to 10% (wet basis), enhancing its heating value by reducing the heat of vaporization and allowing it to burn hotter and more completely. The dewatering and increase in bulk density also make transportation more economical. Equally attractive from the end-user viewpoint is the ability to use automated systems to feed appliances because of the small, consistent size of the pellets.

The escalation of fossil fuel prices in the recent past led many consumers to search for lower-cost alternatives and found one in the form of domestically produced pelletized wood. In response to the demand surge, the industry quadrupled in size between 2003 and 2008 (graph 9.4.1) Most of these plants were small by pulp or other commercial wood-using industry standards and relied primarily on cheap waste residues (shavings and sander dust) as input.

GRAPH 9.4.1

North American pellet capacity, 2004-2009



Note: f = forecast.

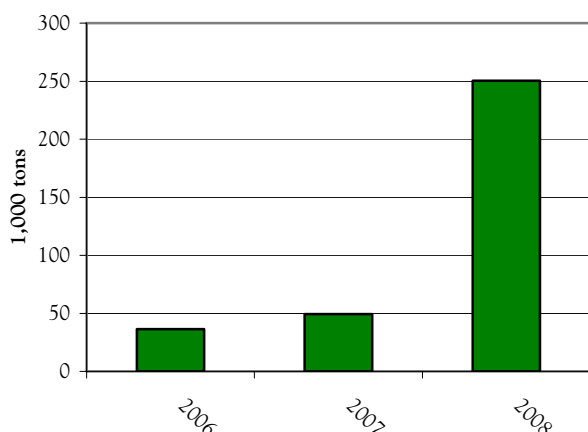
Source: Spelter and Toth, 2009.

In addition to demand from residential users, another source of demand arose from power plants seeking to cut emissions of carbon dioxide, as mandated by national Governments, particularly in Europe. Demonstrations have shown that an effective, minimally disruptive way to use biomass in power plants is as an amendment to coal. Up to about 15% of the total energy input can be substituted without incurring major equipment or modification costs (Bain, et al., 2003). Woody biomass is most appropriate because of availability, costs and operating parameters. In particular, the alkali and chlorine contents of wood are low, which minimize slagging, fouling

and corrosion. Among different forms of wood, pellets are most appropriate for larger pulverized coal-using plants because pellets also pulverize easily, unlike unprocessed wood that by its nature is stringy and non-friable. Accordingly, a second wave of investments has begun to come on stream based on much larger facilities, with raw material needs going beyond residues to roundwood or chips. The emergence of these plants coincides with escalating exports, primarily to Europe (graph 9.4.2).

GRAPH 9.4.2

US pellet and waste wood exports, 2006-2008



Source: US Department of Commerce, International Trade Commission, 2009.

At present there are over 100 pellet producing plants scattered throughout North America (figure 9.4.1). The estimated total production output of these plants in 2008 was 3.2 million tons.

FIGURE 9.4.1

North American pellet plant locations, 2009



Source: Spelter and Toth, 2009.

9.5 Canadian wood energy developments

9.5.1 Canada: Policies driving markets

9.5.1.1 Liquid biofuels

Most Canadian bioenergy policy has focused on liquid biofuels for transport. Canada has proposed a national mandate for biofuels designed to reduce total GHG emissions by approximately 4 million tons per year. In addition, several provinces have identified mandates that match or exceed the federal targets. The national mandate specifies an average of 5% renewable content in gasoline by 2010 (translating into a demand for about 2.2 billion litres of ethanol), and 2% renewable content in the diesel and distillate pool by 2012 (about 0.7 billion litres of biodiesel). Regulations to support the national mandate are currently being drafted and will likely be enacted later in 2009. Major Canadian biofuel funding programmes are in place (table 9.5.1).

TABLE 9.5.1

Major Canadian biofuel funding programmes, 2009

Funding programme	Amount (million \$CDN)	Programme goal
ecoEnergy for biofuels	\$1,500	Total 2.5 billion litres of renewable fuels
ecoAgriculture	\$200	Liquid biofuels produced by farmers
NextGen Biofuels Fund	\$500	Large-scale demo of 2 nd -gen biofuels

9.5.1.2 Wood-based heat and electricity

Canada's ecoEnergy for Renewable Power Program was established to increase the supply of electricity from renewable sources such as biomass, by providing funding for renewable energy projects. The programme provides an incentive of 1 cent per kilowatt hour for up to 10 years to eligible low-impact, renewable electricity projects constructed between 2007 and 2011. One such funded project is a major energy project at a pulp mill in British Columbia (Mercer International Celgar Pulp), where the mill is eligible to receive incentive payments of up to a maximum of C\$29.9 million over a period of ten years based on the delivery of a certain level of energy production.

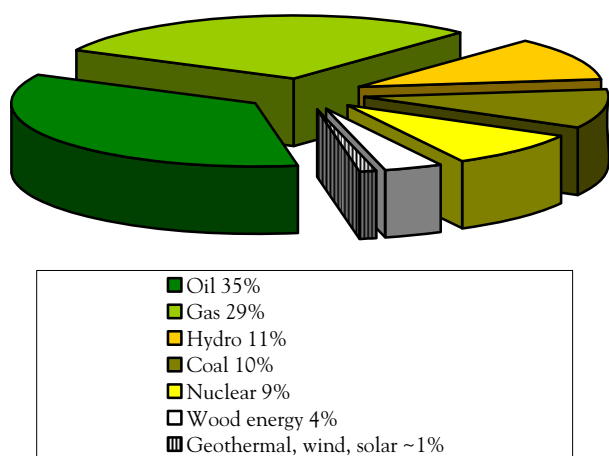
9.5.2 Canada: Market developments

Fossil fuels still dominate Canada's Total Primary Energy Supply (TPES); renewable energy is approximately 16% of TPES (graph 9.5.1). Canada's wood-energy generation capacity is largely linked to black liquor gasification within existing pulp and paper production facilities. Downsizing trends experienced

within the pulp and paper industry have been offset by some growth in new wood-to-energy capacity over the past few years.

GRAPH 9.5.1

Wood energy in Canada's total primary energy supply, 2009



Source: International Energy Agency, 2009.

The growth in wood-pellet production in Canada is closely linked with policies in Europe and Asia that favour non-fossil-fuel energy sources. Canada is the world's largest exporter of wood pellets; this is due to a relatively abundant supply of sawmill residues, as well as the small size of the domestic pellet market. Canada produced just over 1.3 million tons of wood pellets in 2008, which represents a slight drop from the previous year (graph 9.5.2) (Wood Pellet Association of Canada, 2009). Sales to the US decreased in 2008, while overseas shipments remained strong. The severe downturn in softwood sawnwood markets has had a domino effect on pellet producers and bioenergy plants in Canada. With many sawmills curtailed, running fewer shifts or even shut down, pellet plants have trouble sourcing sufficient raw material. At the same time, installed wood-pellet production capacity has continued to grow and now stands at over 2 million tons.

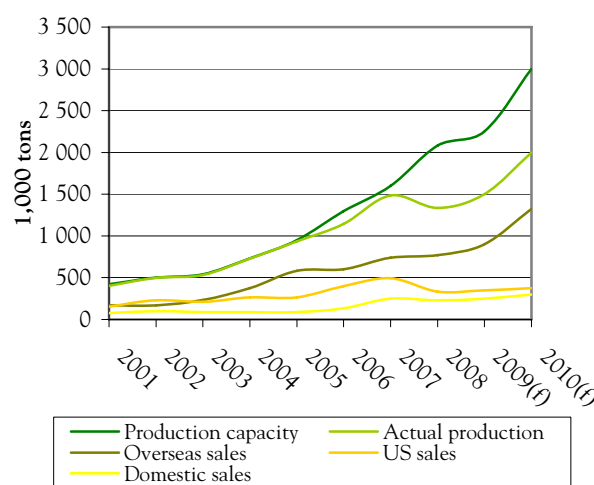
While the domestic market has been increasing in recent years, Canadian wood-pellet producers still manufacture primarily for export. In 2008, over 80% of total production was exported. Europe remains the largest market, with 65% of total exports, followed by the US (30%) and Asia (5%). Demand for wood pellets from European large-scale utility power plants and smaller CHP plants remains strong. The first shipment of wood pellets to Japan took place in 2008. The Kansai Electric Power Company, one of Japan's largest utilities, started

co-firing Canadian wood pellets with coal at one of its power plants.

In British Columbia, the use of trees killed by mountain pine beetle and of forest residues for wood pellet production and other energy generation has been limited to date, mainly for cost reasons. A new forest tenure form was created in 2008 to allow the retrieval of biomass from Crown land specifically for bioenergy.

GRAPH 9.5.2

Canada's wood pellet production, capacity and markets, 2001-2010



Note: f = forecast.

Source: Wood Pellet Association of Canada, 2009.

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Chapter 10

Forest certification challenged by climate change and illegal logging concerns:

Certified forest products markets, 2008-2009⁶⁵

Highlights

- The economic crisis, together with the strong political focus on countering illegal logging, is encouraging some buyers to switch from certified forest products (CFPs) to less expensive legally verified products.
- Global concern for climate change and increased interest in the role of forests in mitigation strategies has major implications for the practice of forest certification.
- The economic downturn is widening the gap between environmentally proactive operators who are eager to exploit emerging opportunities for timber in green building initiatives and those who are not focused on environmental issues but continue to sell primarily based upon price.
- The numbers of chain of custody (CoC) certificates issued worldwide increased by 41% in 2009, to reach 17,800, but CoC certification remains concentrated in a limited number of countries and high levels of market fragmentation mean large sections of the market are not engaged in the supply of CFPs.
- The rate of increase in global certified forest area slowed dramatically since 2006, growing by only 1.3%, to reach 325.2 million hectares in 2009.
- Western European countries have certified 53% of their total forest area, North America 38%, Oceania 5%, and Africa, Asia and Latin America only about 1% each.
- 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.
- Lack of awareness and low incentives for forest certification among smaller non-industrial forest owners are encouraging development of independent risk assessment as an alternative market assurance mechanism for these owners.
- A need exists to coordinate and harmonize the various forest certification frameworks for sustainable timber production, sustainable biomass production and carbon sequestration.

⁶⁵ By Mr. Rupert Oliver, Forest Industries Intelligence, Ltd., UK and Mr. Florian Kraxner, International Institute for Applied Systems Analysis, Austria.

Secretariat introduction

Certification of sustainable forest management has evolved and accelerated with demand for certified forest products (CFPs) from public procurement policies and green building initiatives. The UNECE Timber Committee originally called certification a marketing tool and considered it to be a means of communication within the wood chain, as well as between the forest sector and a wider public. This chapter highlights the developments in CFPs. It differs from certification chapters of previous years in part because within the UNECE region there are now only two major international systems; thus, in the current chapter there is less emphasis on certification systems.

This chapter provides the backdrop for the discussion of certification-related developments at the annual Timber Committee Market Discussions, to be held on 13-14 October 2009. Country market statements will be another basis for the Discussions, as countries are requested to report on certification and public-procurement policy developments.

The secretariat thanks the two authors of this chapter for bringing together a wealth of market and policy information. Mr. Rupert Oliver,⁶⁶ Consultant, Forest Industries Intelligence, Ltd., led the production for the first time. Mr. Florian Kraxner,⁶⁷ Research Scholar, IIASA, continues to contribute to the chapter, as he has done for many years.

Mr. Oliver's consultancy was supported by the American Hardwood Export Council. We sincerely thank Mr. David Venables, European Director, for providing the resources for this chapter.

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 certified forest products (CFPs). Special focus is placed on the topic of "the economic crisis affecting the market for certified forest products". The chapter also concentrates on policy-related aspects of certification in the forest sector.

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CFPs carry labels demonstrating, in a manner verifiable by independent bodies, that they come from forests that meet standards for sustainable forest management (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. Certification other than forest schemes such as ISO14001 are not included in this comparative analysis. The chapter continues to focus on certification systems based in the UNECE region.

10.2 Forest management certification

10.2.1 Overview

By May 2009 the global area of certified forest endorsed by one or other of the international frameworks – the Forest Stewardship Council (FSC) and the Programme for Endorsement of Forest Certification (PEFC) – amounted to 325.2 million hectares, approximately 8% of global forest area. In addition, there are some smaller areas independently certified under systems operating at the national level. For example, at the end of 2008 around 1.54 million hectares were certified by the Indonesian Eco-labelling Institute (LEI) system in Indonesia and 0.7 million hectares by Japan's Sustainable Green Ecosystem Council (SGEC).⁶⁸

The regional distribution of certified forest area is highly uneven. Roughly 54% and 38%, respectively, of the total area of forest in western Europe and North America is certified (table 10.2.1). Elsewhere, the proportion is negligible, rising to 3% in eastern European countries and the CIS, and to around 5% in Oceania (concentrated in Australia and New Zealand), and no higher than 2% in all other regions. The estimated potential global industrial roundwood supply from certified forest amounted to 411 million m³ in the May 2008 to May 2009 period, about 26% of the total industrial roundwood supply. There was a slight decrease compared to the previous 12-month period, reversing a long-term trend of rising potential supply.⁶⁹

⁶⁸ Information on certified forest area, together with relevant standards and various policy and strategy papers are available at certification system websites as follows: Forest Stewardship Council - www.fsc.org; Programme for the Endorsement of Forest Certification - www.pefc.org; Sustainable Forestry Initiative - www.sfi-program.org; Canadian Standards Association - www.csa-international.org/product_areas/forest_products_marking/; LEI Indonesia - <http://lei.or.id/english/index.php>; Japan Sustainable Green Ecosystem Council - www.sgec-eco.org.

⁶⁹ The reduction in potential roundwood supply occurs because of the estimation method, which combines average roundwood production figures with certified area. Since certified forest area in some important production countries decreased, there was a relative reduction from 2008 to 2009 (superseding the increases in other countries that on average produce less roundwood from their forests).

The pace of expansion of global certified forest area has slowed dramatically in the last three years (graph 10.2.1). Certified forest area increased by around 50 million hectares a year between 2001 and 2005 – mainly due to a rapid increase in certified forest area in North

America – then the rate slowed by half to 25 million hectares a year in 2006 and 2007 (graph 10.2.2). More recently the rate has stagnated even further, not exceeding 4 million hectares between May 2008 and May 2009.

TABLE 10.2.1

Global supply of roundwood from certified resources, 2007-2009

Region	Total forest area (million ha)	Total certified forest area (million ha)			Total forest area certified (%)			Estimated industrial roundwood produced from certified forest (million m ³)			Estimated industrial roundwood from certified forests, from global roundwood production (%)		
		2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
North America	470.6	164.2	181.7	180.3	34.9	38.6	38.3	210.1	232.5	230.7	13.2	14.6	14.5
Western Europe	155.5	80.8	84.2	82.2	52.0	54.1	52.8	166.4	173.4	169.2	10.5	10.9	10.7
CIS	907.4	20.6	24.6	25.2	2.3	2.7	2.8	3.6	4.3	4.4	0.2	0.3	0.3
Oceania	197.6	9.9	9.4	10.3	5.0	4.8	5.2	2.5	2.4	2.6	0.2	0.1	0.2
Africa	649.9	2.6	3.0	5.6	0.4	0.5	0.9	0.3	0.3	0.6	0.0	0.0	0.0
Latin America	964.4	12.1	15.0	14.6	1.3	1.6	1.5	2.1	2.6	2.5	0.1	0.2	0.2
Asia	524.1	1.6	2.0	3.0	0.3	0.4	0.6	0.7	0.8	1.3	0.0	0.1	0.1
World total	3 869.5	291.8	319.9	321.2	7.5	8.3	8.3	385.7	416.4	411.3	24.3	26.2	25.9

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 2009* data. Concerning roundwood production, the subregions’ annual roundwood production from “forests available for wood supply” is multiplied by the percentage of the subregions’ 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 and 2009 are from May to May.

“World” is not a simple total of the subregions.

Sources: Individual certification systems, the Canadian Sustainable Forestry Certification Coalition, FAO and authors’ compilation, 2009.

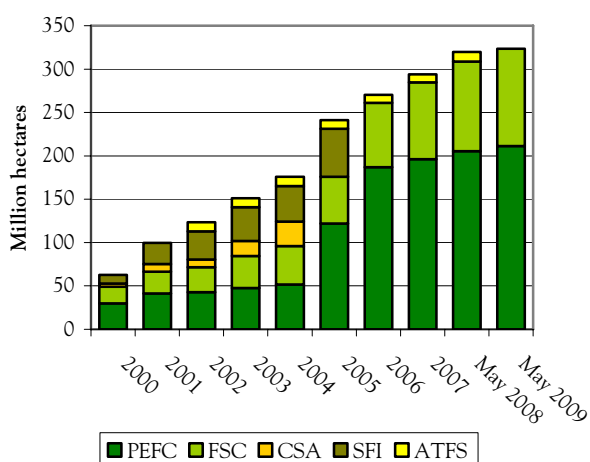


Source: E. Parker, Tropical Forest Trust, 2009.

Now that many of the largest state- and industry-owned lands in the developed world are already certified, the certification movement faces the significant challenge of expanding in more difficult areas. These include both developing countries – many of which still lack capacity, resources and sufficient incentives for forest certification – and the small non-industrial private and communal sector which owns or manages a significant proportion of forests in many parts of the world, including within the UNECE region.

GRAPH 10.2.1

Forest area certified by major certification schemes, 2000-2009

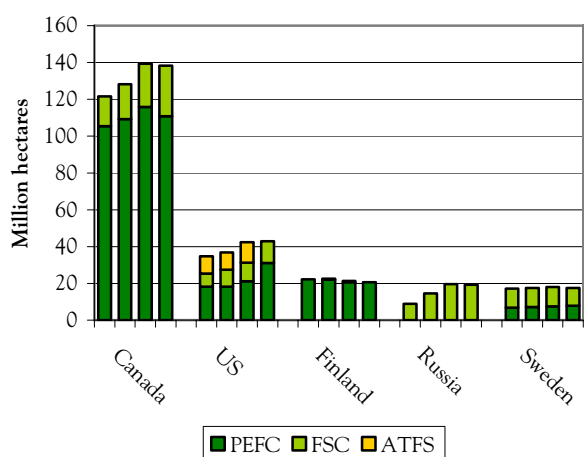


Notes: As of May 2009, approximately 2.6 million hectares have been certified by more than one scheme (mostly FSC and PEFC). These are not deducted from any scheme – the graph therefore shows a slightly higher amount of total forest area certified than exists in reality. FSC = Forest Stewardship Council; 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 authors' compilation, 2009.

GRAPH 10.2.2

Five countries' certified forest area within the UNECE region, 2006-2009



Notes: Bars for each country represent years from 2006 to 2009. The graph contains no overlap from double certification.

Sources: Individual certification systems, country correspondents, Forest Certification Watch, Canadian Sustainable Forestry Certification Coalition, authors' compilation, 2009.

In October 2007, PEFC agreed on a new mission statement involving a significant switch in strategic

direction from forest production to market access. A governance review was published in May 2008 and an action plan for implementation was subsequently approved. Key parts of the action plan include: establishing a "stakeholder forum", comprising a wide range of international organizations supportive of sustainable forest management and willing to engage in improving and expanding PEFC work; strengthening procedures for assessing national certification systems, for example by tightening the role of independent consultants and the Panel of Experts; and taking a lead on forestry policy on carbon through engagement with relevant international organizations.

Meanwhile FSC has begun the process to implement its new global strategy, originally published in 2007. Key goals include: to improve access to FSC certification for small forest owners so that indigenous peoples, communities and other non-industrial owners manage at least 15% of the total FSC certified forest area within five years; to become a more viable and attractive solution for tropical owners; to expand FSC solutions to non-timber management objectives, such as climate change and biofuels; to put more monitoring and evaluation systems in place; and to improve the business value of FSC certified products over non-FSC certified products.

10.2.2 Europe

Certified forest area in western Europe amounted to 82.2 million hectares in May 2009, about 53% of the continent's total forest area (graph 10.2.3). There is a fairly clear split in Europe between large State and industrial ownerships on the one hand, which tend to adopt FSC certification, and small non-industrial private ownerships on the other, which tend to adopt PEFC certification.

FSC certified area in Europe is concentrated in Sweden, Poland, Croatia, UK and Latvia. The average FSC certified forest holding in Europe is relatively large, with an area of around 83,000 hectares.

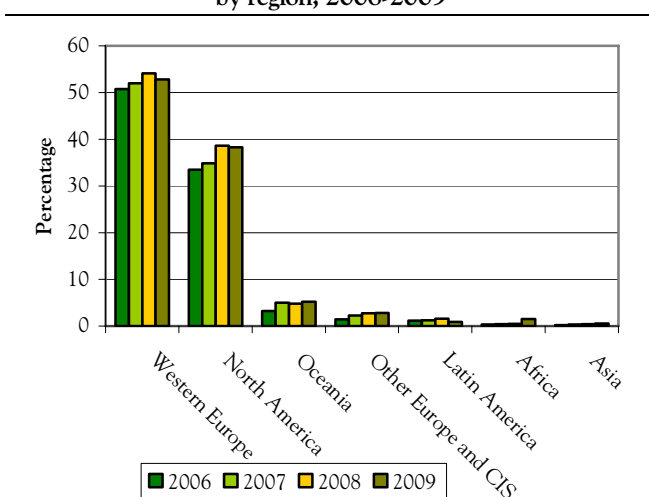
The PEFC certification framework has brought significant numbers of small private non-industrial forest owners into the certification movement in EU countries through widespread use of regional and large group certification. Of PEFC certified forest area in Europe, approximately 66% and 22% comprises group and regional certification respectively. These frameworks have been particularly effective where there are strong existing regulatory structures and forest owner associations operating at a regional level, notably in Finland, Norway, Sweden, Germany, France, Austria, and the Czech Republic. Overall, around 500,000 (3%) of small non-industrial forest owners, out of an estimated total of 16

million in Europe,⁷⁰ are now independently certified under either FSC or PEFC.

Despite these measures, prospects for a significant increase in certification among small non-industrial forest owners in Europe seem limited in the short to medium term. In fact, the overall level of certified forest throughout the continent declined by over 2 million hectares in the 12 months prior to May 2009. The biggest decrease was in Finland, a country often cited as the leading example of group and regional certification practices.

GRAPH 10.2.3

Certified forest area as a percentage of total forest area by region, 2006-2009



Notes: The forest area is based on FAO's State of World's Forests 2009 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 2009.

Sources: Individual certification systems, Forest Certification Watch, the Canadian Sustainable Forestry Certification Coalition, authors' compilation, 2009 and FAO, 2009.

The reasons for the recent fall in European certified forest area are not clear and may be due to technicalities (such as a time lag that occasionally occurs between expiry of a certificate and issuance of a new one), failure to meet conditions of certification, or a decision by the forest owner to no longer pursue forest certification. There is continuing evidence that the supply of certified softwood products to the European market is considerably in excess of end-user demand for products bearing forestry-related labels; this might be one reason for some European forest owners to reduce their commitment to certification.

10.2.3 CIS

Both FSC and PEFC have identified Russia as a potentially significant growth area. In 2006, FSC was confidently predicting that FSC-certified area in Russia would reach 24 million hectares by the end of 2007. PEFC has forecast that somewhere between 50 million and 100 million hectares of Russian forests are likely to become PEFC certified within the next 10 years.

To date, the reality has fallen short of expectations. After an initial burst of growth in FSC-certified area in 2006 and 2007, the pace slowed last year. Only an additional 800,000 hectares of forest were FSC certified in Russia during 2008. Total FSC-certified area in the country still stood at around 19.2 million hectares by May 2009.

On the other hand, there are also signs that much of the essential groundwork for more rapid expansion in the future has now been completed. In November 2008, the FSC Board of Directors delivered a positive accreditation decision for a Russian national FSC standard. In March 2009, FSC also accredited a Russian company, Forest Certification LLC, to undertake both FSC forest management certification and CoC certification throughout Russia and the neighbouring countries of the CIS. The move is a significant step towards improving domestic FSC-certification capacity, a factor which has been a major obstacle to more extensive FSC uptake in the subregion.

Meanwhile, efforts to develop national certification initiatives in line with the PEFC requirements are coming to fruition. Two national forest certification frameworks have evolved, the Russian National Council for Forest Certification (RNCFC) and the National Council of Voluntary Forest Certification in Russia. In March 2009, PEFC announced endorsement of the RNCFC certification framework.

10.2.4 North America

Canada continues to be the world leader in terms of certified forest area. The country accounts for over half of the certified forest area endorsed internationally by the PEFC, certified through the Canadian Standards Association (CSA) and Sustainable Forestry Initiative (SFI) systems. Canada is also responsible for one quarter of FSC certifications worldwide. The total area of independently certified forest in Canada amounts to 137.5 million hectares, very close to the 143 million hectares of forestland identified as subject to forest management in the Canadian Government's annual "State of Canada's Forests" report. The certified area includes 82.8 million hectares certified to the CSA-Z809

⁷⁰ 16 million forest owners, according to Confederation of European Forest Owners, www.cepf-eu.org.

standard, 39.4 million hectares certified to the SFI Program, and 27.3 million hectares certified to the FSC.⁷¹

Certification has also progressed rapidly in the US in recent times and now covers around 50 million hectares of forestland. However, the vast majority of certified forestland comprises large holdings. Of the estimated 11 million small private forest owners who collectively control around 56% of the forestland in the US, only a few are currently covered by certification schemes.

The current position of the three forest certification systems operating in the US is as follows:

- The FSC has issued around 100 forest management certificates with a total area of 10 million hectares of forestland. Average certified area per certificate is high, at around 100,000 hectares. Around 60% of certified area consists of large tracts of state-owned (not federal) forestland. Much of the remainder is in large privately owned forest holdings.
- The SFI Program, designed specifically for certification of large forest tracts, has certified around 30 million hectares of forestland in the US.
- The American Tree Farm System (ATFS), which has been developed for small owners, has certified around 10 million hectares in the US, distributed amongst 90,000 participants. ATFS was endorsed by PEFC in August 2008.

Creating awareness of forest certification amongst small landowners remains a major challenge for all the programmes. According to a recent survey, only 12% of US family forest owners have heard of forest certification⁷². It is also difficult to encourage small owners to work together for group certification in a sector where there is little or no tradition of cooperative action.

Owing to these obstacles to forest certification, and in response to increasing demands in major export markets for independent assurances that US hardwoods derive from legal and sustainable sources, in 2008 the American Hardwood Export Council commissioned an "Assessment of Lawful Harvesting and Sustainability of U.S. Hardwood Exports". The report, which was prepared by independent consultants Seneca Creek Associates, concludes that the weight of evidence strongly indicates that there is very low risk that US hardwoods contain wood from illegal sources. It is estimated that stolen

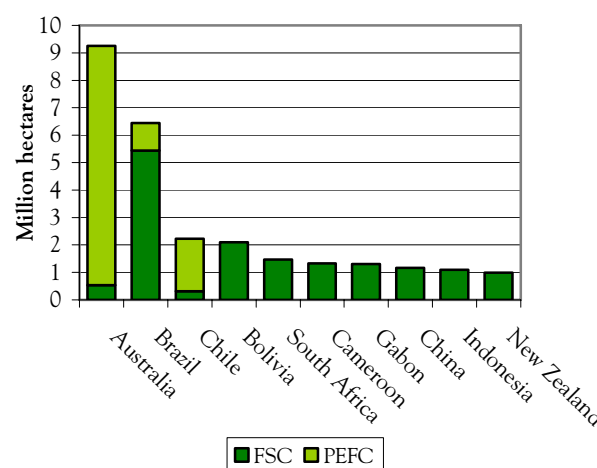
timber represents less than 1% of total US hardwood production. The authors are also confident that hardwood procured from the US could be considered Low Risk in all five risk categories of the FSC controlled wood standard.

10.2.5 Outside the UNECE region

Australia has the largest area of certified forest outside the UNECE region with over 9 million hectares by May 2009 (graph 10.2.4). Nearly all of this area is certified to the Australian Forestry Standard System, which is endorsed by the PEFC.

GRAPH 10.2.4

Certified forest area in ten countries outside the UNECE region, 2008-2009



Note: The graph contains some overlap from double certification.

Sources: Individual certification systems, country correspondents, Forest Certification Watch, Canadian Sustainable Forestry Certification Coalition and authors' compilation, 2009.

Brazil hosts the largest area of certified forest of any developing country, with around 6.4 million hectares. A significant proportion of Brazil's certified forests are in softwood plantation forests of Southern Brazil. FSC is the only certification system currently fully operational in the Brazilian Amazon, where it has certified around 1.2 million hectares of forest suitable for timber supply. In addition, the CERFLOR system has been endorsed by PEFC and is operational in Brazil.

By May 2009, 16 FSC forestry certificates had been issued in China covering 1.2 million hectares. Operators managing a further 1 million hectares were participating in the WWF Global Forest and Trade Network and working towards FSC certification. These certified and verified areas, while significant as pilot projects, still account for little more than 1% of China's total domestic forest resource. More significant areas of China's forests may soon be certified through a national forest

⁷¹ Because of double counting of areas certified under more than one system, the cumulative total certified forest area for all three systems in Canada (149.5 million hectares) exceeds the actual area of certified forest in the country.

⁷² Brett J. Butler, Family Forest Owners of the United States, 2006. A Technical Document Supporting the Forest Service 2010 RPA Assessment.

certification system that is being developed jointly by the State Forest Authority and China's Certification and Accreditation Administration.

The long-term relevance to international markets of these efforts to certify China's domestic forests is constrained by Chinese manufacturers' heavy dependence on imported wood products. It is likely that imports of timber account for a significant proportion of the total wood exported from China. For this reason, the key question for certification in China is not certification for SFM of Chinese forests but traceability of imported wood.

Certified forest area in Japan remains relatively restricted. By September 2008, Japan's national SGEC forest certification program had issued 63 forest certificates covering 714,000 hectares. By May 2009, the FSC had also issued 26 forest certificates covering 280,000 hectares. The total certified forest area is less than 4% of Japan's total forest area (24.8 million hectares).

The area of FSC certified forest in Africa increased by 88% in the 12 months prior to May 2009 and now extends to 5.6 million hectares. This area includes 1.3 million hectares each in Gabon and Cameroon, and 749,000 hectares in Congo. FSC is currently the dominant form of certification in Africa. In April 2009, the Gabonese Forest Certification Scheme became the first African scheme to meet PEFC requirements.

In South-East Asia, only Malaysia has a significant area of certified forestland. Its national certification system, the Malaysian Timber Certification System (MTCS), was endorsed by PEFC in May 2009. The 4.8 million hectares of MTCS-certified forest includes the entire area of permanent production forest in Peninsular Malaysia. Only a small area, 56,000 hectares, is MTCS certified outside Peninsular Malaysia (in Sarawak), while FSC certification in the country is not extensive. In Indonesia, forest certification is not widespread. FSC has certified only around 900,000 hectares in the country, about 1% of the total forest estate. A further 1.5 million hectares have been certified by the Indonesian Eco-labelling Institute (LEI).

10.3 Market demand for certified forest products

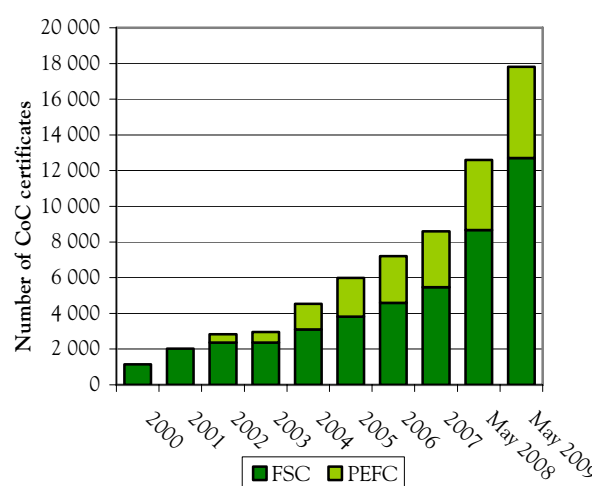
10.3.1 Extent of chain of custody certification

The total number of FSC⁷³ and PEFC chain of custody (CoC) certificates issued internationally increased by 41% in the 12 months prior to May 2009 to

reach 17,815⁷⁴. Uptake of FSC certification has outpaced that of PEFC certification so that in May 2009 there were 12,707 FSC certificates compared with 5,108 PEFC certificates (graph 10.3.1). The surge in CoC certificates is a measure of market demand for CFPs.

GRAPH 10.3.1

Chain-of-custody certified trends worldwide, 2000-2009



Notes: The numbers denote CoC certificates irrespective of the size of the individual companies, their volume of production or trade. Information valid as of May 2009.

Sources: FSC and PEFC, 2009.

In addition to internationally issued CoC certificates, a limited number of regional/national certification frameworks also issue CoC certificates. In terms of numbers, the most significant of these is the SFI Program in North America. The numbers of its certificates issued increased dramatically during the course of 2008 from 100 certificates covering 400 locations to almost 400 certificates covering 1,000 locations. A significant proportion of these companies are dual certified to both the SFI and PEFC CoC standards. In Japan, the SGEC certification programme had issued 258 CoC certificates by the end of June 2008.

While the pace of increase is impressive, the data also imply that engagement in CoC certification is heavily concentrated in just a few countries. Of the 5,146 new FSC and PEFC CoC custody certificates issued internationally in 2008, 47% were in the US and UK (graph 10.3.2). Of those issued during the year, 70% were in only five countries (US, UK, Germany, Japan and Canada). By the end of 2008, the US and UK accounted for 31% of all FSC and PEFC CoC certificates issued

⁷³ Includes both FSC CoC and FSC Forest Management/CoC certificates.

⁷⁴ This total is the sum of FSC and PEFC CoC certificates, thus some duplication will occur in the event of the same location certified under both FSC and PEFC certificates.

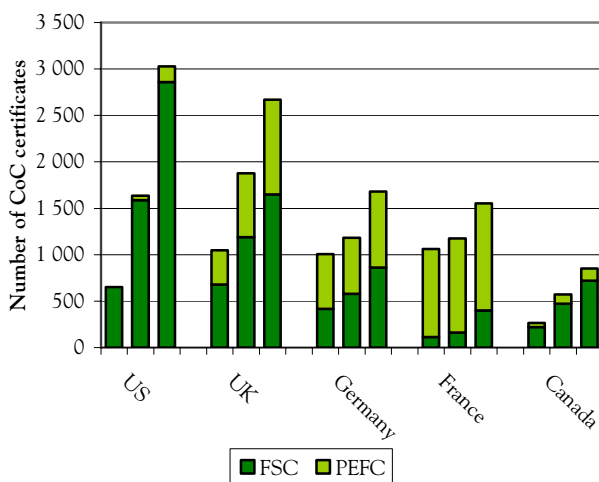
internationally, with much of the rest in Germany (9%), France (7%), and Japan (6%) (graphs 10.3.2 and 10.3.3).

The available data also suggest that the number of FSC- and PEFC CoC-certified companies are small compared with the total number of companies engaged in the wood sector. For example, Eurostat data indicate that throughout the EU-27, where a total of around 9,750 FSC and PEFC CoC certificates had been issued by the end of 2008, in the subregion there are 191,000 wood-processing enterprises, 149,377 furniture enterprises, and 19,352 pulp and paper enterprises, many of which would in theory be eligible for CoC certification.

In practice, CoC certification tends to be most prevalent in the supply chains of a few large consolidated business sectors such as home-improvement retailing and parts of the paper and panels industry. It is less prevalent in more fragmented sectors, which nevertheless account for a large proportion of wood consumption, including construction and furniture. The implication is that a very large proportion of the wood supplied from certified forests never makes it to market as labelled product. This negates the value of certification as a communication tool.

GRAPH 10.3.2

Chain-of-custody certificates in five countries within the UNECE region, 2007-2009

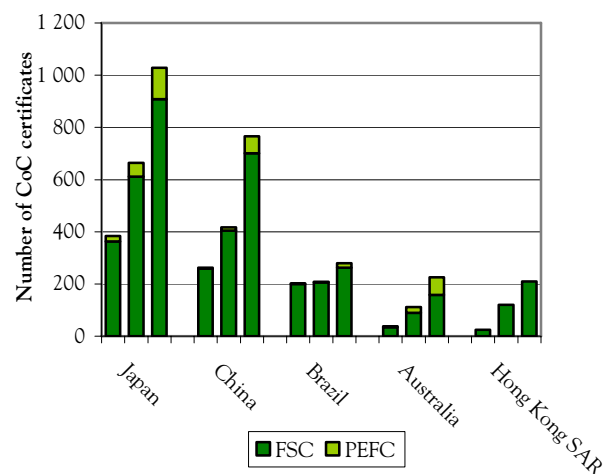


Notes: Bars for each country represent years from 2007 to 2009. The numbers denote CoC certificates irrespective of the size of the individual companies as of May 2009.

Sources: FSC, PEFC and authors' compilation, 2009.

GRAPH 10.3.3

Chain-of-custody certificates in five countries outside the UNECE region, 2007-2009



Notes: Bars for each country represent years from 2007 to 2009. The graph only includes countries with 80 or more CoC certificates. The numbers denote CoC certificates irrespective of the size of the individual companies as of May 2009.

Sources: FSC, PEFC and authors' compilation, 2009.

10.3.2 Developments in CoC standards and procedures

The market for verified wood products is influenced not only by the extent but also by the content of CoC standards. FSC has focused heavily in recent times on the development of procedures designed to make it easier to apply product labels in those supply chains where only a relatively small proportion of raw material supplies might be demonstrably derived from certified forests. Application of the FSC "mixed" label has required the development of "volume credit systems" together with procedures to remove controversial wood from non-certified supply chains. These procedures have been particularly valuable in expanding use of the FSC label in situations where wood products derive from numerous small owners, only a few of which might be certified.

Meanwhile, the PEFC CoC standard has been used for more than four years without significant changes. However, in the second half of 2008, PEFC began a process to review the standard comprehensively. The revision process will consider the implications of a progressive shift in the focus of operators engaged in PEFC CoC certification from primary processing to the end stages of the product chain (including printing houses, retailers and the construction sector). Consideration will also be given to the implications of PEFC's entering new market segments (including non-wood products, energy, and recycled raw material). A new version of the standard is due to be published in 2009.

10.3.3 Feedback from market participants

Research is ongoing in the European market to gather information directly from market participants on trends in demand for independently certified and verified legal products. The research is being undertaken by Forest Industries Intelligence Limited for the UK Timber Trade Federation with support from the UK Department for International Development. The latest report, published in June 2009, covers eight EU countries: Belgium, Denmark, France, Germany, Italy, Netherlands, Spain and the UK. Key conclusions from the latest report include:

- The very high level of fragmentation both in the EU timber trade and in timber's major consuming sectors – construction and furniture – continues to present a major obstacle to CoC certification and the further development of markets for environmentally labelled wood products throughout the EU. Other significant obstacles are generally low levels of awareness of forest certification and legality verification and very low willingness to pay among end-users.
 - The economic downturn is generally widening the gap between environmentally proactive operators that are now more eager than ever to exploit the opportunities emerging for timber from increasing interest in sustainable construction, and those who have not focused on environmental issues and who continue to sell primarily based upon price.
 - Those EU companies that have made far-reaching commitments to shift to certified wood products often see this as part of a wider process of restructuring overall procurement practices in favour of a limited number of key suppliers able to provide the full range of quality services, of which forest certification is only one component.
 - For much of the commodity softwood and composite panels sector, high availability of PEFC or FSC certified product supply in the EU is met with only limited market requests for labelled product. Hence the opportunities for achieving a premium in this sector are extremely limited.
 - Only in the rather restricted conditions that prevail in parts of the hardwood sector and to some extent in the specialty softwood sector (such as western red cedar cladding/siding from North America) does the issue of price premiums arise. Specific requests for certified products, particularly FSC, might be met by limited supply.
 - The highest premiums – in the range of 20% to 50% on the price of delivery to the importers yard – are being asked for FSC certified tropical sawn hardwood from Africa and Brazil.
- In the temperate hardwood sector, price premiums are being sought for FSC certified American hardwoods in the range of 5%-10%.
 - Price premiums for tropical sawnwood supplied under one or other private-sector legality verification system (such as SGS Timber Legality & Traceability Verification - TLTV, Eurocertifor-BVQI Origin and Legality of Timber - OLB or the Rainforest Alliance Verified Legal Origin - VLO) are typically in the range of 3% to 15%, with most at the lower end of this range.
 - Generally, there is great reluctance among end-users to pay premiums for certified or verified legal wood products, a situation which places significant limits on the ability of suppliers to charge more. The highest premiums for FSC tropical hardwood may only occasionally be passed on when supplying high-profile public-sector contracts. As a result, there are signs that some importers and manufacturers implementing green procurement policies have switched their emphasis away from FSC-certified products in favour of less expensive legally verified products when sourcing from tropical supplying countries. This is true even in the Netherlands, which has traditionally been the strongest adherent to FSC certification.

10.4 Policy developments

10.4.1 Illegal logging

The ongoing international effort to tackle illegal logging, initiated originally by the G8 group of countries and coordinated through various regional forest law enforcement and governance processes, has important implications for the forest-certification movement. However, the scope and nature of the impact on supply and demand for certified wood products remains unclear.

To some extent the impact will depend on the content and effectiveness of new legislation in the US and EU to discourage wood imports from illegal sources. On 22 May 2008, the US Lacey Act was amended to make it illegal to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce, any plants or products made from plants – with limited exceptions – to be taken or traded in violation of domestic or international laws. The amendment extended the Lacey Act's reach to include illegally harvested timber.

In October 2008, the European Commission proposed legislation that would oblige European operators who place timber and timber products for the first time on the Community market to apply a "due diligence system"

designed to reduce the risk of illegal wood entering European supply chains. A law is expected to be introduced before the end of 2009.

The new legislation should encourage US and European operators and their suppliers to implement management systems designed to reduce their risk of handling forest products potentially derived from illegal sources. Operators supplying the US and European markets will have a strong incentive to demand independent verification of legality for those products where the risk of illegal sourcing is judged to be high. However, the laws do not necessarily imply any increase in demand for independently verified products from regions where the risk is judged to be low.

This has two key implications from the perspective of forest certification. First it places even greater emphasis on the ability of forest certification frameworks to provide reliable assurance that CFPs are legally sourced in countries considered to be high risk with respect to illegal logging. If they fail to provide such assurance, the impact of the new legal sanctions on individual trading companies may be very painful.



Source: E. Parker, Tropical Forest Trust, 2009.

Second, the new legislation is encouraging the development of new systems and procedures for legality verification. Private-sector systems such as TLTV, OLB and VLO are already becoming more widely used and visible in the market place. The EU has also adopted a regulation allowing for only legally licensed timber to be imported from countries entering into bilateral FLEGT Voluntary Partnership Agreements (VPA) with the EU. The agreements require the development of legality-licensing procedures in VPA countries, which include conformance of forestry operators to a “legality standard” agreed through multi-stakeholder dialogue, tracking of timber to forest of origin, and independent oversight.

The emergence of these legality-verification frameworks has raised concerns in some quarters that rising demand for legally verified wood may deflect

attention from sustainable forest management certification. On the other hand, there are also reasons to believe that the introduction of these frameworks will actively facilitate more widespread uptake of forest certification and labelling. Most private-sector legality verification initiatives imbed legality-verification procedures within a wider framework for stepwise certification. Legality verification is presented to clients not as the end of the process, but rather as the first stage towards full compliance to a forest certification standard, typically FSC. Because of the strong focus on forest-sector reform, law enforcement, wood tracking and stakeholder dialogue, the FLEGT VPA process also has potential for establishing the essential preconditions for forest certification in wood-supplying countries.

10.4.2 Climate change

10.4.2.1 Links between forest certification and climate change

Global concern for climate change and increased interest in the role of forests in mitigation strategies has major implications for the practice of forest certification. While forest-certification systems such as FSC and PEFC were developed with the core aim of supplying certified sustainable timber products to market, the climate change issue significantly broadens the economic “products” that might be derived from forests to include wood for energy production and carbon sequestration for climate mitigation.

New opportunities are arising for the recognition of certified sustainable forests in requirements for carbon-offset projects and in national programmes for Reduced Emissions from Deforestation and Forest Degradation (REDD) which may be integrated into an international agreement to replace the Kyoto Protocol when it expires in 2012. These new policy objectives promise to provide a new and significant source of financing for certified sustainable forestry operations. To fully exploit these new opportunities, sustainable forest management certification systems may need adaptation, for example to include explicit recognition of the need to monitor and increase carbon stocks over time.

Meanwhile, entirely new systems of certification are being designed for sustainable biofuel production and for carbon sequestration which overlap with and have the potential to come into conflict with existing systems of sustainable forest management certification. To ensure rational decision making with respect to appropriate land use and forest management objectives and to reduce costs imposed on the forest sector, there is a growing need to coordinate and harmonize the various forest certification frameworks being developed for sustainable timber

production, sustainable biomass production and carbon sequestration.



Source: W. Getz, National Renewable Energy Laboratory, 2009.

To best enhance the role of forests in climate change mitigation, the various standards and certification systems that emerge from this process need, first, to avoid creating perverse incentives, for example encouraging deforestation, and second, to promote a “cascaded” use of wood. New research indicates that for many forest ecosystems, carbon storage may be maximized using management regimes targeting production of long-lasting wood products that may be recycled at the end of their lives. Only wood that would otherwise be unused should be diverted for energy production. In many instances, such management regimes are preferable to forest preservation regimes or the direct use of wood for energy from the point of view of greenhouse gas (GHG) emissions.

The climate change issue adds even greater significance to the role of forest certification as a mechanism both to counter the preservationist urge simply to lock up forests as a carbon store, which in many cases is likely to be a sub-optimal solution, and to ensure increased market access for sustainable wood products. The climate change mitigation benefits of substituting such products for other more fossil-fuel intensive products – particularly in the construction sector – can be considerable.

10.4.2.2 Sustainable biofuel initiatives

Numerous national commitments to increased use of biofuels have been made with the aim of reducing fossil-fuel dependency and of meeting international obligations to reduce GHG. For example, in 2008 the European Commission issued a proposal for a Directive on the promotion of the use of energy from renewable sources including a 10% binding minimum target for biofuels in transport to be achieved by each Member State. In May

2009, the Obama Administration in the US announced a \$1.8 billion strategy designed to bolster biofuel production.

Concerns that these commitments may have negative social and environmental consequences – for example increased conversion of forestland or diversion of farm land away from food production – have led to a profusion of initiatives to develop standards for “sustainable” biofuel production⁷⁵.

Since April 2008, the process of developing sustainability criteria for biomass production in Europe has been taken forward by a Technical Committee of the European Committee for Standardization (CEN/TC 383). The Committee will elaborate on work already carried out at the national level by the Dutch, British and German authorities.

The Obama administration’s biofuel policy is also linked with a commitment to sustainable production. The policy was introduced with the release of a presidential memorandum in which the President instructed the Environmental Protection Agency, the Department of Energy and the Department of Agriculture to form a new Biofuels Interagency Working Group, designed to identify the policies required to drive the production of more environmentally sustainable biofuels.

The United Nations has sought to play a role in coordinating the development of standards for sustainable biofuel production through various agencies including UN-Energy, the UN Biofuel Initiative, and the UNEP Bioenergy Programme. A joint task force of the International Energy Agency and the Organisation for Economic Co-operation and Development (IEA/OECD Task 31) has also been established to consider “Biomass Production for Energy from Sustainable Forestry”.

A number of private-sector initiatives, such as the Roundtable on Sustainable Biofuels (RSB) launched by the Ecole Polytechnique Fédérale de Lausanne Energy Center, have also been launched with a view to developing sustainability standards for biofuel production. RSB has released a draft set of principles for sustainable biofuels production.

10.4.2.3 Forest certification and emissions trading

The potential impact of emissions trading on the forest sector is huge given the scope for future development of a global carbon market and the scale of the challenge now required to reduce greenhouse gas emissions to acceptable levels. The impact has been muted to date, particularly due

⁷⁵ A comprehensive inventory of these initiatives has been compiled by the Global Bioenergy Partnership. See: www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/2008_events/2nd_TF.../INVENTORY_draft_19.09.2008.pdf

to the reluctance of European policy makers to include forestry-related credits under the EU Emission Trading System (EU ETS), which is currently the largest in the world by a significant margin.

However, the Obama administration now has plans for a US national cap and trade system, and there are strong indications that this programme will be much more open than the EU ETS to the use of forest offsets. Such offsets already form an integral component in regional cap and trade systems under development in the US including the Regional Greenhouse Gas Initiative and the Western Climate Initiative. The latter is expected to draw on the experience of California which has made significant progress in developing a certification system for forest offset projects as part of the State's aggressive GHG commitment.

Furthermore, in the US voluntary GHG offset market, the Chicago Climate Exchange (CCX), has developed standardized rules for forestry offset projects. In addition to complying with third-party verified standards for determining and recording net changes in carbon stocks, forest project owners and aggregators must provide evidence of sustainable forest management of all their managed forestland through certification from schemes endorsed by PEFC, FSC, or other certification programmes approved by the CCX Committee on Forestry.

10.4.3 Green Public Procurement

The move to develop comprehensive public-sector timber-procurement policies has progressed further in Europe than in other subregions. Six EU member states had finalized central government timber procurement policies by the end of 2008: UK, Netherlands, Belgium, France, Germany and Denmark. With the exception of Denmark, these policies are mandatory for central government authorities. They are also being promoted to local government agencies. Most of the existing policies go further than EC guidance (which proposes that timber at a minimum should be from demonstrably legal sources) by establishing a minimum requirement that all wood must be verified as sustainable (including in the UK, Netherlands, Belgium and Germany).

Recent market research undertaken by Forest Industries Intelligence Limited for the UK Timber Trade Federation and Department for International Development suggests that, to date, public sector procurement has had only a limited impact on timber procurement practices in EU member states. The policies directly affect only a small proportion of the overall timber trade and their effectiveness is undermined by inconsistent application between and within EU member states. So far, only the Governments of the UK and the Netherlands have followed up implementation of the

policy with systems of monitoring. However, there are also indications that, with sufficient political will and resources, the influence of government procurement policies can in time extend well beyond the direct impact on immediate suppliers. For example, such policies can increase the sensitivity of larger importers, merchants and manufacturers to negative publicity.

Outside of Europe, the Governments of Japan and New Zealand have also developed comprehensive timber procurement policies. Procurement policies and guidelines are also being developed and implemented in several other countries with the potential to make an impact on the demand for certified forest products, including in Australia, the US and China.

10.4.4 Green building initiatives

The current focus on energy efficiency in construction suggests there is huge potential for growth in green building initiatives (GBIs) with significant implications for the growth in market demand for certified forest products. The US-based LEED and the UK-based BREEAM are probably the most well established of GBIs, but GBIs are now proliferating with efforts under way in many countries to develop new nationally adapted programmes. Systems like CASBEE in Japan, HQE in France, DGNB in Germany, and Green Globes in North America are gaining momentum. These standards are also now making strong progress in some regions not previously regarded as particularly "green". For example, the capital of the United Arab Emirates, Abu Dhabi, has set its sights on enacting the world's toughest green building standards.



Source: Finnforest, 2009.

While the potential is there, the evidence suggests that a considerable amount of work is still required both to increase uptake of GBIs and to ensure that standards give appropriate credit to wood's environmental attributes. In fact, GBIs can be a mixed blessing for wood products. Discrimination against wood can actually be built into GBI standards, as wood is often the only

material required to demonstrate responsible sourcing. GBI standards giving exclusive recognition to particular forest-certification brands may help drive demand for these brands at the expense of wider appreciation of the environmental merits of wood.

Nor are attitudes to GBIs a one-way street. There are signs that some key consumers of GBI standards are becoming disenchanted with the concept. At a UNECE Timber Committee workshop on GBIs in October 2008, Adrian Joyce of the Architects' Council of Europe suggested that the concept behind many existing GBIs is deeply flawed. He noted that it is quite possible to manipulate credit systems to design a building that although achieving a high rating is nevertheless not very environmentally sound. Poorly designed GBIs can reward building planners for taking a few environmentally progressive steps, some of which may not be particularly relevant, while ignoring deeper problems.

Concerted efforts are being made in various forums with the aim of overcoming these problems and of improving the application and conformity of GBIs. For example, ISO is now considering GBIs under Technical Committee 59 on sustainability in building construction. In the EU, CEN Technical Committee 350 is working on sustainability of construction works. The EU funded LENsE project is also engaged in an effort to develop a relatively simple and user-friendly approach to GBI.

UNECE/FAO is scheduled to hold a second green building workshop on 12 October 2009 during the Timber Committee week. One topic will be the various standards and how they either promote wood use or discriminate against wood.

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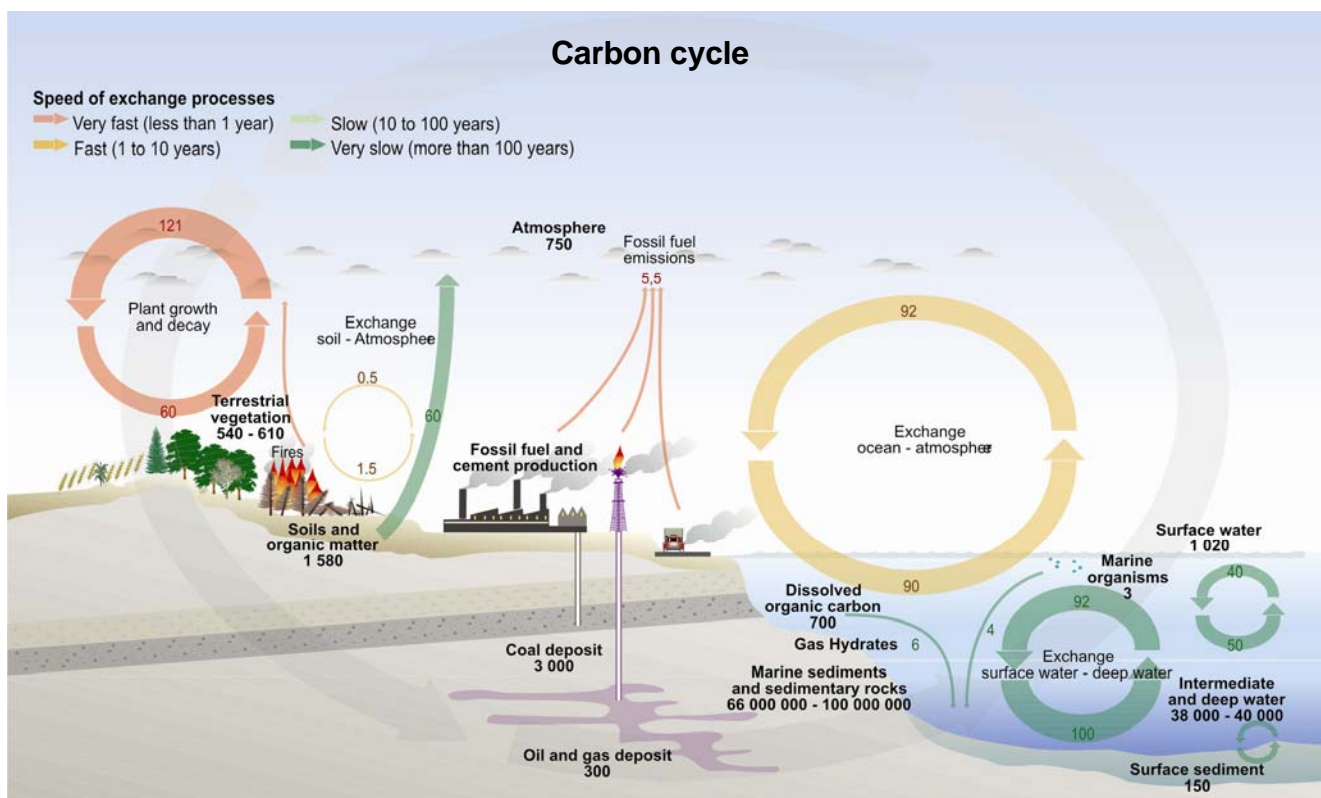
Chapter 11

Carbon trading exhibits resilience to the global recession: Forest-sector carbon markets, 2008-2009⁷⁶

Highlights

- Carbon from forestry projects accounted for 36% of the voluntary carbon market in 2008, which demonstrates the competitiveness of the sector in generating carbon credits.
- It is crucial in 2009 to agree on a successor to the Kyoto Protocol; one main issue is expanding and mainstreaming global carbon markets to include more forest carbon.
- The Reduced Emissions from Deforestation and Forest Degradation (REDD) mechanism is expected to expand the role of forest carbon significantly in the coming years, especially if it becomes a part of the successor to the Kyoto Protocol treaty.
- Despite playing an essential role in mitigating climate change via carbon sequestration, forests only play a minuscule role (less than 1%) in the Clean Development Mechanism (CDM).
- Under current CDM rules, the development of afforestation and reforestation projects is complex, generating only temporary carbon credits that are not greatly sought after by buyers and that are excluded from European Union Emission Trading System (EU ETS).
- In the developing countries CDM only allows afforestation and reforestation projects and although the Joint Implementation (JI) in developed countries allows forest conservation and forest management projects, for example, these mechanisms have not yet attracted much volume.
- Value of the international carbon market doubled last year from \$63 billion in 2007 to \$126 billion in 2008 or a volume of 4.8 billion tons of CO₂ equivalent (CO₂e).
- EU ETS generated 73% of the global carbon trade with a trading value of \$92 billion and volume was 3.1 billion tons of CO₂e in 2008; CDM was the second largest compliance market, trading \$32.8 billion in 2008, mostly in secondary Certified Emission Reductions, while voluntary carbon markets netted \$705 million in 2008 or 123 million tons of CO₂e.
- Many of the leading industrialized economies are preparing national cap-and-trade schemes, spearheaded by the United States, which may accept a relatively large amount of international forestry offsets from tropical developing countries.
- The US policy stance is critical for defining what direction carbon trade and markets in general, and forest offsets in particular, will take after 2012.

⁷⁶ By Mr. Jukka Tissari, FAO, Italy.



Notes: Storage and flux of carbon in gigatonnes (Gt). Arrows are proportional to the volume of carbon. Flux figures express the volume exchanged each year.

Sources: Center for Climatic Research, Institute for Environmental Studies, University of Wisconsin, US; Department of Geography, Okanagan University College, Canada; Nature; *World Watch*, November-December, 1998.

Secretariat introduction

The *Forest Products Annual Market Review* enters into a new dimension with the inclusion, for the first time, of this analysis of carbon markets and the forest sector. The secretariat recognizes the importance of keeping the *Review* up-to-date and of adapting to the evolving timber markets. Carbon markets are increasingly important, financially as well as politically. Depending on the scope of the successor to the Kyoto Protocol, which is being negotiated in 2009, the forest sector stands to make a structural shift on both the forest side and the market side.

The secretariat thanks Mr. Jukka Tissari,⁷⁷ Forestry Officer, Forest Products Trade and Marketing, FAO, who joined FAO in 2008. He is not new to the *Review*, having analysed value-added wood products markets and having written that chapter for a number of years. Based on the feedback from readers, we will determine how to orient this chapter's analysis of forest-sector carbon markets in the future. Readers' comments are encouraged via the reader survey on the *Review* website.⁷⁸

⁷⁷ Mr. Jukka Tissari, Forestry Officer, Forest Products Trade and Marketing, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy, tel. +39 06 570 54179, fax +39 06 570 52151, email Jukka.Tissari@fao.org, www.fao.org/forestry

⁷⁸ <http://timber.unece.org/index.php?id=136>

11.1 Introduction

The year 2009 is considered by many as crucial in defining the roadmap to mitigate the adverse impacts of climate change on the globe. The world's political and scientific leaders, private-sector representatives, non-governmental organizations and other stakeholders are frantically preparing for the vital 15th Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) to be held in Copenhagen in December 2009. The potential of mitigating and trading greenhouse gases (GHGs) is increasingly appreciated by the international community.

The principle of putting a price on polluting the atmosphere was established by the industrialized countries. Trade in emissions started inside the US in the 1980s. The Kyoto Protocol was adopted in 1997, and it introduced International Emissions Trading of Assigned Amount Units⁷⁹ (AAUs) as one of its flexible implementation mechanisms, along with Clean Development Mechanism (CDM) and Joint Implementation (JI). The European Union launched its

⁷⁹ AAU are allowance units that reflect the emission allowances of the parties to the Kyoto Protocol, which have emission reduction commitments; AAUs equal to one metric ton of CO₂e. Trading units also equal one metric ton of CO₂e.

Emission Trading System (EU ETS) in 2005, to reach the Kyoto Protocol emissions reduction targets.

Forests play an essential role in the carbon cycle, but thus far forestry projects have played but a minor role in emissions trading; disproportionately small compared to their full potential. Currently, methodologies are being developed for allowing Reduced Emissions from Deforestation and Forest Degradation (REDD) to start generating payments for conserving the world's threatened forests in developing countries. Both the World Bank Group and three United Nations bodies, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and the Food and Agricultural Organization (FAO), acting as One-UN, are creating financial and technical support systems to make REDD operational.

Three basic types of forestry carbon projects can be identified:

- (a) REDD: also known as avoided deforestation projects, they aim at reducing the rate of land-use change from forests to other land uses. This could be, for instance, a new national park established in Russia, where the forest would otherwise be converted.
- (b) Sustainable forest management: changing management practices in existing forestry activities can contribute to avoiding emissions. For example in the tropics, the introduction of a sustainable forest management regime into a location where unmanaged forest would be destroyed by subsistence farmers through slash and burn agriculture.
- (c) Afforestation/reforestation: projects create new forests from planting or assisted natural regeneration, sequestered carbon then creates a carbon sink in the wood biomass. Ecosystem restoration of a degraded riparian forest would, for example, be eligible.

11.2 Carbon market outlook

11.2.1 Total carbon market size

International carbon markets have grown progressively in the past decade. Market value jumped from just \$63 billion in 2007 to \$126 billion in 2008, showing a remarkable doubling of size in one year. This was a result of heightened trading in the secondary Certified Emission Reduction (CER) market, which is a financial market where secondary CERs are traded in spot, future and options transactions. In terms of trading volumes, the global carbon market amounted to 4.8 billion tons of CO₂e⁸⁰ in 2008 (table 11.2.1).

⁸⁰ CO₂e refers to the use of carbon dioxide as a reference gas against which the other five major GHGs are measured. It is a universal unit of measurement to indicate the global warming potential of the GHGs.

TABLE 11.2.1

Carbon markets, 2007-2008

Market type	2007		2008	
	Volume (million tons CO ₂ e)	Value (million \$)	Volume (million tons CO ₂ e)	Value (million \$)
Project-based	593	7 932	419	6 813
transactions subtotal:				
- Primary CDM ¹	552	7 433	389	6 519
- Joint Implementation	41	499	20	294
Voluntary markets	65	335	123	705
subtotal:				
- Over the Counter	42	263	54	398
Transactions				
- Chicago Climate	23	72	69	307
Exchange ²				
Secondary CDM	240	5 451	1 072	26 277
Allowances markets	2 085	49 289	3 207	92 550
subtotal:				
- European Union	2 060	49 065	3 093	92 550
Emission Trading				
System				
- New South Wales	25	224	31	183
(Australia)				
- Regional Greenhouse	n.a.	n.a.	65	246
Gas Initiative ³				
- Assigned Amount	n.a.	n.a.	18	211
Units market				
Total carbon markets	2 984	63 007	4 811	126 345

Notes: Voluntary market data adjusted with Ecosystem Marketplace and New Carbon Finance; Fortifying the Foundation; State of the Voluntary Carbon Markets 2009.

¹ Clean Development Mechanism.

² Chicago Climate Exchange (the USA, global): tradable unit Carbon Finance Instrument.

³ Regional Greenhouse Gas Initiative (10 states in the US): tradable unit Regional Gas Allowance.

Source: World Bank, 2009.

The ongoing financial and economic crises are putting pressure on heavy energy-intensive industries, including forest-based industries globally. As industrial output and emissions are being severely cut, they also are believed to affect supply and demand for credits for GHG emissions. Trading volumes, however, have remained fairly strong in the first half of 2009. This was explained by the active sales of AAUs by European heavy industries to energy utilities to strengthen their cash flows at the sharp downturn of the real economy. AAUs had been allocated for free to energy-intensive industries (steel, cement, aluminium, etc.) and energy utilities, which in turn reduces the carbon price. Many companies have chosen to hold them as assets until they might need to cash them in.

11.2.2 Developments in compliance carbon markets

The compliance market, also known as the regulated market, is built on the rationale of the pledge made by the Annex I Parties of the Kyoto Protocol to meet their emission reduction targets. On average the industrialized countries were committed to lowering their GHG emissions by 5.2% below 1990 levels in the period of 2008-2012. Emission trading means that Annex I Parties can trade credits or emission allowances among themselves to lower the costs of their emission reductions.

11.2.2.1 The EU Emission Trading System

The EU ETS has been the flagship compliance market in action, helping EU Member States meet their Kyoto Protocol commitments. It was launched in January 2005, three years before the beginning of the international emissions trading through the Kyoto Protocol mechanism, with emissions capped on average at 6% below 2005 levels during 2008-2012. The EU has pledged to bring the cap down to 21% below 2002 emissions by the year 2020 and is discussing an even more ambitious target of 30% if a strong international climate-change agreement emerges. EU ETS trades in European Union Allowances, one unit of which corresponds to one metric ton of CO₂e. EU ETS trading value shot up to \$92 billion in 2008, nearly doubling its 2007 figure. The volume of CO₂e went up to 3.1 billion tons with a 50% jump. EU ETS accounted for 73% of the global carbon trade.

11.2.2.2 Clean Development Mechanism and Joint Implementation

CDM is the second largest compliance market, created directly under the Kyoto Protocol flexible mechanisms. In short it allows Annex I Parties to fund sustainable development projects in non-Annex I Parties that reduce emissions or enhance sinks through afforestation or reforestation. The tradable commodity is called Certified Emission Reduction or CER⁸¹. Because CERs are sold on either a temporary (which expire in five years) or a long-term (which expire in 30 years) basis, they are not considered appealing to buyers, and this has slowed down their generation from afforestation and reforestation projects.

Overall the CDM market has experienced fairly slow growth in which the use of secondary CERs has been mainstreamed. These are originated from sellers that are not the original owners or issuers of the carbon assets. Primary project-based CDM trade contracted to \$6.5 billion in 2008, down 12% from 2007. The transaction

value was four times higher on secondary CDM trade in 2008, i.e. \$26.3 billion.

Thus far there have been six forestry projects registered under the CDM (table 11.2.2). The projects are spread over Asia, CIS and Latin America. Additionally, there is currently one project requesting registration in Africa. UNECE region countries have acted as "other parties" in the projects but no projects have been implemented within the UNECE region.

TABLE 11.2.2

Registered Clean Development Mechanism forestry projects, 2009

Title and year registered	Host Parties	Other Parties	Reduction in CO ₂ e
Facilitating reforestation for Guangxi watershed management in Pearl River basin, 2006	China	Italy Spain	25 795
Moldova soil conservation project, 2009	Republic of Moldova	Netherlands	179 242
Small Scale Cooperative Afforestation CDM Pilot Project Activity on Private Lands Affected by Shifting Sand Dunes in Sirsa, Haryana, 2009	India		11 596
Cao Phong reforestation project, 2009	Viet Nam		2 665
Reforestation of severely degraded landmass in Khammam district of Andhra Pradesh, India under ITC Social Forestry Project, 2009	India		57 792
Carbon sequestration through reforestation in the Bolivian tropics by smallholders of "the Federación de comunidades agropecuarias de rurrenabaque (fekar)", 2009	Bolivia	Belgium	4 341
Uganda Nile basin Reforestation project no.3, pending	Uganda	Italy	5 564

Note: Estimated emission reductions in metric tons of CO₂ equivalent per annum as stated by the project participants.

Source: UNFCCC, 2009.

Another flexible mechanism created under the Kyoto Protocol is Joint Implementation (JI), which allows Annex I Parties to fund projects in economies in transition and get the corresponding carbon credits. Such

⁸¹ The basic tradable unit, whatever it is called under each market, designates the right to emit one ton of CO₂e.

transactions have diminished to nearly half of their previous value in 2008, mainly due to the financial crisis and regulatory delays. JI trades in Emission Reduction Units (ERUs). Unlike CDM, JI has failed to achieve its full potential. In particular Russia, which holds much of the potential of JI, has been slow to approve any projects. However, this remains an opportunity for countries in the eastern parts of UNECE region.

11.2.2.3 Future of national compliance markets

Many industrialized countries (e.g. Australia, Japan, New Zealand, Norway, Republic of Korea) have elaborated national cap-and-trade (emission trading with set targets) schemes, but some have postponed their launch due to the economic recession. In North America, Canada swiftly changed its opinion on cap-and-trade to seek partnership with the US scheme by 2012. The US has held preliminary talks with China to make a link between the two leading emitters on matters related to energy efficiency, new energy technologies and carbon capture and storage.

The integration of the industrialized countries' cap-and-trade into a single global scheme is needed for an effective trading system. The most imminent consideration will be on the match between the EU ETS and the US cap-and-trade scheme. The rationale behind "a global cap-and-trade" can be clearly demonstrated by calculations of the necessary average emission reductions in relation to cap-and-trade's geographical coverage; the more countries join the system, the less individual countries will need to reduce their emissions to reach the global targets.

11.2.3 Developments in voluntary carbon markets

Voluntary carbon markets are usually divided into two segments: a) over the counter transactions and b) Chicago Climate Exchange. The latter will be phased out in 2010, giving space to the anticipated US national cap-and-trade scheme and ongoing regional GHG trading schemes.

The voluntary side of the GHG trade is small but innovative. In fact, many of the mechanisms implemented in the compliance markets today were tested earlier in voluntary markets. For example, avoided deforestation projects have been conducted since the late-1980s in the voluntary carbon market context. There was a notable lack of common standards and transparency in the past, which resulted in quality concerns in certain offset projects. This is being left behind as the voluntary market is showing more self-regulation and maturity. Certification, standardization and verification requirements are becoming mainstreamed to equal levels with compliance markets. At least 18 third-party standards are in common use. The leading ones are Voluntary Carbon Standard, Gold Standard, Climate Action Reserve and the American Carbon Registry.

According to the *Ecosystem Marketplace* and *New Carbon Finance*, around 123 million tons CO₂e of voluntary carbon offsets were traded in 2008, netting a trade value of \$705 million. Market volume doubled from 65 million tons in 2007, and value more than doubled from \$331 million. Most of the gains were made before the global economy's rapid deterioration in late 2008.

Forestry projects have been significantly more prominent in the early voluntary carbon markets than in the mandatory compliance market. The role of forestry projects is now around 36% of voluntary carbon market, and offsets from them are coveted by buyers (*Ecosystem Marketplace*, 2008). This is because buyers expect an upside potential with the wider inclusion of forest projects into a post-2012 Kyoto Protocol climate regime and appreciate "green" forest projects that demonstrate corporate responsibility.

11.3 Carbon prices

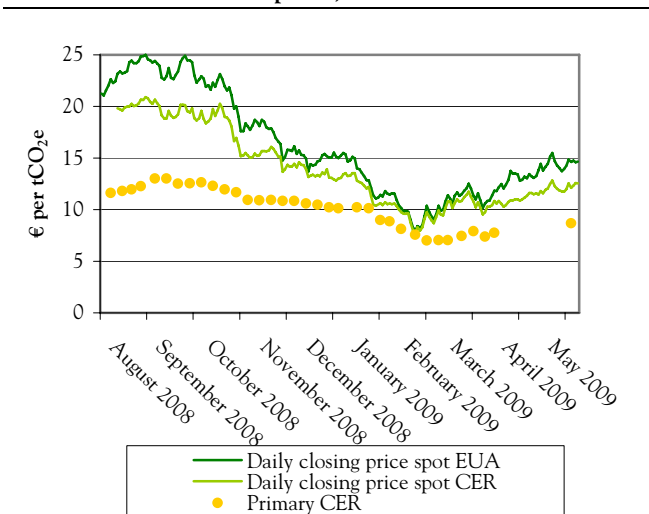
Carbon markets are driven by consumer choices and macro-economic and even weather developments (such as wind and rain), like any commodity market, and perhaps most importantly by the policy decisions that frame carbon agreements and send strong signals to the carbon trade. Both the cyclical nature of the economy and ad hoc political decisions are reflected in the market activity and prices for carbon.

The price spread between European Union Allowances and primary Certified Emission Reductions converged by February 2009 (graph 11.3.1). Prices were sliding because of the falling oil and energy prices and the deteriorating economic situation.

It must be remembered that carbon trade deals fundamentally with derivatives. This means that most carbon is sold as simple futures contracts. Such a contract promises to deliver a certain quantity of carbon credits or allowances at a certain time and at a specific date. Timing of transactions can be at different stages of the carbon offset project development. Prices vary according to the project's technical and procedural readiness and risks involved.

Forestry projects, in particular those involving afforestation and reforestation, have remained some of the highest priced project types. This is partly explained by their relative scarcity but it also shows that demand depends on the projects' characteristics. For instance, projects that have been certified under a well-known scheme with ample co-benefits for local communities and biodiversity conservation may be able to capitalize on these aspects to obtain much higher prices.

GRAPH 11.3.1
Carbon prices, 2008-2009



Notes: EUA = European Union Allowance, CER = Certified Emission Reductions.

Source: World Bank, 2009.

11.4 Policies driving the carbon markets

11.4.1 Policies relevant to forest management and wood processing

Forests have an important role to play in mitigating climate change. Changes in forest management practices can increase carbon storage, for example by reducing the impact of harvest on residual forest biomass or by lengthening rotations. A more detailed listing of practical activities that can qualify under each type of forest activity includes:

Afforestation/reforestation:

- Industrial, energy or small-scale plantations, assisted regeneration, enrichment planting;
- Forest restoration with native species, rehabilitation of degraded areas into agricultural systems.

Natural forest management:

- Declaration and safeguarding of protected areas, forest law enforcement;
- Extension of rotation periods, improved forest productivity;
- Reduced impact logging.

Avoided deforestation / REDD:

- Direct compensation payments, improved land-use planning;
- Enhanced alternative incomes, policies against encroachment;

- Enhanced efficiency of industrial timber use, etc.

Forestry projects that sequester carbon play an important role by valuing the maintained carbon stocks over the baseline of a sustainably managed forest, thus increasing the opportunity costs of converting forested land into agricultural land and other less sustainable uses.

11.4.2 What future for forests in compliance markets?

As explained previously, forestry projects have played a minuscule role in the total number of carbon projects to date. At the time of writing, only a handful of reforestation projects had completed the CDM project cycle and achieved registration. However, a much larger number of projects are in the pipeline. It seems that EU ETS might continue to exclude CDM credits from LULUCF (Land-use, Land-use Change and Forestry) also during its third phase until 2020. The main reasons cited are difficulties in monitoring and reporting and their non-permanent status.

There are high expectations for the forthcoming US cap-and-trade scheme, which is prepared under the assumption that foreign land-use and forestry offsets will be encouraged, among the total international offset quota of up to 2.0 billion tons per annum. Much of this activity would take place in those developing countries that show strong commitments to lowering their emissions through reduced deforestation. The modus operandi is believed to favour government-level agreements between the US and the host country. There would be limited potential for sub-national entities (private sector) to conduct eligible project activities. Afforestation and reforestation projects would not qualify. US forest-sector lobbying groups worked relentlessly to include US-based forestry offsets in the American Clean Energy and Security Act of 2009.

The provisions in the US cap-and-trade scheme to accept a relatively large amount of forestry offsets is a key opportunity to link forest conservation and sustainable forest management with climate-change mitigation. This would significantly expand the volume of forest offsets in the carbon trade. Many developing countries have undeniably a large resource base to increase the supply of forest offsets and meet the sudden growth in demand. Market mechanisms would be put to the test to accommodate the high volume of carbon credits from forestry. The US demand is believed to be high enough to absorb much of them and alleviate the fears of a carbon market meltdown.

11.4.3 A forest industry perspective

Members of the International Council of Forest and Paper Associations (ICFPA), representing the global forest-based industries, have drafted a statement for the use of their national delegations in the climate negotiations. In essence ICFPA insists that by December 2009 COP-15 should be in a position to put into effect the recommendations on forestry of the Fourth Assessment Report of the scientists of the Intergovernmental Panel on Climate Change. The key message is:

“A sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit” (ICFPA, 2009).

A “cascaded” use of harvested wood – first for wood products with long-life cycles that can be recycled and finally used for energy production afterwards – is in most cases preferable to the direct use of wood for energy from the point of view of GHG emissions. Accounting for carbon stored in harvested wood products can be an incentive to use wood as a material before using it for energy generation following “cascade” principles.

11.4.4 Reforming the CDM in the future

CDM was established to pave the way as the first global, environmental investment and credit scheme of its kind, providing a standardized emissions offset instrument called CERs. After a sluggish start, CDM has proven to be an unexpected success story in energy efficiency, alternative fuels and hydro and wind projects.

Important sectors such as forestry and agriculture have seen their participation in CDM remain marginal, owing to the complexities of project design under its current rules. This is in stark contrast to their perceived climate-change mitigation potential, which is in the order of 46% of all means mankind has available.

Not surprisingly, there have been frequent calls to scale up CDM with new project types and sectors, and to streamline operations during the project cycle. One new approach is to allow programmes of activities with a range of national activities and methodologies within the CDM framework. Another way forward would be to move from strictly individual project activities to sectoral approaches. The CDM framework is expected to be discussed also in the upcoming United Nations Climate Change Conference in Copenhagen and possibilities for forest-sector carbon projects increase.

11.4.5 REDD: high hopes for forestry carbon

REDD sets up a mechanism that allows rich countries to pay for the protection of forests in developing countries as a cheaper alternative to cutting their own GHGs.

Countries and companies in the developed world may choose to buy the rights to the carbon stored in trees as they grow to offset part of their own GHG emissions. It is widely believed that REDD could bring tens of billions of dollars to forest projects in different parts of the world, ranging from the tropical developing countries to developed countries.

The first pilot projects and national REDD strategies were being drawn up in early 2009, but a lot of development and capacity-building efforts will be needed to make REDD fully accessible and operational. The unanimous definition of forest degradation is one major challenge to be overcome. Some countries have already established national regulations on how REDD would work, but many contentious issues such as revenue collection and benefit-sharing mechanisms are yet to be determined. (Among the first actors was Indonesia, which in May 2009 enacted regulations governing the eligibility requirements for forests and carbon traders on REDD, but stressed their full rulebook was not yet complete.)

Today's REDD methodologies can take stock in the approach developed in the voluntary markets, including in viable carbon standards. Voluntary Carbon Standard, combined with the Climate, Community & Biodiversity, is considered one of the most suitable ones for REDD (Carbon Expo, 2009).

The Forest Carbon Partnership Facility (FCPF), launched by the World Bank in December 2007, is identifying partners and implementers to provide technical assistance with its first phase, “Generic Methods Development for REDD, Global Scale”. This forms part of the FCPF readiness mechanism, which is intended to support around 20 developing countries. Priority areas are Amazonia, Congo Basin and Indonesia/Papua New Guinea. Countries will be enabled to devise strategies for reducing emissions from deforestation and forest degradation, produce “reference scenarios” of the historical and possible future levels of these emissions and to establish ongoing monitoring systems for them (UNDP, 2008).

In summary, REDD is believed to offer the real platform for forest-based carbon projects in the future, together with the US cap-and-trade scheme's forest offset allocations. Even though the potential of the US scheme is mostly falling on tropical countries, the REDD mechanism can also be used in JI projects among developed countries.

11.4.6 Carbon in harvested wood products (HWP)

The misconception that forests absorb high volumes of carbon but release it back into the atmosphere immediately when logged or burned has led to the

comprehension that harvested wood products (HWP) also act as valuable carbon storage during their product life. In addition, the use of wood products in buildings and furniture indirectly reduces fossil-fuel emissions as it replaces other materials such as concrete, plastics and steel, whose manufacture consumes more energy and produces higher emissions than the use of wood. At the end of the life cycle, wood products can be recycled or burned to produce bioenergy.

Carbon reporting on wood products remains voluntary and therefore incomplete in the Kyoto Protocol's GHG calculations. There are various calculation methods on how HWPs are accounted for in national carbon balances. System boundaries and choices of where and when the emissions from HWPs are accounted for are some of the contentious questions. The main options are so-called stock change approach, production approach and atmospheric flow approach. As long as there are no fixed decisions made on the preferred approach, the Intergovernmental Panel on Climate Change default approach is valid, i.e. accounting stock carbon changes in forests and not in HWPs, which are treated as static pools of carbon (Pingoud, 2008).

HWPs are a contentious issue in the climate-change talks, as industrialized countries favour their inclusion into the national carbon accounting to improve their balances. Current databases, both national and international, make it possible to calculate the carbon-sequestration capacity of wood products.

The EU is contemplating submitting a proposal to the Copenhagen UN Climate Change Conference that reporting on the amount of carbon stored in wood products be included as a mandatory part of carbon balance calculations in the post-Kyoto period from 2012 onwards. The International Council of Forest and Paper Associations (ICFPA) has taken a position that any future agreement should include:

1. A reference to sustainable forest management of all types of forests including planted forests as a means to sequester carbon and provide a climate-friendly material.
2. The acknowledgement that HWPs represent carbon sinks that have the potential to grow further, thereby recognising the full carbon life cycle of forests and forest products.
3. The recognition of the potential of wood fibre as substitution material for non-renewable and fossil fuels and of harvested wood as substitution material for carbon intensive materials.

Negotiations on the post-2012 climate-agreement package provide a means for possible inclusion of wood products. The role of trade also needs to be carefully considered, because emissions can be exported and imported in HWPs according to some approaches. What

is largely supported, however, is that the main effect of HWPs on climate change comes from their ability to substitute fossil-fuel-based products and energy.

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Chapter 12

Weak demand hits value-added producers despite government stimulus: Value-added wood products markets, 2008-2009⁸²

Highlights

- Profiled wood trade has collapsed as housing markets continued to be weak in 2009.
- Furniture trade has survived the economic downturn better than many other sectors since it is less dependent on new housing construction than are building materials.
- Some governments are stimulating important export sectors, such as furniture, with tax reductions and import tariffs to protect producers, but this could lead to trade disputes.
- Manufacturing cost deflation is helping surviving companies prepare for more profitable times.
- The tight wood supply situation in 2007 and 2008 in many producing regions has turned into an oversupply situation and wood prices have been falling in 2009.
- Illegal timber issues are a hot topic in the furniture trade, as some governments have criminalized the importation or the use of illegally harvested wood.
- The renovation sector is not able to offset the lack of demand for value added wood products (VAWPs) from housing construction.
- While United States non-residential construction is dominated by concrete and steel, a new promotional campaign targeting architects, engineers, and contractors and funded by North American trade associations is expected to show results in two or three years.
- Engineered wood products' consumption is linked mainly to new housing in North America, where the economic downturn has had a negative impact on the engineered wood products (EWPs) producers.
- The outlook is for housing to improve in 2010, but it may take several years for EWP production to attain the levels reached in the 2004-2006 housing boom.
- EWPs utilize less volume of wood fibre to manufacture high-end structural products and this complements the green building movement.

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Secretariat introduction

This chapter on value-added wood products (VAWPs) covers some of the important demand for the primary products covered in the previous chapters. Sawnwood and panels may be processed further into furniture and joinery products (specifically builders' joinery and carpentry and profiled wood), which are covered in the first section of this chapter. Or they may undergo secondary processing to form engineered wood products (EWPs), which are covered in the second section.

Temperate and tropical VAWP production and trade are often driven by government and trade association policies to earn greater returns than are available from commodity primary products. Until the recent economic and especially housing construction crisis, increasing imports of VAWPs by UNECE region countries indicated that the policies were working.

The secretariat greatly appreciates the continuing contributions of the three authors of this chapter. Mr. Tapani Pahkasalo,⁸³ Forest Economist, Indufor Oy, analysed the VAWPs in the first part. As an international consultant, his expert analyses have been presented at a number of forums, including the Timber Committee Market Discussions. He is a member of the UNECE/FAO Team of Specialists on Forest Products Markets and Marketing. He was formerly a marketing assistant on the *Forest Products Annual Market Review*. Mr. Pahkasalo was on assignment in China in 2008 and in Chile in 2009, and the analysis benefits from his insights.

Mr. Craig Adair,⁸⁴ Director, Market Research, APA–The Engineered Wood Association, and Dr. Al Schuler,⁸⁵ Research Economist, USDA Forest Service, produced the analysis for EWPs once again. 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 is limited to North America because comparable statistics are not yet available for other regions. Energy-efficient, wooden buildings often use EWPs as a means of making better use of wood. EWPs enable wood to meet existing as well as new needs.

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12.1 Introduction

Value-added wood products are those wood products that have been processed further or have undergone secondary processing into higher value products, including profiled woods, builders' joinery and carpentry, furniture and engineered wood products. Many of these products are used in housing construction and renovation, and therefore their demand largely depends on housing construction activity. VAWP demand is a direct demand driver for sawnwood and wood-based panels, as they are used in the manufacture of the products. VAWPs include EWPs, which in this chapter include I-beams with their I-shaped cross section, glulam made up of sawnwood glued into beams and laminated veneer lumber which is formed from gluing together sheets of veneer and resawing to desired dimensions.



Source: APA – The Engineered Wood Association, 2009

The US moved into the economic recession ahead of the rest of the world, which is evident in the traded volumes of VAWPs in different UNECE region countries. Furniture imports by the US decreased in 2007, but in 2008 those imports showed early signs of recovery. Europe seemed to avoid the economic crisis until late 2008. However, the situation has changed rapidly as European imports have been falling already on year-to-year levels and the development has been accelerating in 2009. Geographical variations in trade patterns not only show the current demand for certain products but also reflect the relative cost competitiveness and comparative advantages in manufacturing these products.

China and South-East Asia, including Viet Nam, Malaysia, Indonesia and Thailand, became leading sources of furniture exports to the UNECE region over the past years. Emerging economies have become important providers of VAWPs thanks to their economic-development policies and obvious comparative advantages, notably cost of labour. This has created employment opportunities and wealth in these countries. Under the current global economic crisis, this

“outsourced” production has been the first one to close down. From a UNECE region producer’s standpoint, the situation is not much better, as demand for all wood products has fallen. In some product groups the imported wood products are clearly more cost competitive and have consequently taken market share from local production. There are losers on both fronts, within the UNECE region’s local producers and the emerging markets’ producers.

Latin American plantation pine-based softwood moulding producers were able to take a large share of markets, especially in the US, during the booming housing construction era. When this came to an end, many of the producers were left with no markets and consequently have shut down numerous mills. Similarly, China and South-East Asia became the centre for furniture production and now hundreds of companies have shut down factories due to lower demand for furniture. This “outsourcing” of production to emerging economies has alleviated the secondary effects in the UNECE region economies to some extent but has left the previously successful export-based economies with closed factories and subsequent job losses (BBC News, 2008 and *Furniture Today*, 2008).

The wood supply situation, which was tight for years in many producing regions, has now turned into an oversupply situation with a contraction in wood prices. Further cost reductions are achieved through lower transportation costs, labour costs and energy costs. This cost deflation helps to correct the poor profit margins, but many producers are running out of time. The survivors are looking forward to more profitable times; however, the traded volumes are not likely to bounce back to record levels soon.

12.2 Imports of value-added wood products

12.2.1 Wooden furniture imports in major markets

12.2.1.1 Furniture markets remain tight

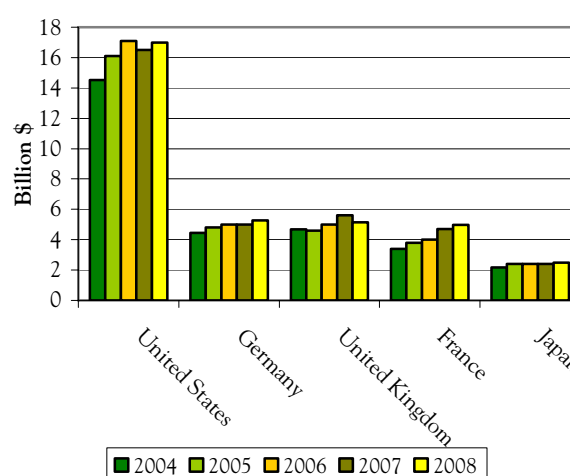
Global furniture trade continued to be relatively stable in 2008, measured by the five largest importers’ trade volumes (US, Germany, UK, France and Japan) (graph 12.1.1 and table 12.1.1). However, furniture demand in these countries is expected to decrease slightly in 2009 (CSIL Milano, 2008). Previous years have been marked with double-digit growth figures in imports and the pronounced market share of the Asian imports in many countries. As total furniture demand has not been growing during the current economic situation, the obvious losers have been the domestic or subregional furniture manufacturers within the UNECE region. Imports from Asia continued to grow in Europe and Japan, while in the

US the most significant growth was in imports from Latin America, which took market share from Asian imports.

The US is the largest importer of furniture globally and the market experienced a 3.6% growth in furniture imports in 2008, recovering from a slight drop of 3.5% in 2007. The 2008 level was nearly equal to the previous high in 2006. This reflected the stronger US economy in the first half of 2008, as opposed to the recession later in the year. Although furniture factory orders in the US in February 2009 were 18% less compared to the year before, February 2009 was the best month since September 2008 (*Furniture Today*, 2009). Since the fall in factory orders has been over 20% in preceding months, the February figures brought hope that the situation was improving. Nevertheless, the forecast for the US furniture markets looked weak for the remainder of 2009, with sales falling approximately 2% more after a 9.3% fall in 2008 (*Furniture Today’s Economic Forecast for 2009-2010*). With US imports growing again, there is evidence that the remaining domestic furniture factories have suffered and many more have shut down. In Germany and especially in UK, the drop in imports has been somewhat sharp in 2008, UK imports being 9.75% lower than a year before. In Europe weak consumer confidence, tight credit market conditions and slow housing markets have been causing furniture demand to drop.

GRAPH 12.1.1

Furniture imports for the top five importing countries, 2004-2008



Sources: Eurostat, Trade Statistics of Japan by the Ministry of Trade and Customs, International Trade Administration, Under-Secretary for International Trade of the US Government, 2009.

More than ever during the current economic downturn in 2009, manufacturers are concentrating on cutting production costs; and lower energy, raw material, chemicals and transportation costs have helped. This is necessary to adjust to the new situation since the cost

inflation in past years has been extremely high in some manufacturing regions. Sales prices may remain at lower levels for a long period because consumers will be cutting back on spending. The strongest players in the industry continue expanding through mergers and acquisitions since the value of companies is lower than before, especially in the emerging markets. Russia, China and South-East Asia are experiencing company restructuring and acquisitions as some larger players position themselves for better times and try to reshape their cost structures.

Some governments are taking action to help their vital export industries to compete and continue creating jobs. The Malaysian Government, for example, is considering tax rebates for its furniture exporters. These stimulus packages are expected to surge in different parts of the world as the crisis deepens. Most likely some subsidies will lead to international disputes because they can be interpreted as violating existing trade regulations and free trade agreements.

TABLE 12.1.1

Furniture imports for the top five importing countries, 2007-2008*(Market shares in percentage and values in US dollars)*

Exporting regions	United States		Germany		United Kingdom		France		Japan	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Asia	67.2	64.9	14.2	16.3	44.0	45.7	16.8	17.0	83.4	84.4
North America	15.3	14.7	0.2	0.2	1.6	1.3	0.5	0.3	1.3	1.3
Europe	10.5	10.1	84.4	82.1	51.8	50.8	79.3	79.7	15.1	14.3
Latin America	6.8	10.1	0.7	0.7	2.0	1.7	2.4	2.1	0.0	0.0
Others	0.2	0.2	0.6	0.7	0.7	0.5	1.1	0.9	0.1	0.1
Total imports in billion \$	16.4	17.0	5.4	5.3	5.7	5.1	4.8	5.0	2.4	2.5
Of which furniture parts, billion \$	2.2	2.2	1.3	1.3	0.9	0.9	0.8	0.8	0.5	0.5

Sources: Eurostat, Trade Statistics of Japan by the Ministry of Trade and Customs, International Trade Administration, Under-Secretary for International Trade of the US Government, 2009.

The US bedroom-furniture anti-dumping dispute began in mid-2004 when some domestic manufacturers accused the Chinese wooden bedroom-furniture exporters of charging below normal market values (see *Review* 2005, 2006, 2007). The US Department of Customs and Border Protection is disbursing the duties collected to domestic manufacturers. The Byrd Amendment allows companies behind a successful petition to get the funds collected from an anti-dumping action. The sum is being distributed under the Continued Dumping and Subsidy Offset Act to US furniture companies that were behind the dispute. The funds distributed in 2008 were \$35.8 million, while \$35.1 million was given to companies in 2007 and approximately \$21.8 million was disbursed in 2006. There is an additional \$58.2 million available to other domestic producers that did not support the original 2003 anti-dumping petition but have requested a portion of the duties that have been collected thus far (*Furniture Today*, 2009).

12.2.1.2 International cooperation and lower tariffs are needed to combat economic crisis

The founding act of the World Furniture Confederation (WFC) was signed in Shanghai, China, in September 2007 during the second World Furniture Congress. In addition to previously approved resolutions, e.g. to work on eliminating import and export tariffs and respecting intellectual property rights (as reported in last year's *Review*), the WFC has decided to work together with the national and transnational standardization bodies in developing a standard to measure formaldehyde emissions of panels used in the production of furniture. Currently, several European, American and Chinese standards are being used. This is greatly complicating the trade of furniture, especially considering that various pieces of legislation on this subject are being enacted all over the world. Additionally, the WFC supports the use of the ISO 10303-236 as the electronic communications standard in the furniture sector to facilitate international trade and cooperation (WFC, 2009). The next Congress will be organized in Moscow in November 2009.

The European Federation of Furniture Retailers (FENA) has been calling for an early publication of the Generalised System of Preferences (GSP), allowing furniture importers and retailers to better plan their buying strategies. GSP exempts World Trade Organization (WTO) member countries from rules that prohibit unequal tariff treatment of trading partners for the purpose of lowering tariffs for the least developing countries. The adoption of the GSP 2009-2011 almost half a year before its entry into force gave the companies a good degree of predictability and legal certainty to place their orders in time. For the same reasons, FENA calls on the EU Commission and the Member States to publish the GSP 2012 one year in advance. The early publication of the GSP regulation would increase its use to the benefit of developing countries and European companies.

The primary objective of the GSP is to contribute to the reduction of poverty and the promotion of sustainable development and good governance. Preferential tariff rates when exporting to the EU market enable developing countries to participate more fully in international trade and generate additional export revenue to support them in developing industry and jobs and reducing poverty. Furniture and other VAWPs are important export items for many developing countries.

In the US, the 2008 amendment to the Lacey Act renders all importation of illegal wood and wood products a criminal act. The EU took a step closer towards legal action against illegal logging in April 2009 when the European Parliament voted in favour of stricter rules on timber sold within the EU's domestic markets, including sanctions against offenders. Members of the World Furniture Confederation have discussed the illegal harvesting of timber and legislative efforts to reduce the illegal trade. FENA sees that it is necessary to tackle major problems such as deforestation and climate change, although it fears that the administrative burden from new legislation making the importer responsible for verifying the origin may be too heavy for the smaller furniture traders.

12.2.2 Builders' joinery, carpentry and profiled wood markets

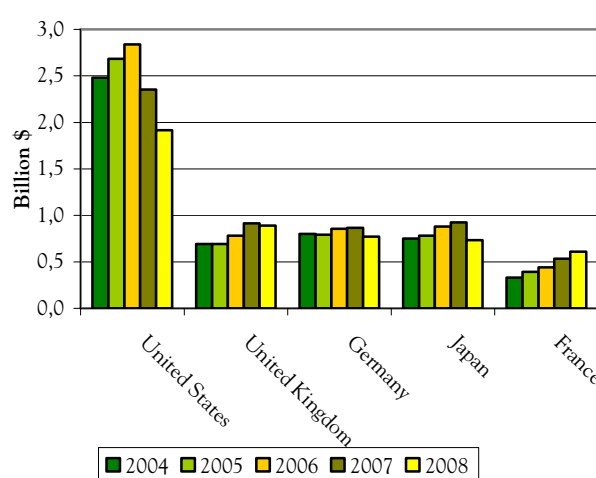
12.2.2.1 Import markets

The builders' joinery and carpentry (BJC) import markets continued to be volatile, although the total traded volume remained somewhat stable. The US has seen a surprising 25% rebound in imports already; Europe has witnessed the opposite development of a rapid

decrease in imports as in Europe demand has been weakening. France is an exception in Europe as it continued to import more VAWPs than in previous years, even if the years of double-digit growth are left behind for now. BJC products have become more standardized and are now easier to replace with similar products from other markets if they turn out to be more cost competitive (graph 12.2.2 and table 12.2.2).

GRAPH 12.2.2

Builders' joinery and carpentry imports for the top five importing countries, 2004-2008



Sources: Eurostat, Trade Statistics of Japan by the Ministry of Trade and Customs, International Trade Administration, Under-Secretary for International Trade of the US Government, 2009.

BJC product trade has been traditionally dominated by intracontinental trade in all five countries. During the last years, however, as volumes of consumption grew rapidly, the emerging markets producers have quickly taken important market shares. Now it seems the regional producers are coming back stronger and taking back some of their markets, not only as a percentage of market share but also as increased trade in absolute value. For example Canada has been able to greatly increase its exports to the US. This implies the regional producers have been successful in reducing their costs and increasing their efficiency under the hard competitive pressure from the emerging markets. Currency-exchange-rate fluctuations also turn export trade flows quickly in favour of weaker currencies.

TABLE 12.2.2

Builders joinery and carpentry imports for the top five importing countries, 2007-2008
(Market shares in percentage and values in US dollars)

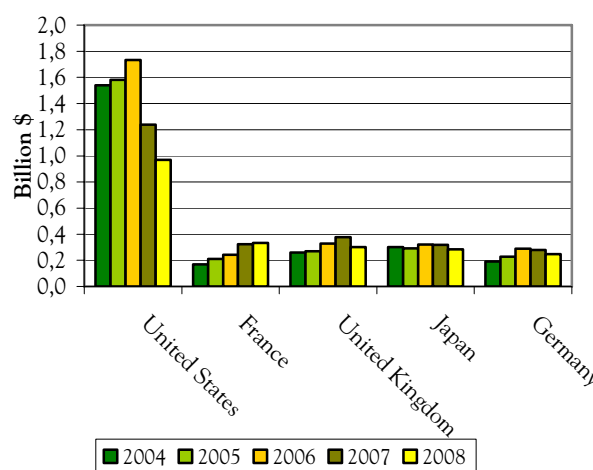
Exporting regions	United States		United Kingdom		Germany		Japan		France	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Asia	29.8	25.9	25.9	28.2	10.8	12.3	54.2	60.3	13.3	13.8
North America	46.9	55.0	7.6	4.6	0.4	0.4	4.5	4.6	1.2	1.2
Europe	7.3	4.8	59.3	60.9	87.2	85.8	35.9	31.3	79.4	78.9
Latin America	15.3	14.2	4.6	4.0	0.1	0.2	0.2	0.0	5.7	5.7
Others	0.6	0.2	2.7	2.2	1.4	1.3	5.3	3.8	0.4	0.4
Total imports in billion \$	1.5	1.9	0.9	0.9	1.0	0.8	0.9	0.7	0.6	0.6

Sources: Eurostat, Trade Statistics of Japan by the Ministry of Trade and Customs, International Trade Administration, Under-Secretary for International Trade of the US Government, 2009.

The hardest hit VAWPs markets have been the profiled wood markets, where total trade collapsed by over 20% in 2008 (graph 12.2.3 and table 12.2.3). US imports of profiled woods have almost halved since the peak year of 2006 and are now already below 2002-2003 levels. Similar developments can be seen in Germany and UK where imports declined by one fifth compared with the previous year. This sweeping development is directly connected to the weakness of housing markets and the inability of the renovation sector to offset the impacts. The markets are very open to imports in many countries and the lower-cost regions' importance continues to grow. As the products are not subject to any specific strength requirements or certificates that would be hard to achieve, this enables new producers to enter the market easily. The challenges relate to managing the supply chain, obtaining market access and getting price premiums for products. This has led to eroding profit margins in all markets.

GRAPH 12.2.3

Profiled wood imports for the top five importing countries, 2004-2008



Sources: Eurostat, Trade Statistics of Japan by the Ministry of Trade and Customs, International Trade Administration, Under-Secretary for International Trade of the US Government, 2009.

TABLE 12.2.3

Profiled wood imports for the top five importing countries, 2007-2008
(Market shares in percentage and values in US dollars)

Exporting regions	United States		France		United Kingdom		Japan		Germany	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Asia	27.9	24.4	15	14	52.7	54.1	77.1	76.2	19.3	23.9
North America	21.2	21.3	0.7	0.4	5.6	3.7	5.8	7.4	1.5	1.7
Europe	3.1	3.7	55.7	54.6	39.5	39.9	12	11.2	74.4	68.6
Latin America	44.4	47.6	27.4	29.7	1.7	1.9	3.7	4.8	3.3	3.9
Others	3.4	3.1	1.2	1.2	0.5	0.3	1.3	0.4	1.5	1.8
Total imports in billion \$	1.3	1	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2

Sources: Eurostat, Trade Statistics of Japan by the Ministry of Trade and Customs, International Trade Administration, Under-Secretary for International Trade of the US Government, 2009.

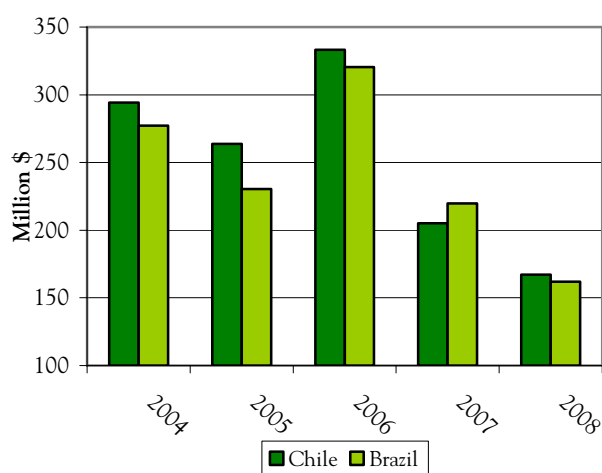
12.2.2.2 Plantation pine producers' bonanza is over

As predicted in last year's *Review*, many VAWP mills will be permanently shut down if the markets do not bounce back soon. But since the markets have not recovered, closures are taking place and the impacts on local economies are harsh. The continued softness of the US housing markets has led to closures of mills and entire companies in some exporting countries and the market sentiment remains somewhat pessimistic.

Brazil and Chile alone represent over 70% of all Latin American exports of profiled softwood products to the US, or over one third of all profiled softwood imports. The imports surpassed \$300 million annually, per country, in 2006 and since then have declined to only half of what they were in the record year (graph 12.2.4). On an individual company level, it can be disastrous when all production is geared towards only a few customers in a single market. Several companies have gone into bankruptcy, while larger companies with more professional marketing organizations were originally able to shift exports to other markets.

GRAPH 12.2.4

Profiled softwood imports to US from Brazil and Chile, 2004-2008



Sources: USDA Foreign Agricultural Service, 2009.

In Chile approximately 40 sawmills and re-manufacturing plants have shut down since the beginning of the crisis, and an estimated 5,000 people have been made redundant due to the crisis (CORMA, 2009). Some producers have chosen a strategy aimed at significantly increasing the quality of their products while cutting costs to be more competitive when the markets start recovering. The companies are working to open new markets for their products and, for example, mouldings have been exported in growing numbers to the Middle East and Asia.

12.2.2.3 US markets continue on hold

As stated last year in the *Review*, when the credit crunch is over and consumers have better access to credit, demand for profiled wood and BJC products may pick up even before new housing construction revives. The need for repair, remodelling and renovation investments is now accumulating and is expected to materialize when consumer confidence returns.

As of mid-2009, there were fewer home improvement do-it-yourself (DIY) projects being planned by consumers in the US than during the previous year. Research showed that approximately 45% of consumers were planning home improvement projects, compared with about 49% a year earlier (NPD Group, 2009). The types of projects were not the expensive kitchen or bathroom remodelling projects popular some years ago but less expensive projects such as interior painting, exterior painting or installing a new floor. According to a consumer survey conducted by Lowe's, a major US DIY chain, 80% of homeowners were planning a lawn or garden project in the next 12 months that they would do themselves. Approximately 35% of the respondents said they preferred DIY to save on total project costs. The continued housing market slowdown has been causing consumers to hold back on important home renovations. According to an estimate by the Harvard University Joint Center for Housing Studies, spending on these home improvement projects will drop an estimated 12% in 2009.

Lower financing costs are beginning to stabilize the market and are reducing the cost of financing a home improvement project. However, they have not been enough to offset rising unemployment and falling consumer confidence and to encourage homeowners to undertake major home improvement projects (Kermit Baker, Remodeling Futures Program of the Joint Center for Housing Studies, Harvard University, 2009).

12.3 Engineered wood products market developments in North America

12.3.1 Introduction

Engineered wood products (EWPs) for this chapter include glulam timber or glulam beams, I-beams (also called I-joists) and laminated veneer lumber (LVL). All three products are heavily dependent on new residential construction. Another major market is non-residential building construction, including schools, restaurants, stores and warehouses. A third market is repair and remodelling of homes.

After peaking in 2007 with 228,000 homes, Canadian housing starts declined by 7.4% to 211,000 in 2008 and

the forecast for 2009 is a decline of 34% to only 140,000 as Canada suffers from the global financial crisis. US housing starts have declined steadily since reaching a cyclical peak in 2005 with 2.1 million homes. The forecast for 2009 is 470,000 houses. US housing has suffered from over-building, followed by a financial and economic crisis (see chapter 3 for further information on construction developments.).

Construction of non-residential buildings has increased for five years in a row and in 2008 totalled over \$500 billion. While non-residential construction is dominated by concrete and steel, an estimated 23% is wood-framed. This statistic comes from the WoodWorks promotional campaign, which is educating architects, engineers, and contractors in three US markets. This programme is funded by many North American associations and the goal is to increase the use of wood in non-residential construction. Engineered wood products use value engineering to utilize fewer resources to manufacture high-end structural products, and this nicely complements the green building movement. The outlook is for non-residential construction to decline about 15% in the US in 2009, mainly due to the recession and to the difficulty of obtaining loans.

US repair and remodelling of homes has declined. As the US recession has progressed, one of the most popular uses of engineered wood is the construction of room additions. Additions can easily cost \$50,000 and require bank financing or use of the owner's home equity line of credit. With home values declining, banks are reluctant to loan to homeowners and are also closing off access to home equity. Use of wood for repair and remodelling is expected to return to historical levels when the recession ends.

The extent of the EWP downturn is evidenced in the following analysis, based on North American data because this is the only routinely reliable information available in the UNECE region. Due primarily to the prevalence of wood-frame residential construction in North America, the majority 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, there is a lack of international statistics. Information on the use of EWPs is available from reports on new residential construction and repair and remodelling in North America recently published by the Wood Products Council.

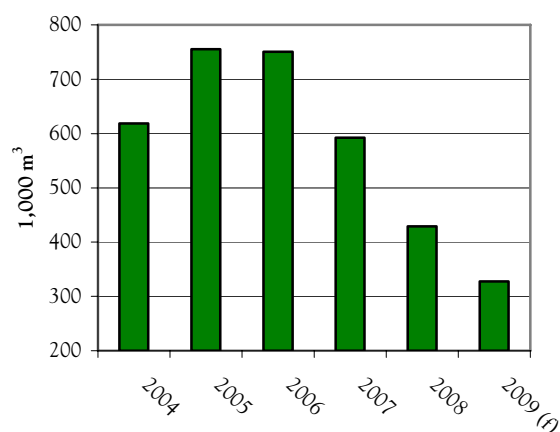
12.3.2 Glulam timber

Production of glulam timber declined in North America, both in 2007 and 2008 and is expected to

decline again in 2009 (graph 12.3.1 and table 12.3.1). While demand from non-residential construction has held up well, demand from residential construction has declined (graph 12.3.2). In 2009 in the US, demand from new residential construction is expected to decline 70%, demand from non-residential building construction is expected to decline 5% and demand from industrial and miscellaneous uses is expected to decline 21% (graph 12.3.3). Industrial uses include the construction of marinas and power transmission poles. Glulam timber power poles have been a growing business in recent years and demand could increase in the future as the US power grid is repaired and brought up to standard. Overall, North American glulam production is expected to decline 45% to 327,000 cubic metres in 2009.

GRAPH 12.3.1

Glulam production in North America, 2004-2009



Notes: f = forecast. Conversion factor: 650 board feet per cubic metre.

Source: APA – The Engineered Wood Association, 2009.

TABLE 12.3.1

Glulam consumption, production and trade in North America, 2007-2009
(1,000 m³)

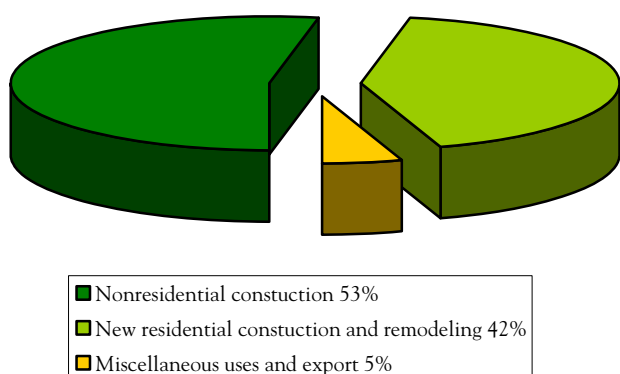
	2007	2008	2009(f)	% change 2007-2009
United States				
Consumption				
Residential	335.4	169.2	100.0	-70
Non-residential	200.0	212.3	189.2	-5
Industrial, other	21.5	20.0	16.9	-21
Total	556.9	401.5	306.2	-45
Exports	1.5	1.5	1.5	0
Imports	-7.7	-6.2	-6.2	-20
Production	550.8	396.9	301.5	-45
Canada				
Consumption	27.7	24.6	18.5	-33
Exports	13.8	7.7	7.7	-44
Production	41.5	32.3	26.2	-37
Total production	592.3	429.2	327.7	-45

Notes: f = forecast. Conversion factor: 650 board feet per cubic metre. Canadian imports assumed to be minimal.

Source: APA – The Engineered Wood Association, 2009.

GRAPH 12.3.2

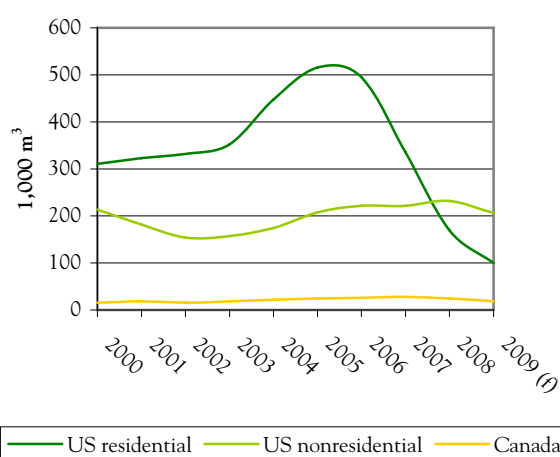
Glulam end uses in North America, 2008



Source: APA – The Engineered Wood Association, 2009.

GRAPH 12.3.3

Glulam consumption in North America, 2000-2009



Notes: f = forecast. Conversion factor: 650 board feet per cubic metre. US nonresidential includes nonresidential, industrial and others.

Source: APA – The Engineered Wood Association, 2009.

12.3.2.1 I-beams

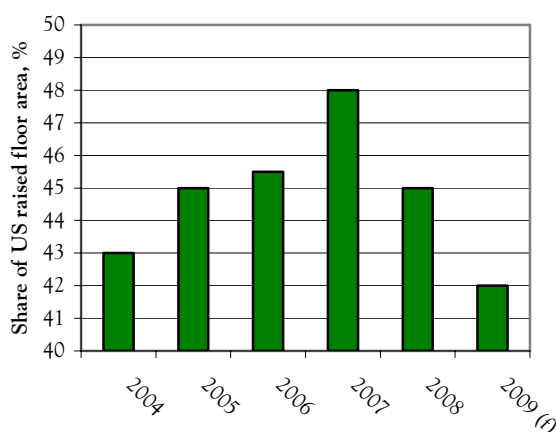
I-beams are over 80% dependent on new home construction, mostly in single-family construction. Builder surveys indicate that the I-beam share of raised wood floor area (not including concrete floor area) reached its highest level, 48%, in 2007 after many years of growth (graph 12.3.4). For example, I-beam market share was only 16% in 1992 and by 1998 it had grown to 31%. During this period, builders who were interested in new technology were rapidly switching away from sawnwood to I-beams. In 2007, I-beam competitors of the floor I-beam market were sawnwood (34%); open-web wood trusses (beams with sawnwood flanges separated by a zigzag pattern of wood or metal bracing – 16%), and steel and miscellaneous products (2%). When surveys are complete for 2008, sawnwood and open-web wood trusses are expected to gain market share because of their relatively low price during the recession. I-beams still offer all of the excellent performance of an EWP; however, sawnwood and open-web truss manufacturers are also offering good products for residential floor 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 utilization of the continent’s forest resources. I-beams also offer the advantage of being supplied cut-to-size according to framing plans, thus minimizing jobsite waste, which can be costly, especially in urban areas where most homes are built.

Both 2004 and 2005 were the highest demand years for I-beams, which represented the practical capacity of I-beam plants at that time (graph 12.3.5 and table 12.3.2).

Housing starts were so high in 2004 and 2005 that manufacturers were producing all they could. When the housing bubble burst, I-beam manufacturers were bending over backwards to maximize production.. Only 187.5 million linear metres were produced in 2008, and the forecast is for a drop of 43% to 106.7 million linear metres in 2009. This will be a decline of 73% from the all-time high in 2004.

GRAPH 12.3.4

I-beam market share in the US, 2004-2009

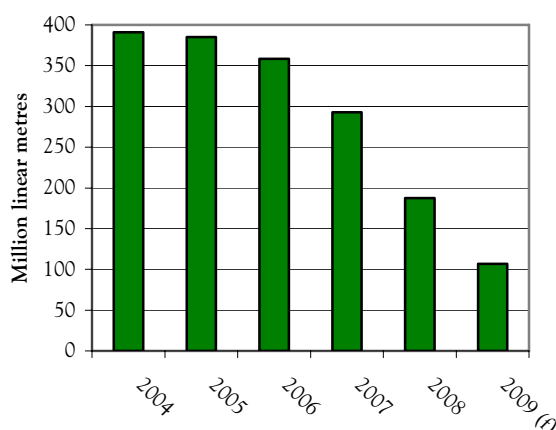


Notes: Wooden I-beam market share of total raised floor area, single family homes. f = forecast.

Sources: NAHB builder surveys, APA forecast, 2009.

GRAPH 12.3.5

I-beam production in North America, 2004-2009



Notes: f = forecast. Conversion factor: 3.28 linear feet per metre.

Source: APA – The Engineered Wood Association, 2009.

TABLE 12.3.2

Wooden I-beam consumption and production in North America, 2007-2009
(million linear metres)

	2007	2008	2009(f)	% change 2007-2009
United States				
Consumption				
New residential	182.9	105.2	53.4	-71
Repair & remodelling	27.4	22.9	16.8	-39
Non-residential	22.9	24.4	21.3	-7
Total	205.8	129.6	74.7	-64
Canada				
New residential	45.7	42.7	29.0	-37
Repair & remodelling	7.9	6.4	4.9	-38
Non-residential	4.6	3.0	2.4	-47
Total	58.2	52.1	36.3	38
All exports	251.5	172.3	103.7	-59
Inventory change	-14.0	-29.3	-30.2	115
Total demand	237.5	143.0	73.5	-69
US production				
US production	200.0	129.3	68.6	-66
Canada production	92.7	58.2	38.1	-59
Total production	292.7	187.5	106.7	-64

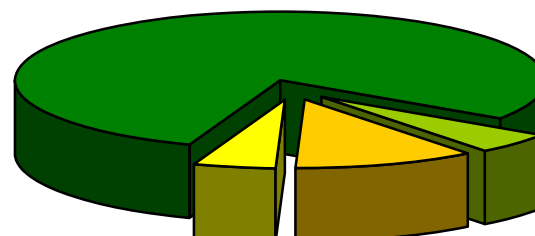
Notes: f = forecasts. Conversion: 3.28 linear feet per metre.

Source: APA – The Engineered Wood Association, 2009

Most I-beams – 79% – are used for floors in new residential construction (graph 12.3.6). Approximately 5% are used to construct thick, straight walls and roof rafters. Another 5% are used in non-residential building construction and 11% are used in repair and remodelling.

GRAPH 12.3.6

I-beam end-uses in North America, 2008



■	New residential floors 79%
■	New residential roofs and walls 5%
■	Remodeling 11%
■	Nonresidential 5%

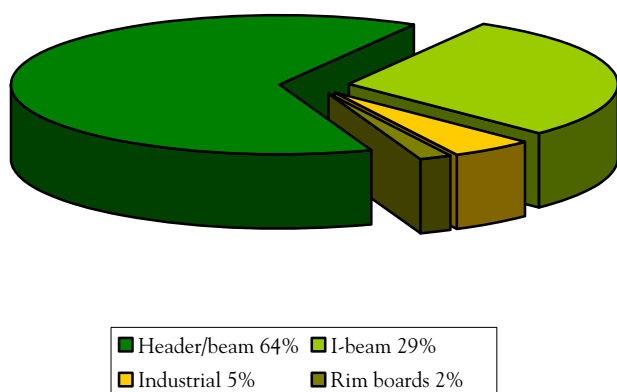
Source: APA – The Engineered Wood Association, 2009.

12.3.3 Laminated veneer lumber

Approximately 80% of all LVL is eventually used in new home construction. About 29% is used in I-beam flanges, while 64% is used as heavy-duty beams and also as headers over windows and doors (graph 12.3.7). Roughly 5% is classified as industrial, including 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 the distribution of loads from walls. Production peaked along with the US housing market in 2005 at 2.6 million cubic metres (graph 12.3.8 and table 12.3.3). Since then, it has declined along with I-beam production and the housing market. An estimated 894,000 cubic metres will be produced in 2009, down 39% from 2008.

GRAPH 12.3.7

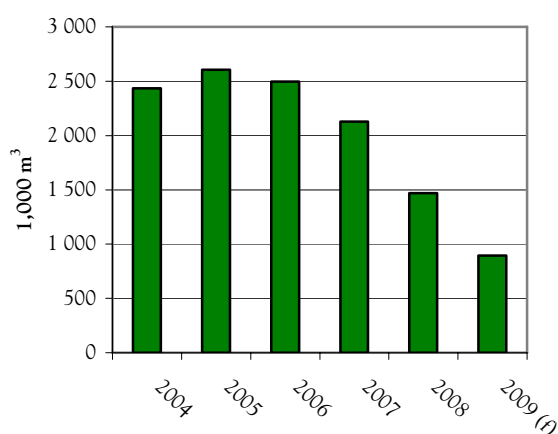
LVL end-uses in North America, 2008



Source: APA – The Engineered Wood Association, 2009.

GRAPH 12.3.8

LVL production in North America, 2004-2009



Notes: f = forecast. Conversion: 35.314 cubic feet per cubic metre.

Source: APA – The Engineered Wood Association, 2009.

LVL is well accepted for beams and headers, and growth should return with an improved housing market. Like other EWP, LVL allows the use of longer spans and fewer pieces to carry the same loads as other conventional wood products.

In addition to the EWPs discussed in this chapter, there are other structural composite lumber products manufactured in North America: parallel strand lumber (PSL), laminated strand lumber (LSL) and oriented strand lumber (OSL). Each of these 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, one new plant began producing OSL in a converted oriented strand board (OSB) plant. Uses for OSL are expected to be the same as solid sawnwood and include beams, headers, rim boards and structural framing lumber. As more production emerges, information about strand lumber products will be reported in this chapter in future years.

TABLE 12.3.3.

LVL consumption and production in North America, 2007-2009
(1000 cubic metres)

	2006	2007	2008(f)	% change 2006-2008
Demand				
I-joint flanges	722.1	430.4	243.5	-66%
Beams, headers, others	1 407.4	1 039.3	651.3	-54%
Total demand	2 129.5	1 469.7	894.8	-58%
Production				
United States	1 917.1	1 330.9	804.2	-58%
Canada	212.4	138.8	90.6	-57%
North America	2 129.5	1 469.7	894.8	-58%

Note: Conversion: 35.3137 cubic feet per cubic metre.

Source: APA – The Engineered Wood Association, 2008.

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Chapter 13

Policies against illegal logging impact European Union tropical timber demand: Trends in tropical timber markets, 2007-2009⁸⁶

Highlights

- In 2008, the global financial and economic crisis took hold in the United States and European Union markets, resulting in diminishing demand and consumption of tropical construction timber.
- A significant downsizing of the tropical wood processing industries has become evident in early 2009 in many producer countries, particularly among small- and medium-sized enterprises.
- Although prices for many primary tropical timber products reached record highs in 2007, prices began to flatten in early to mid-2008 before plunging in 2009 as the effects of the global economic downturn took hold in major tropical wood products markets.
- In 2008, China's tropical log imports decreased by 14% to 7.1 million m³, the lowest level in 5 years, as China's competitive advantage in wood processing began to be eroded by rising production costs and diminishing demand and prices in traditional markets.
- A growing proportion of tropical primary wood products consumption is being re-directed from export to domestic markets in some tropical producer countries.
- Tropical log supply continued to be a constraint for the plywood industries, particularly in Indonesia, caused mainly by crackdowns on illegal logging and reduced resource availability.
- Reduced profitability in plywood manufacturing was evident from 2007 until late 2008, caused by a steep rise in production and delivery costs, particularly wood raw materials, glues and ocean freight, coupled with plywood prices that did not keep pace with the steep rise in tropical log prices.
- Tropical hardwood consumption is being negatively affected by increased use of substitute products such as softwood plywood, oriented strand board (OSB) and other engineered wood products in structural applications, and medium density fibreboard (MDF), plastics and other composite materials in non-structural applications.
- The medium-term prospects for tropical hardwood products are likely to continue to be influenced by demand-side factors, particularly construction demand in Japan and the US, with demand for certified products from legal and sustainable sources increasing, although many tropical supplying countries are still unable to meet such requirements.

⁸⁶ By Ms. Frances Maplesden and Mr. Jean-Christophe Claudon, both from the International Tropical Timber Organization, Japan.

Secretariat introduction

The UNECE/FAO Timber Section continues collaborating with the International Tropical Timber Organization (ITTO) in producing this chapter on the tropical timber market. Once again we thank Ms. Frances Maplesden⁸⁷, who led this chapter. We are grateful for the statistical preparations by Mr. Jean-Christophe Claudon⁸⁸, Statistical Assistant.

The chapter is based on ITTO's *Annual Review and Assessment of the World Timber Situation 2008*⁸⁹ and the bi-weekly Market Information Service, where readers may find additional information on the developments highlighted in this chapter. Data were collected via the UNECE/FAO/ITTO/Eurostat Joint Forest Sector Questionnaire. It should be noted that some of ITTO's terminology, used in this chapter, differs slightly from that of the rest of the *Review*.

13.1 Overview of tropical market and policy developments

This chapter reviews the market situation for tropical timber, focusing on logs, sawnwood and plywood. The base year for the analysis is 2007 because data for tropical timber production and trade after 2007 is generally unavailable. Where possible, however, information for 2008 and the first quarter of 2009 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. A full list of members is available at www.itto.int. 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 2008*.

The global economic downturn in 2008 has had an adverse impact on global consumption, trade and production levels of tropical wood-based products in all ITTO producer and consumer countries. The timing and severity of the impacts vary by country. Demand for tropical timber has also been affected by a number of other developments in several consumer countries although these impacts are difficult to measure because of the additional effects of the global economic downturn on demand for tropical wood products. New research undertaken by the UK Timber Trade Federation shows

that approximately 25% of solid timber products imported into the EU-27 is likely to be derived from independently certified or legally verified forests, indicating that the environmental credentials of tropical timber products will be under increasing scrutiny in EU markets.

The EU's Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan seeks to achieve improved forest governance and provides for a number of ITTO producer countries to develop Voluntary Partnership Agreements (VPAs). Under VPAs partner countries are expected to implement a timber licensing scheme, with EU border control agencies allowing imports from these countries only if these are supported by FLEGT licences. The EU completed negotiations for a FLEGT VPAs with Ghana in September 2008 and Congo in May 2009. Indonesia, Malaysia and Cameroon are now engaged in formal negotiations with the EU while Central African Republic, Liberia, Gabon and Viet Nam are likely to begin formal negotiations soon.



Source: E. Parker, Tropical Forest Trust, 2009.

In October 2008 the European Commission published a draft regulation aimed at recognizing the efforts of producers and traders who invest in ensuring the legality of their timber products. Operators placing timber and timber products on the EU market for the first time will have to demonstrate "due diligence"⁹⁰ in order to minimize the risk of importing illegally harvested timber. The draft regulation, if approved, would impose significant new requirements on tropical timber suppliers and importers in terms of provision of information, control systems, risk management, audits and monitoring organizations.

⁸⁷ 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.int, email: itto@itto.or.jp.

⁸⁸ Mr. Jean-Christophe Claudon, Statistical Assistant, same contact information.

⁸⁹ Available at www.itto.int.

⁹⁰ As noted in chapter 2, in late April 2009 the European Parliament adopted strict rules to eliminate illegally harvested wood from the EU market. For the Parliament's action to become law, approval of the proposal by the EU-Agriculture Council, is needed. The rules outline a due diligence system wherein companies must ensure legality to the best of their ability. Under these new rules, which are quite similar to those adopted via the US Lacey Act amendment, companies must institute a properly documented and audited system which will ensure legality, document the country of origin and ensure that the wood they purchase has been harvested according to the laws of that country.

In several countries, government procurement agencies have made commitments to buy only legally produced and certified products, thus creating demand for certified products. ITTO producer countries are lagging behind in the supply of certified wood products, and only about 6% of the world's certified forests are located in developing countries. A number of countries have developed timber-procurement policies in public-sector construction to create demand for supplies coming from legal and/or sustainable sources. These include: Austria, Brazil, Belgium, Denmark, France, Germany, Japan, Mexico, Netherlands, New Zealand, Norway, Switzerland and UK. Public procurement generally accounts for approximately 10% to 20% of the demand for timber products but the effects of these policies are significantly greater.

The US recently amended the Lacey Act, with the aim of combating illegal logging and expanding anti-trafficking protection to a broad set of plants and plant products. The Act gives the government the power to fine and imprison individuals and companies that import timber products harvested, transported or sold in violation of the laws of the country in which the timber was originally harvested. In any prosecution, the burden of proof is on the government to demonstrate that the violators knew or should have known of the underlying violation. The amended Act includes new import-declaration information requirements on the species of imported wood products and the name of the country where the timber was harvested. While many importers can be expected to seek this information from their suppliers and to encourage the use of methods that provide importers with assurance that they will not be at risk of prosecution, at least some importers have indicated that the perceived risks will cause them to look for alternatives to high-risk suppliers. (More information on the amendment to the Lacey Act may be found in chapter 2 on policies and chapter 10 on certified forest products markets).



Source: E. Parker, Tropical Forest Trust, 2009.

The new legislative measures in the US and the EU and a number of similar instruments currently under discussion in countries such as New Zealand, Norway, and

Switzerland are intended to provide incentives for tropical timber producers and exporters to stamp out illegal practices in forest management and timber trade and to encourage them to make rapid progress in demonstrating legal compliance. US and EU regulations are not identical and use different approaches but are likely to have similar impacts for exporters to these markets.

Countries involved in the international tropical timber trade are cooperating to regulate the trade in endangered tree species through the Convention on International Trade in Endangered Species of Wild Fauna and Flora. A number of tropical timber species are presently included in its Appendix II, namely *Swietenia macrophylla* (mahogany), *Gonystylus spp.* (ramin) and *Pericopsis elata* (afroormosia).

Private-sector purchasing policies and codes of conduct have also grown in importance during the past few years, especially in the US and western Europe. Several EU industry associations, for example, have demonstrated a strong commitment to procuring only legally sourced timber and giving preference to products from sustainable sources. Corporate social responsibility policies are becoming an important marketing tool for many companies which are responding to market demand for products perceived as environmentally and socially acceptable.

13.2 Production trends

13.2.1 Logs

The production of tropical industrial roundwood ("logs") in ITTO member countries (producers and consumers) totalled 143.2 million m³ in 2007, representing an increase of 4.8% from 2006 (table 13.2.1).

TABLE 13.2.1

Production and trade of primary tropical timber products, 2005-2007
(million m³)

	2006	2007	2008	% Change 2006-2008
Logs				
Production	136.7	143.2	143.7	5.1
Imports	12.9	13.5	11.6	-10.1
Exports	12.9	13.0	13.0	-0.8
Sawnwood				
Production	43.4	443.3	44.7	3.0
Imports	8.1	8.0	7.4	-8.6
Exports	11.6	11.6	11.6	0
Plywood				
Production	19.9	19.9	19.9	0
Imports	8.8	9.0	7.8	-11.4
Exports	10.7	9.7	9.2	-14.0

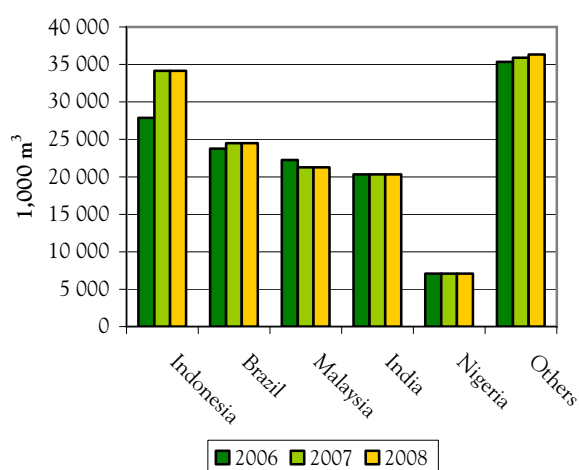
Note: Total of producer and consumer countries.

Source: ITTO Annual Review and Assessment of the World Timber Situation 2008, 2009.

Log production in 2008 remained relatively static, although estimates provided by major producing countries are likely to have underestimated the downturn in demand in major export markets and widespread production curtailment and plant closures that began to escalate in late-2008. Four countries – Indonesia, Brazil, Malaysia and India – dominated production of tropical logs and together accounted for almost three quarters of total ITTO production in 2007 and 2008 (graph 13.2.1). Indonesia's production rose from 27.9 million m³ in 2006 to 34.2 million m³ in 2007, in response to increased GDP growth and domestic demand from the construction industry. Malaysian production declined from 24.4 million m³ in 2004 to 21.3 million m³ in 2007. Malaysian tropical log production was still less than half of the levels of the early 1990s and was estimated to remain low in 2008 in line with global economic conditions and government policy to implement sustainable forest management. Under the Ninth Malaysia Plan (2006-2010), log production is expected to decline progressively until 2010, with more domestic wood being processed into exportable value-added products and fewer logs being available for export. Brazil's production increased from 23.8 million m³ in 2006 to 24.5 million m³ in 2007. Log production estimates for several countries were likely to be considerably higher if informal/unofficial/illegal harvests were taken into account.

GRAPH 13.2.1

Major tropical log producers, 2006-2008



Source: ITTO, 2009.

13.2.2 Sawnwood

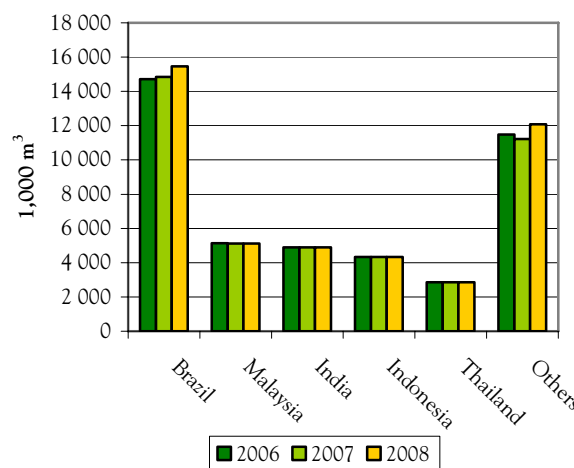
Production of tropical sawnwood in ITTO producer countries totalled 41.3 million m³ in 2007, about the same level as reported in 2006 (graph 13.2.2). Tropical sawnwood production in these countries increased marginally to 42.4 million m³ in 2008, with most of the growth occurring in the Latin America/Caribbean region. Africa, which makes up only 11% of ITTO production,

still suffers from weak infrastructure and environmentally-sensitive export markets that constrain major investments in wood processing. Until 2006, tropical sawnwood production in Africa had been gradually rising due to log export bans and requirements for further processing in many countries. The sawmilling industries in the region are reported to have been severely affected by falling prices and reduced demand in traditional export markets. In 2008 and 2009, the economic crisis is likely to result in less foreign direct investment going to the region, constraining the investment available to develop wood processing facilities that are internationally competitive.

Production in Latin America, which accounted for 42% of ITTO tropical sawnwood production, increased marginally between 2006 and 2007 to 17.4 million m³ and is expected to reach 18.5 million m³ in 2008, mainly due to expansion in Brazil, Peru and Venezuela. Asian production remained at about the same level over the last four years, at approximately 19.3 million m³. However, aggregate data for the Asian region are only indicative, given the lack of data on sawnwood production in India, Indonesia and Thailand over this period. The Asian region accounted for around 47% of tropical sawnwood production in producer countries in 2007.

GRAPH 13.2.2

Major tropical sawnwood producers, 2006-2008



Source: ITTO, 2009.

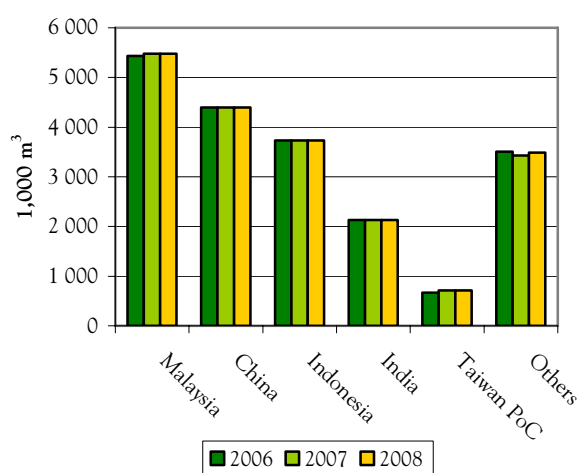
13.2.3 Plywood

Production of tropical plywood in ITTO producer countries totalled 13.5 million m³ in 2007, unchanged from the level in 2006 (graph 13.2.3). Although total production (as provided by member countries) is expected to remain relatively unchanged in 2008, this estimate may be optimistic, given the downturn in trade in tropical plywood that has become evident in recently-provided trade statistics and anecdotal reports of plywood production curtailment and plant closures in major producer countries. 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 have constrained progress towards the attainment of these targets to date. Tropical plywood production is heavily export-oriented and, as with other products, was affected in 2007 and 2008 by sharp increases in costs of adhesives and energy due to escalating oil prices.

GRAPH 13.2.3

Major tropical plywood producers, 2006-2008



Source: ITTO, 2009.

China is the second largest tropical plywood producer, with an industry based on imported tropical hardwood logs (for face veneers) and other log supplies for cores. In the last decade, China's tropical plywood production (at over 4 million m³) has supplied both the booming domestic construction industry and a growing export market. The demand situation changed rapidly at the end of 2007 when the value-added tax rebate for plywood was reduced from 11% to 5%, the Chinese currency appreciated relative to other major currencies (diminishing returns to the sector), demand declined dramatically in the major export market, the US, and competition intensified in a diminishing market. Recent information indicates that production in 2008 and 2009 will decline considerably, with significant plant closures reported in the major producing provinces – Jiangsu, Shandong and Hebei – as the prices of raw materials and labour increased and export prices weakened. Domestic plywood demand has also been affected by weakening residential housing construction. Small- to medium-sized mills have been more affected by the financial and economic crisis than large-scale mills, suggesting some improvement in efficiency if the export and domestic markets recover.

Indonesian plywood production has continued to contract, falling to 3.7 million m³ in 2006, about half the

level of 2003. This was mainly due to a reduction in logging quotas and crackdowns on illegal logging which restricted log availability for plywood production. Unofficial sources indicate that in 2008 and 2009, demand constraints in Indonesia's major export markets and a subsequent steep decline in exports will lead to at least a 27% drop in production in 2008, a trend that is expected to continue in 2009. The industry's problems have also been compounded by high production costs and out-of-date technology. India's tropical plywood production, based largely on imported tropical logs, as is the case in China, has also expanded significantly over the last decade, reaching 2.1 million m³ in 2005 and remaining at the same level to 2008. In contrast, Brazil's tropical plywood production fell sharply from 1.4 million m³ in 2004 to only 648,000 m³ in 2007. Production was restricted in 2007 by the dwindling value of exports to the US as the Brazilian currency strengthened relative to the US dollar until the last quarter of 2007.

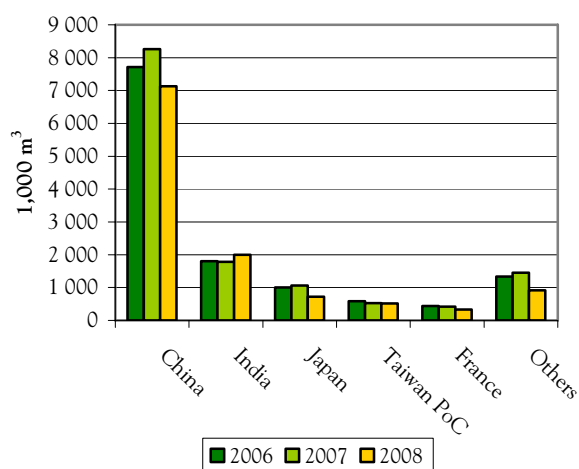
13.3 Import trends

13.3.1 Logs

China continued to dominate world imports of tropical logs, with imports reaching a peak of 8.3 million m³ in 2007, a 7% increase from 2006 (graph 13.3.1). The sustained growth in tropical log imports until 2007 reflected China's high economic growth rate and rising domestic consumption, continued expansion of exports of secondary processed wood products (SPWPs) and incentives for exports. However, as the global economic crisis took effect in late 2008, China's wood-processing industry began to be affected by reduced demand for tropical processed wood products (mainly wooden furniture and plywood) in traditional export markets and by a reduction in tax rebates for some wood product export items (although these were partially reinstated in 2009). To a lesser extent, demand was also depressed by a downturn in the domestic construction industry. Significant rationalization of the wood-based processing industry was reported to have occurred in 2008, particularly among small and medium-sized enterprises. China's wood-processing industry is beginning to lose competitiveness in relation to other Asian producers, with costs of manufacturing rising as a result of increasing costs of labour and raw materials (particularly caused by Russian log export taxes, although these were not fully implemented). As a consequence, tropical log imports in 2008 decreased by 14% to 7.1 million m³, the lowest level in five years. This trend is expected to continue in 2009 as export demand for China's processed-wood products is expected to remain depressed.

GRAPH 13.3.1

Major tropical log importers, 2006-2008



Source: ITTO, 2009.

Papua New Guinea, Malaysia, Myanmar, Gabon, and the Republic of Congo are China's main suppliers of tropical logs, with the proportion of imports from Papua New Guinea and the Solomon Islands (not an ITTO member) increasing considerably in recent years. The postponement in January 2009 of Russia's planned increase in prohibitive log export taxes to 80% of the log value has lowered expectations that China will significantly increase log inputs from other sources, including imports from tropical producer countries. China's total log imports from all sources amounted to 38.9 million m³ in 2007 and declined by over a third to 29.5 million m³ in 2008, the first year-on-year decline in over a decade.

While tropical log imports also declined between 2007 and 2008 in most of the major consuming countries, India, an important tropical log importer, brought in nearly 2 million m³ in 2008, up from 1.8 million m³ in 2007. Imports were mostly from Malaysia and Myanmar but with an increasing component from Africa. Japan's imports of tropical logs have declined significantly over the last 15 years. These are used predominantly in Japan's plywood industry and are affected by changes in the relative competitiveness of domestically produced tropical plywood in comparison with that imported from South-East Asian producers. Tropical log imports were 1.0 million m³ in 2007 and fell to 0.7 million m³ in 2008 following a decline in demand for logs for plywood. The strengthening yen had resulted in increased competition from less expensive imported tropical plywood, with Japanese consumers becoming more accepting of the appearance of softwood plywood and other materials. Japanese construction activity remained low in 2008 as the economy weakened, dampening domestic demand for plywood and log imports for plywood production.

Japanese demand for tropical logs in 2008 continued to be met primarily (approximately three quarters) by imports from Malaysia.

Russia was Japan's major log supplier in 2007, accounting for 45% of Japan's total log imports of 9.0 million m³. However Russia's share of total log imports in 2008 shrank by 30% because Japanese manufacturers began to shift to alternative supplies as Russian logs became more expensive (in mid-2008) and in anticipation of a further prohibitive Russian log export tax increase in January 2009 (which was not implemented). Readjustments in Japan's wood-processing sector have been occurring as Russian larch has become a preferred species for plywood manufacture in Japan and had previously maintained highly competitive prices relative to tropical logs.

Imports of tropical logs by EU countries decreased sharply from 1.2 million m³ in 2007 to 0.8 million m³ in 2008. The fall of over 32% reflected the deteriorating market conditions in EU countries, falling demand from EU wood processors, and investment in processing capacity in African countries. EU imports of plywood from Gabon and Cameroon, for example, have risen. Imports by France (the EU's largest and the world's fifth largest tropical log importer) slipped 21% to 416,000 m³ in 2007 as demand softened and log export restrictions in some of its main suppliers (Cameroon, Gabon, Liberia and Congo) were tightened. French imports were expected to drop further to 330,000 m³ in 2008 due to declining demand as economic conditions worsened. In late 2008, despite falling demand and prices and as the US currency strengthened relative to EU currencies, west African suppliers (who trade in euros and sterling) were reported to have some advantage in EU markets compared with Asian suppliers (who trade in US dollars).

13.3.2 Sawnwood

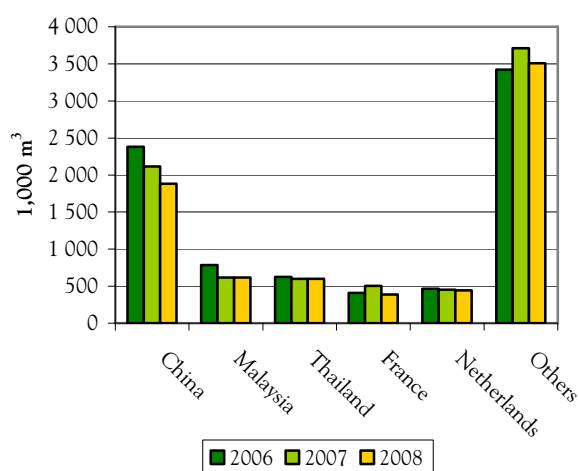
Total ITTO imports of tropical sawnwood declined from 8.0 million m³ in 2007 to 7.4 million m³ in 2008 as demand conditions deteriorated in consumer countries. China, the world's largest tropical sawnwood importer, maintained its position although year-on-year imports declined by 11.2% to 2.1 million m³ in 2007 (graph 13.3.2). China's imports were predominantly from Asia (Thailand, Indonesia, Malaysia and Myanmar) and South America (Brazil). In 2008, China's tropical sawnwood imports fell to 1.9 million m³ as demand slowed in China's export-oriented furniture industry.

A significant feature of the tropical sawnwood trade is that approximately 60% of the global trade is within the Asian region. Malaysia imported 618,000 m³ of tropical sawnwood (down 21%) in 2007, of which 80% came from Indonesia and Thailand. The significant year-on-year decline was due to a sharp decrease in supply from

Indonesia. Thailand's imports had been declining since 2004, reaching 598,000 m³ in 2007, of which 99% was from Malaysia, mostly lower grade material for the construction industry. Imports from Malaysia have declined significantly over the last two years due to a slowdown in private-sector construction activity.

GRAPH 13.3.2

Major tropical sawnwood importers, 2006-2008



Source: ITTO, 2009.

Total tropical sawnwood imports by EU countries recovered from a downturn in 2006 to reach 2.7 million m³ in 2007, mainly due to recovery in Spain, the UK and France. In 2008, EU imports dropped significantly to 2.4 million m³, with the decline escalating in late 2008. A steeper decline is expected in 2009 as economic conditions in most EU countries continue to worsen and consumption declines further. France was the largest importer of tropical sawnwood in the EU, absorbing 504,000 m³ in 2007 (up 22% from 2006) but decreasing sharply to 390,000 m³ in 2008. France's imports are primarily from Brazil, Cameroon, Malaysia, Côte D'Ivoire, Ghana and Belgium. A growing trend reported in the EU is the increasing reliance on smaller but more regular purchases of stocks from large stockpiles in the Benelux countries, which is likely to reduce the number of European countries that import tropical timber directly.

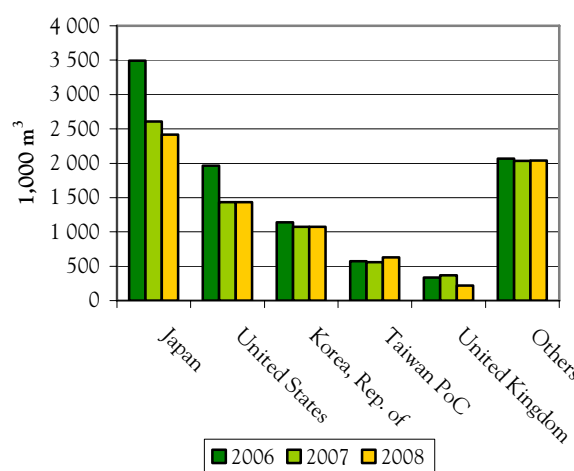
13.3.3 Plywood

Japan and, to a lesser extent, the US dominate imports of tropical plywood (graph 13.3.3). Total ITTO imports of tropical plywood have been declining steadily since 2004, reaching 8.1 million m³ in 2007, and the trend is expected to have continued in 2008. The bulk of all tropical plywood imports is sourced from Malaysia and Indonesia, with most of the remainder from Brazil and China. Japan continues to reduce domestic hardwood

plywood production and increase the use of softwood plywood, imported plywood (tropical and non-tropical) and substitutes such as oriented strand board and medium density fibreboard. Japan's tropical plywood imports increased modestly between 2005 and 2006 to 3.5 million m³, due to rising housing starts and construction activity, as well as difficulty in obtaining tropical logs for domestic production in the face of competition from China. In 2007, imports fell 25% as a result of rising prices of imported Indonesian and Malaysian plywood and a dip in housing starts, caused by poor implementation of the new Building Standard Law. The outlook for Japan's plywood demand and imports is not favourable in the medium to long term. In 2008, housing starts did not recover, economic growth is forecast to remain flat, and Japan's demographic profile indicates a declining population (assuming a continuation of Japan's low rate of inward migration). Despite falling demand for imports, lower prices continue to make imported plywood relatively more attractive than domestically produced plywood.

GRAPH 13.3.3

Major tropical plywood importers, 2006-2008



Source: ITTO, 2009.

The US remained ITTO's second largest tropical plywood importer in 2007 at over 1.4 million m³, although this was a steep decline (27%) from 2006, attributed to the housing shock and declining consumption which began in 2007. US demand for hardwood plywood is principally derived from demand for cabinets, furniture, store fixtures, recreational vehicles and manufactured homes, as well as residential housing construction and remodelling. Although demand for hardwood plywood in cabinets and fixtures reportedly increased in 2007, overall demand was offset by a weakening trend in other applications such as furniture. The legality of imports from China, the major supplier, was investigated by the US International Trade Commission in 2007, following concerns about the effects

of wood product supplies from China and other countries on the competitiveness of the US hardwood industry, including hardwood plywood. The report (released in September 2008) concluded that the increase in market share of imported hardwood plywood was due to shifting US consumer preferences, improved logistical capabilities in distribution and retailing which improved sourcing of imported products, and a trend for US producers to broaden their product lines or supplement domestic production with imports of finished products. Growing environmental awareness among consumers has been evident by the introduction of stringent control measures on formaldehyde content in composite board products in California in 2007, which may set a precedent for the whole country, and increased demand for green building products – i.e. products certified by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™. Tropical wood products will be challenged to conform to LEED requirements for Forest Stewardship Council (FSC) certified products, given the limited availability of FSC certified tropical forest areas.

EU imports of tropical plywood totalled about 1.3 million m³ in 2007, up 4.1% from 2006 levels. EU imports are mostly accounted for by the UK, the Netherlands, Belgium and Italy. Most of the EU's tropical plywood imports came from Brazil, China, Indonesia and Malaysia, with intra-European trade also playing a fairly large role in many countries' imports. EU imports in 2008 were expected to decline 10% as the economic crisis took hold in all markets and demand slackened. Tropical plywood imports, particularly from Asian sources, have also been losing market share to plywood grades of Russian origin, particularly birch plywood. Statistics on imports of certified tropical plywood products are unavailable as they are undifferentiated in the Harmonized System of customs codes. Industry sources, however, suggest that in the UK (the largest tropical plywood importer in the EU) the economic downturn has resulted in public-sector construction becoming a more important market. The need to conform to government procurement policy tends to favour products which are "verified legal and sustainable". For this reason, together with other factors including the availability of certified plywood products at little or no price premium, demand for certified plywood from UK plywood importers is reported to have increased considerably.

13.4 Export trends

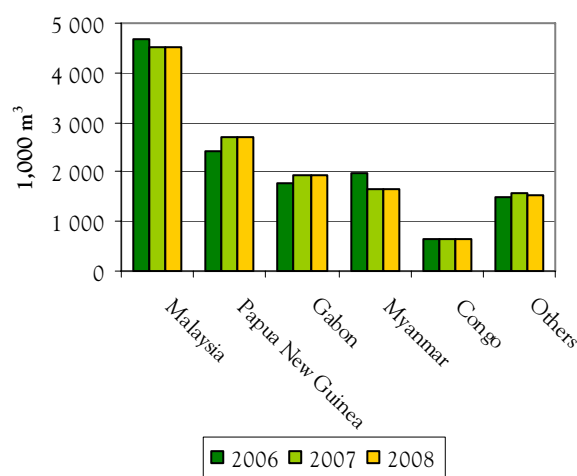
13.4.1 Logs

Although Malaysia continues to dominate the trade in tropical logs, with 4.5 million m³ exported in 2007, log exports were down significantly from 2005 levels as log export supplies became more restricted (graph 13.4.1).

Malaysia's major log customers are all in Asia, with China, India, Japan and Taiwan Province of China accounting for 85% of the reported log export volume in 2007. In the medium term, Malaysia's log exports are likely to decline further, primarily because demand will be considerably weakened in traditional markets. Malaysia's tropical log supplies have also continued to tighten in line with government policy to implement sustainable forest management, and in recent years more tropical logs have been processed domestically, despite the wood-processing industry being severely affected by the economic downturn in major export markets in 2008-2009.

GRAPH 13.4.1

Major tropical log exporters, 2006-2008



Source: ITTO, 2009.

Papua New Guinea's tropical log exports reached 2.7 million m³ in 2007, a 13% increase over the 2006 level, with most exports destined for China (86%) which has been increasing its share of Papua New Guinea's exports over the last 5 years. Gabon is also an important exporter, predominantly to China (59%), which has overtaken EU markets in recent years. A significant development has been the increase in exports of species other than okoumé (the major species traded) to India, the third largest export destination after China and France. Although official total log export data for Gabon are not available for 2008, China's imports from Gabon increased to 1.5 million m³ in 2008 (Global Trade Atlas, 2008), while imports by France and other significant EU importers declined. The increase in China's imports from Gabon occurred despite the implementation of log export quotas in 2008 intended to reduce the share of log exports in the product mix. In 2009, Gabon and other African log exporters such as Cameroon and Congo have reported a significant closure of production capacity in their forest sectors because of the impacts of the economic downturn on demand and prices in traditional

export markets. The extent to which this has affected tropical log exports is still unknown. The forest sector in these countries is seeking government relief through the revision of various forest, processing and export taxes.

Log exports by Myanmar declined by 12% in 2007. Myanmar's main trading partners are China and India, which together accounted for 50% of Myanmar's tropical log exports. An increasing proportion of Myanmar's exports in 2007 went to Middle-Eastern countries (20%) and Viet Nam (6%). The EU ban on imports of wood products from Myanmar and other sanctions imposed in March 2008 have had an impact on China's imports of Myanmar teak logs, which declined 22% in 2008 to 462,000 m³ as demand for finished teak products in China's SPWP export markets slackened (Global Trade Atlas, 2008). Although EU countries are insignificant to Myanmar's log trade, importing about 2% of Myanmar's tropical log exports in 2007, these are major end-markets for teak products processed in China from Myanmar logs and other ITTO member countries. The new regulation was enforced in March 2008 and affects products both imported directly from Myanmar and indirectly via other countries. In the EU, boat builders and outdoor furniture manufacturers, increasingly concerned about security of supply and the public acceptability of teak from Myanmar, are reported to be seeking alternative sources of teak and substitute species. Since 2003, the US has imposed trade sanctions on imports of all articles that are a product of Myanmar.

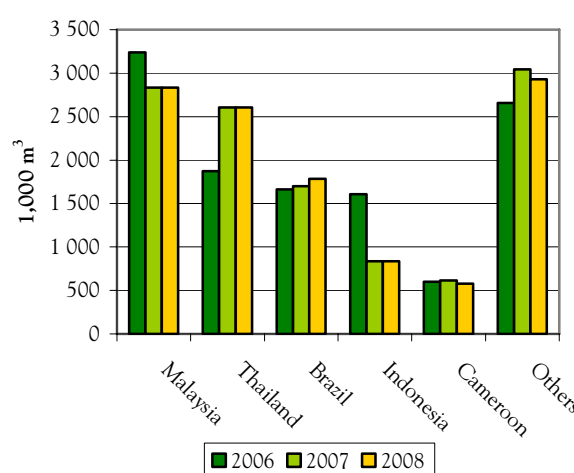
13.4.2 Sawnwood

Malaysia continues to dominate exports of tropical sawnwood, although these declined by 12% in 2007 from a peak of 3.2 million m³ in 2006 (graph 13.4.2). Malaysia's tropical sawnwood exports to Thailand, the major market, are used mainly in the construction industry, which experienced a boom in 2005 before easing in 2006 and 2007. Malaysia's other major sawnwood customers in 2007 were China, Taiwan Province of China, Republic of Korea, Japan, US, France and Belgium. Exports from Malaysia are expected to slide further in 2008. Thailand's exports of tropical sawnwood increased to 2.6 million m³ in 2007. Thai exports were predominantly to China and Malaysia. Thailand's reported exports to China and Malaysia in 2007 were only about half the volume of both China and Malaysia's reported imports, indicating the continued problems in Asian countries with discrepancies in trade flow reports for tropical sawnwood. Brazil is also important in the tropical sawnwood trade, with exports totalling 1.7 million m³ in 2007, a marginal increase over 2006 but down 17% from 2004 levels. Brazil's major tropical sawnwood markets are China, the Netherlands and France (where there are large discrepancies between reported trade flows), Spain and the US. Brazil's tropical

sawnwood exports are estimated to have increased to 1.8 million m³ in 2008. Indonesia's exports of tropical sawnwood dropped sharply in 2007 to 835,000 m³, 48% less than in 2006. Indonesia's reported exports of tropical sawnwood have severely underestimated total trade in previous years, particularly with China. In 2007, large discrepancies continued to exist between Indonesia's official reports of exports to Malaysia and China and their respective reports of imports from Indonesia.

GRAPH 13.4.2

Major tropical sawnwood exporters, 2006-2008



Source: ITTO, 2009.

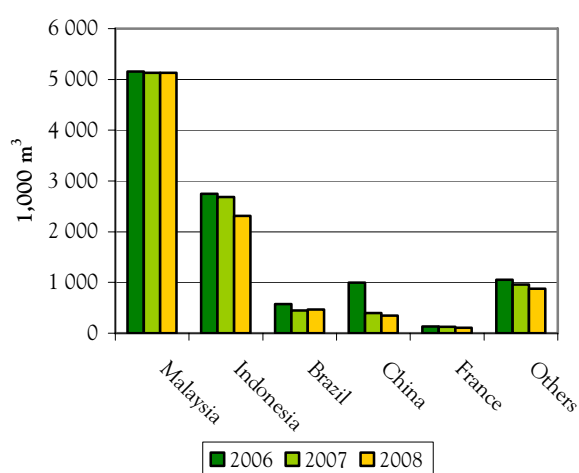
13.4.3 Plywood

Malaysia remains the largest tropical plywood exporter at 5.1 million m³ in 2007 and 2008. Its share of ITTO producer countries' exports has been growing, from 42% in 2003 to over 58% in 2007, reflecting Indonesia's declining importance in the plywood trade (graph 13.4.3). Malaysia's exports are mainly to Japan, the Republic of Korea, the US, and Taiwan Province of China. The EU, particularly the UK, is also an important market, with Malaysia being able to supply it with significant volumes of certified plywood at small price premiums. Indonesia was traditionally Malaysia's major competitor in the tropical plywood trade, but its exports have dropped sharply in recent years and Malaysia now dominates the trade. Indonesia's plywood exports declined in 2007 to 2.7 million m³ and are forecast to slide further in 2008 to 2.3 million m³. Indonesia's exports have fallen 26% over the last five years, due to decreasing supply of logs to the plywood industry following crackdowns on illegal logging, and are considerably lower than the highs of around 10 million m³ (or 85% of total ITTO producer exports) in the early 1990s. Brazil's exports shrank 63% between 2004 and 2007 to 445,000 m³ in 2007 as the industry faced diminishing supplies of tropical logs because of clampdowns on illegal logging, increasing competition

from Asian producers (particularly China and Indonesia) and a surge in construction and domestic consumption in 2007. Brazil's exports are predominantly to the US (23%) and the UK (30%) and were affected in 2007 by the strengthening of the Brazilian currency relative to the US dollar and in 2008 by dwindling demand in major markets.

GRAPH 13.4.3

Major tropical plywood exporters, 2006-2008



Source: ITTO, 2009.

China's exports of tropical plywood fell to 396,000 m³ in 2007⁹¹, a drastic year-on-year decline of 60% that can be partially attributed to the uncertainty caused by investigations into the legality of wood product supplies from China by the US and EU, and to an increase in manufacture of coniferous plywood. China's plywood export competitiveness has also been affected by the removal of value-added export tax rebates for Chinese plywood exporters from 13% to 5% in mid-2007 (although these were partially reinstated in December 2008), increased competition for wood raw materials in China, rising labour and fuel costs, and difficulties in supplying environmentally certified products from China due to the complexity of supply chains. China's tropical plywood exports to markets such as the EU, Taiwan Province of China and Japan have been largely based on logs sourced from tropical producer countries, many of which have been steadily losing share in these plywood markets. In 2008, exports dropped to 347,000 m³ (as reported by China), as demand for tropical plywood declined in the US and EU and export prices fell.

⁹¹ In 2007, COMTRADE reports total imports of tropical plywood by all reporting countries from China to be on the order of 2.94 million m³, indicating a significant discrepancy with China export statistics of 396,000 m³. Similar discrepancies have been apparent since 2004.

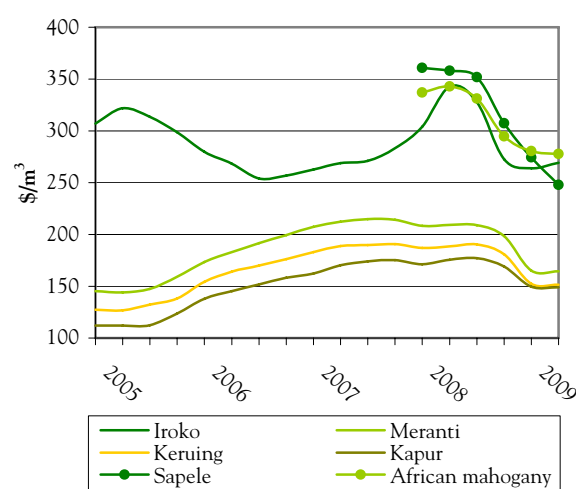
13.5 Prices

Although prices for many primary tropical timber products reached record highs in 2007 as a result of strong demand in certain regions and restricted supplies from producer countries, prices began to flatten in early 2008 until mid-2008 before plunging as the effects of the global economic downturn took hold in major tropical wood products markets.

African log and sawnwood prices rose steadily in 2007 with some species reaching new record highs (graph 13.5.1). Price gains were due to greater demand (including from China and India), shortages in supply of certain species, as well as rising ocean-freight rates and/or taxes and similar levies. Log export quotas were either partially or fully implemented in Congo and Gabon, causing upward pressure on log prices. All these factors combined to encourage many producers to seek higher prices. In late 2008 and early 2009, prices began to trend downward as limited demand in traditional export markets, particularly EU countries, became a more important determinant than restrictions in supply. Prices for sapele and African mahogany followed this trend, maintaining relatively high prices in mid-2007 to late 2008 due to continued strong demand in EU markets, before retreating in response to deteriorating demand conditions.

GRAPH 13.5.1

Tropical log price trends, 2005-2009



Notes: Prices in 1990 US dollars. Data series for sapele and African mahogany are only available from January 2008.

Source: ITTO Market Information Service, 2009.

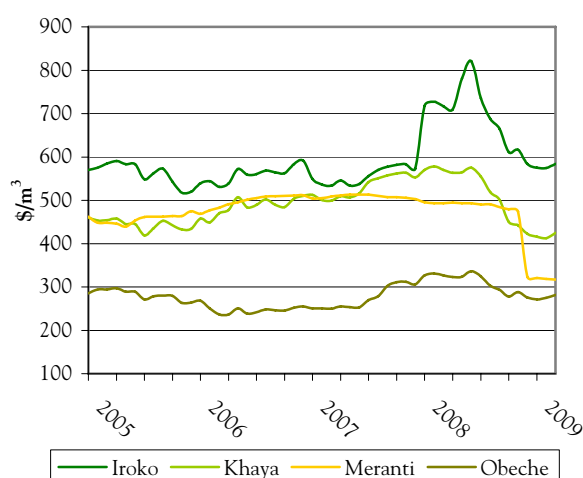
Log prices for South-East Asian species continued to rally in 2007, some reaching unprecedented levels before reaching a plateau between mid-2007 and mid-2008 as supply limitations were balanced with slowing demand conditions in major markets. Prices subsequently plunged as demand limitations became more important price determinants. Price gains in 2007 were due to the

continued tightening supply of South-East Asian logs, intensified by enforcement measures against illegal logging, restrictions on log exports and reduced logging quotas in Indonesia, even though the latter have been eased somewhat. The maintenance of relatively high prices for keruing and meranti during mid-2007 to late 2008 in an uncertain market was due to continued strong demand in China, India and the Middle-East, and sustained upward price pressure caused by rising ocean freight rates. However, by early 2009 demand had collapsed and log prices plummeted.

Prices for most Asian and African tropical sawnwood showed significant price gains in 2007 and early 2008 as progressive tightening of supplies of most species had an impact on trade while demand remained steady in India and China (graph 13.5.2). By late 2008, tropical sawnwood demand and prices in major export markets had fallen, particularly in EU markets. Iroko nominal prices remained relatively firm through 2007 within periodic fluctuations of supply from Africa and demand from EU countries, with prices dropping in late 2008 as demand slowed in the building and carpentry sectors in EU markets. Meranti and sapele nominal prices reached new record highs in mid-2008 with Asian suppliers benefiting, compared with African suppliers, from the weakness of the US dollar during this period. In late 2008, prices began to slide in US dollar terms. Prices of African mahogany (*Khaya spp.*) rose steadily until the end of 2007 as the supply of the South American mahogany (*Swietenia macrophylla*) remained extremely limited. Strong price competition from alternative species (particularly meranti) and slowing demand in the US flattened prices, which fell rapidly from mid-2008.

GRAPH 13.5.2

Tropical sawnwood price trends, 2005-2009



Note: Prices in 1990 US dollars.

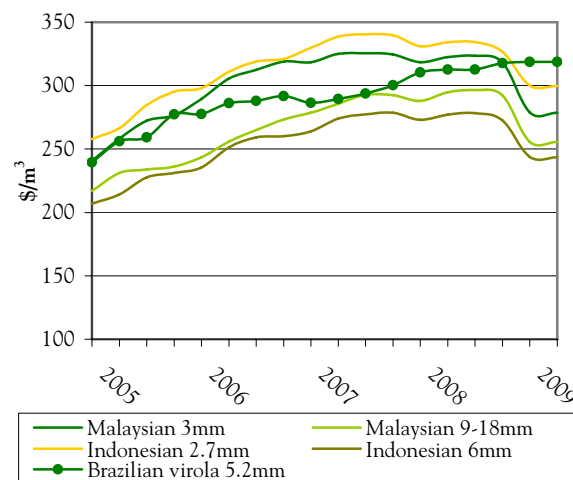
Source: ITTO Market Information Service, 2009.

South American supplies of tropical sawnwood were reported to be difficult to source by buyers in 2007 and 2008 and prices consequently rose strongly, before flattening out in early 2009. The Brazilian hardwood industry has been severely affected by the escalation of production costs and government efforts to crack down on illegal logging. Until late-2008, exporters had also been at a disadvantage because of a strengthening currency which undermined export competitiveness. By the time the Brazilian currency weakened relative to the US dollar, US demand had plummeted.

Prices for South-East Asian plywood rose steadily until mid-2007, reflecting continuing shortages in log availability, tighter control of illegal logging in Indonesia and elsewhere, bottlenecks in shipments, and higher production and material costs. Further price rises were prevented by fierce competition from less expensive Chinese combi-plywood and mounting concern over illegal logging that led some large importers to switch away from Indonesian plywood altogether. Prices reached a plateau in the latter part of 2007 before sliding rapidly in the last quarter of 2008 as construction activity weakened (including in Middle-Eastern markets) and competition intensified between supply sources (graph 13.5.3). Prices of Brazilian white virola plywood, the most popular Brazilian product, rose in steps in 2007 and, in contrast to other tropical plywood products, remained steady in 2008 and 2009. White virola's competitiveness increased as the Brazilian currency weakened relative to the US dollar despite a declining market and as supplies of white virola plywood were in short supply.

GRAPH 13.5.3

Tropical plywood price trends, 2005-2009



Note: Prices in 1990 US dollars.

Source: ITTO Market Information Service, 2009.

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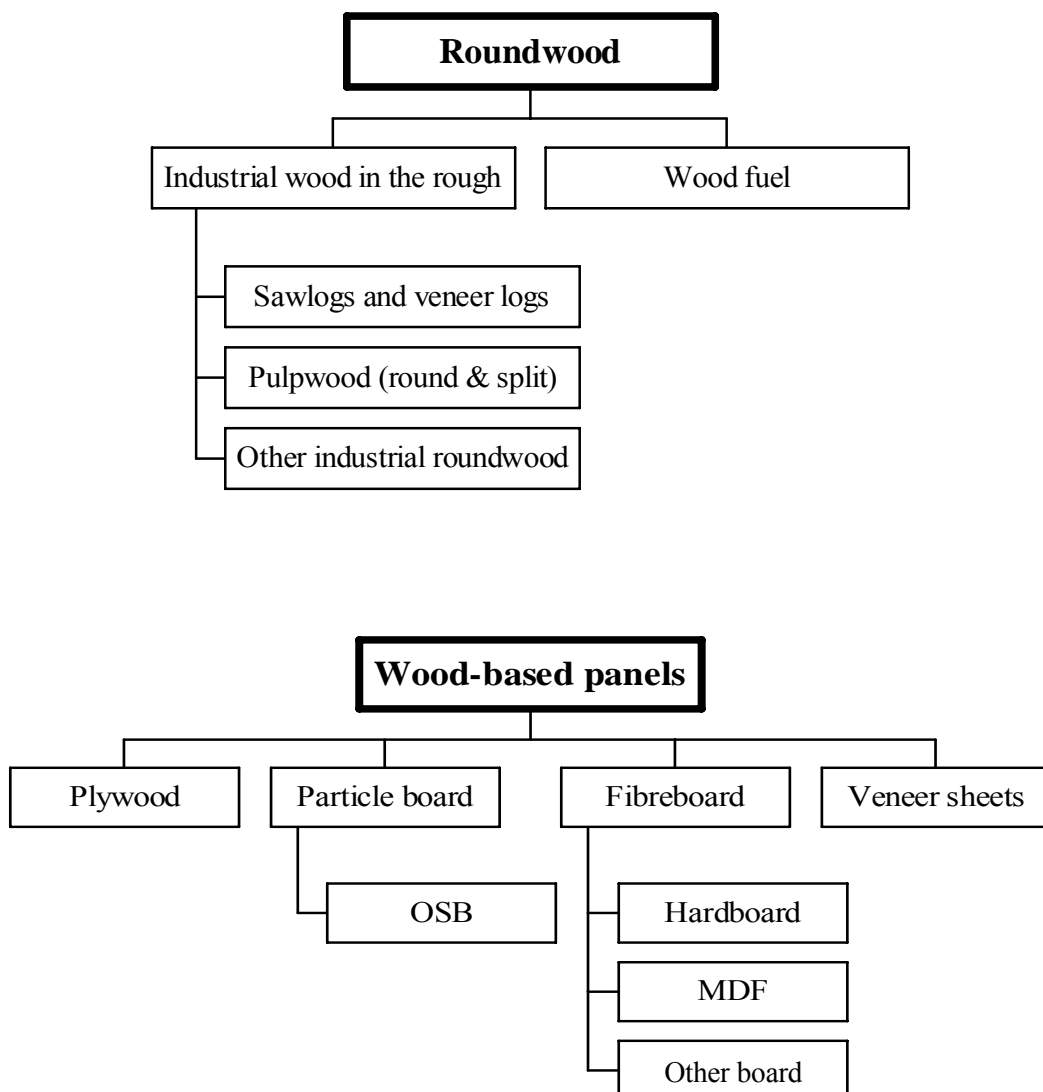
Annexes

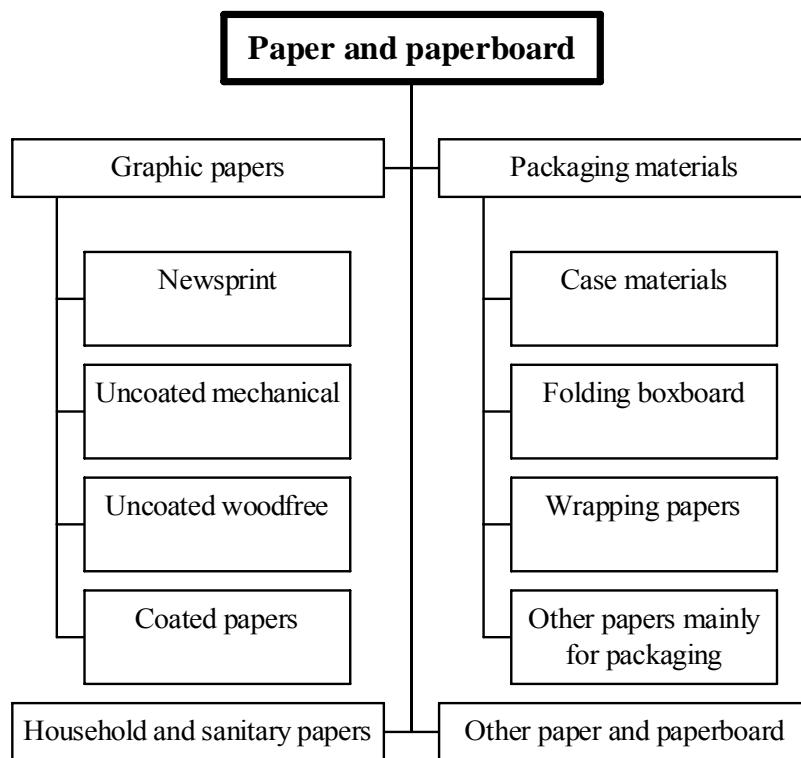
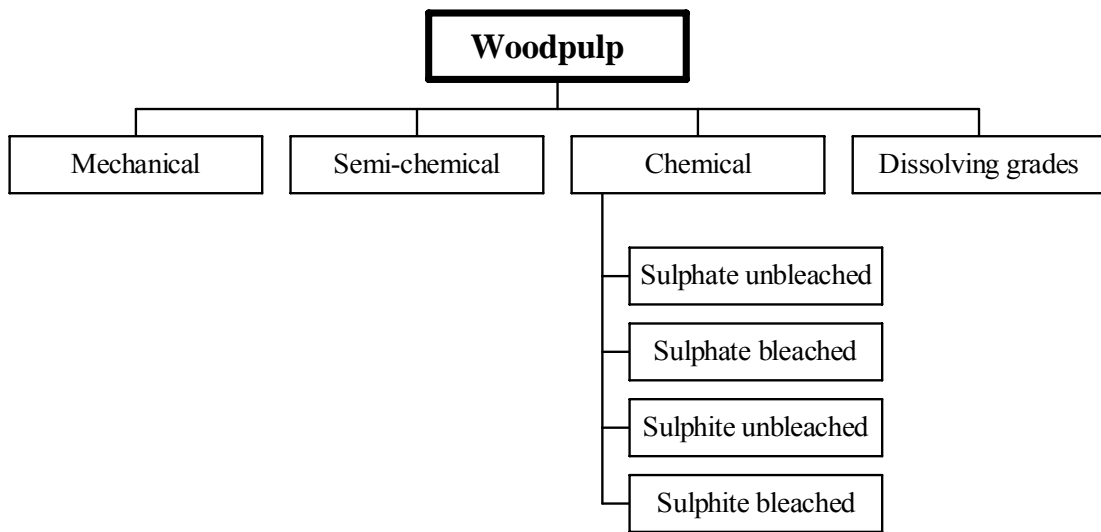
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Components of wood products groups

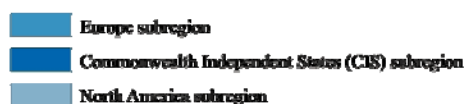
(Based on Joint Forest Sector Questionnaire nomenclature)

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

Sources of information used in the *Forest Products Annual Market Review*

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- Bureau of Labor Statistics, United States, www.stats.bls.gov
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Some facts about the Timber Committee

The Timber Committee is a principal subsidiary body of the UNECE (United Nations Economic Commission for Europe) based in Geneva. It constitutes a forum for cooperation and consultation between member countries on forestry, the forest industry and forest product matters. All countries of Europe, the Commonwealth of Independent States, the United States, Canada and Israel are members of the UNECE and participate in its work.

The UNECE Timber Committee shall, within the context of sustainable development, provide member countries with the information and services needed for policy- and decision-making with regard to their forest and forest industry sectors ("the sector"), including the trade and use of forest products and, when appropriate, will formulate recommendations addressed to member Governments and interested organisations. To this end, it shall:

1. 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;
2. In support of these analyses, collect, store and disseminate statistics relating to the sector, and carry out activities to improve their quality and comparability;
3. Provide the framework for cooperation e.g. by organising seminars, workshops and ad hoc meetings and setting up time-limited ad hoc groups, for the exchange of economic, environmental and technical information between governments and other institutions of member countries required 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;
4. Carry out tasks identified by the UNECE or the Timber Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies in transition of central and eastern Europe and of the countries of the region that are developing from an economic perspective;
5. It should also 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 (Food and Agriculture Organization of the United Nations) and its European Forestry Commission, and with the ILO (International Labour Organisation), in order to ensure complementarity and to avoid duplication, thereby optimizing the use of resources.

More information about the Committee's work may be obtained by writing to:

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Trade and Timber Division
United Nations Economic Commission for Europe
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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.

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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.