



- Total roundwood removals in the UNECE region^a declined by 12% to 1.02 billion m³ in 2008, the lowest levels since 1999.
- In 2008, total consumption of forest products in the UNECE region fell by 8.5%.
- In contrast to other forest market sectors, the demand for wood for energy provision continues to grow.

^a Member States of the UNECE are Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia, and Herzegovina, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom, United States of America and Uzbekistan.

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An overview of the 2009 UNECE Timber Committee Meeting

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Introduction

The October 2009 meeting of the United Nations Economic Commission for Europe (UNECE) Timber Committee discussed:

- Key forest product markets;
- Sectoral issues;
- Biomass/bioenergy/wood energy;
- Climate change and forests.

Output of forest products in the UNECE region (2004–2008)

Over the period 2007–2008, the demand for forest products within the UNECE region declined by 8.5% (Table 1). This was largely driven by a reduction in residential construction output. The effect of the downturn in key UNECE forest products markets is outlined in this note.

Table 1: Apparent consumption of forest products in the Member States of the UNECE (2004–2008).

Product/Year	Unit	2004	2005	2006	2007	2008	change (2007–08) %
Sawnwood	M m ³	281.55	287.13	280.58	273.95	238.05	-13.1
Wood-based panels (WBP)	M m ³	138.35	144.56	148.64	153.66	139.03	-9.5
Paper and paperboard	M mt	197.13	200.87	204.50	204.85	194.03	-5.3
Total ^a	RWE M m ³	1,340.12	1,371.65	1,380.00	1,373.35	1,256.45	-8.5

^a RWE: roundwood equivalent

North America¹

In 2008, the consumption of roundwood in North America declined by 13.7% compared with 2007 (Table 2). Demand for roundwood in this marketplace is heavily dependent on the US economy, and in particular on the strength of the housing market.

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¹ http://www.apawood.org/mgt_rpt/September2009/MR0909.pdf

Table 2: Roundwood balance in North America (2007–2008).^a

Harvest and trade	2007	2008	% change
	M m ³		
Removals	619,227	535,758	-13.5
Imports	7,527	6,291	-16.4
Exports	13,884	13,371	-3.7
Apparent consumption	612,869	528,678	-13.7

^a http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

The housing market is a key driver of forest product use in North America. It is estimated that 70% of the demand for structural building materials is linked to the demand for residential housing, with almost 40% of the sawnwood consumed in the US being used in new residential construction. However, the output of the US housing sector has been in steep decline since 2005. Data provided by the US National Association of House Builders (NAHB)² shows that from a high of 2.1 million house starts in 2005, housing output fell to 554,000 units in 2009 (Table 3)³. In addition, growing housing inventories, fuelled by increasing foreclosures, tougher lending standards and the ongoing recession are delaying the recovery of the North American construction sector.

In 2010, housing output in the US is forecast to improve modestly to 665,000 starts (Table 3). However, the US Western Wood Products Association⁴ (WWPA) does not expect housing starts in the US to exceed 1 million units until 2012⁵.

With timber frame construction accounting for over 85% of US housing output, the impact of the reduction in housing

Table 3: US housing starts by type (2000–2010f).^{a,b}

Year	Single-use	Multi family	Total
	000 homes		
2000	1,231	338	1,569
2001	1,273	330	1,603
2002	1,359	347	1,705
2003	1,499	349	1,848
2004	1,610	345	1,956
2005	1,716	352	2,068
2006	1,465	336	1,801
2007	1,046	309	1,355
2008	622	283	905
2009	445	109	554
2010f ^c	555	110	665

^a http://www.nahb.com/fileUpload_details.aspx?contentTypeID=3&contentID=45409&subContentID=154673

^b Source: (APA) – The Engineered Wood Association; <http://www.apawood.org>

^c F: forecast

² <http://www.nahb.com>

³ http://www.nahb.com/fileUpload_details.aspx?contentTypeID=3&contentID=45409&subContentID=154673

⁴ The Western Wood Products Association (WWPA) represents lumber manufacturers operating in the 12 Western states of the USA. It is headquartered in Portland, Oregon.

⁵ <http://www2.wvpa.org/Portals/9/docs/r-09-10%20forecast.doc>

demand on the output on the forest products sector in North America has been devastating. Over the period 2007–2008, the consumption of roundwood in North America declined by 13.7% (Table 2). In 2008, the collapse of the US housing market caused half of the North American sawmill sector to temporarily curtail its production or to close, in order to accommodate much lower demand levels. As a result, the 2008 production of sawn softwood timber in North America fell by 18.8% to 89.9 million m³, while consumption declined by 20% (Table 4). Moreover, the output of sawn timber from sawmills in the southern US states (the most important sawmilling region) declined by 21% over the period 2006–2008.

In 2008, the demand for hardwood sawn timber declined by 7% compared with 2007 (Table 5).

Over the same period of 2007–2008, the consumption of wood-based panels in North America declined by 18.9% (Table 6).

US housing inventories remain at historically high levels. In early 2009, the period over which new homes remained unsold increased to 10.9 months, while the unsold period for existing homes fell slightly to 9.6 months. However,

Table 4: Sawn softwood balance in North America (2007–2008).^a

Production and trade	Output 2007	Output 2008	Change %
	M m ³		
Production	110.7	89.9	-18.8
Imports	31.5	22.0	-30.2
Exports	33.8	25.2	-25.4
Apparent consumption	108.4	86.7	-20.0

^a http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

Table 5: Sawn hardwood balance in North America (2007–2008).^a

Production and trade	Output 2007	Output 2008	Change %
	M m ³		
Production	27.0	24.6	-8.9
Imports	2.3	2.0	-14.0
Exports	3.6	2.7	-25.0
Apparent consumption	25.7	23.9	-7.0

^a http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

Table 6: Estimated consumption of wood-based panels in North America (2007–2008).^a

	2007	2008	Change %
	M m ³		
	62.31	50.51	-18.9

^a http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

prior to 2007, the periods for new and existing homes were typically in the 4 to 4.5 month range. This suggests that a recovery of the US housing industry is still some time off. A housing forecast produced by the APA, the US Engineered Wood Association⁶ states that “2009 should mark the bottom of the current housing cycle, with a modest recover expected for 2010”⁷. A similar forecast from the US National Association of House Builders (NAHB)⁸ states that it expects that the “US housing market will gain strength through the fourth quarter of 2010”⁹.

Other market drivers for forest products in the US

The following market drivers can be used to gauge the demand for forest products in North America.

- *Industrial production:* This is an important demand driver for pallet/packaging timbers, for containerboard and for some grades of paper. In the first 5 months of 2009, North American industrial output declined by 2% over 2008.
- *Furniture and related products:* In the first 5 months of 2009, the demand for high-grade sawn timber for use by US furniture manufacturers declined by 2% compared with 2008.

The Russian Federation¹⁰

The Russian Federation has the largest area of natural forest in the world, an estimated 808.8 M ha, which represents 20.5% of world’s resource, and exceeds the combined forest area of Brazil and Canada. While much of the resource is not economically accessible¹¹, the Russian Federation remains a major producer of roundwood within the UNECE region¹² (Table 7). In 2008, the volume of un-processed roundwood exported from the Russian Federation declined by 12.5 M m³ compared with 2007 (Table 7), driven by the imposition of increased taxes on un-processed roundwood exports. As a result, the volume of roundwood exported to Europe fell by 44% in the first quarter of 2008. Exports to Asia fell by 15% in the same period¹³.

The main importers of the roundwood exported from the Russian Federation are shown in Table 8.

The impact of roundwood export taxes (Table 9) on the Russian economy, as well as their effect on the forest

Table 7: Production and consumption of roundwood in the Russian Federation (2005–2010).^{a,b}

Production and trade	2005	2006	2007	2008	2009f	2010f
	M m ³					
Production	185.0	190.6	207.0	181.4	161.2	171.6
Export	43.8	51.1	49.3	36.8	27.0	31.0
Import	1.0	0.5	0.3	0.3	0.3	0.3
Apparent consumption	137.7	140.0	158.0	144.9	134.5	140.9

^a Source: Nikolay Burdin, Moscow (2008).

^b <http://www.unece.org/timber/mis/market/market-66/russian.pdf>

Table 8: Main importers of roundwood from the Russian Federation (2007–2009f).^{a,b,c}

Importer	2007	2008	2009f
	M m ³		
China	27.6	21.3	
Finland	10.1	9.9	
Japan	4.5	2.0	
Baltic countries	2.1		
Sweden	1.6	1.2	
CIS countries		0.8	
Republic of Korea	1.2	0.7	
Turkey		0.4	
Other countries	2.2	0.5	
Total	49.3	36.8	27.0

^a <http://www.unece.org/timber/mis/market/market-66/russian.pdf>

^b timber.unece.org/fileadmin/DAM/country-info/russianfederation.pdf

^c <http://www.metla.fi/julkaisut/workingpapers/2010/mwp148.pdf>

Table 9: Historic and proposed Russian Federation roundwood export tariffs.^a

Log type and year	Export tariff €/m ³
Softwood sawlogs	
2006	4
July 2007	10
April 2008	15
January 2009	50
January 2011	50
Birch pulpwood	
January 2011	50

^a http://www.ihb.de/fordaq/news/Russia_export_tax_logs_14732.html

products sectors in importer countries is a topic of ongoing debate between the Russian Federation and the international forest products sector¹⁴.

As a result of these discussions, the Russian Federation has delayed the final phase of a proposed export tax increase on the export of un-processed roundwood. The global financial

⁶ <http://www.apawood.org>

⁷ http://www.apawood.org/mgt_rpt/September2009/MR0909.pdf

⁸ <http://www.nahb.com>

⁹ <http://www.nahb.org/generic.aspx?genericContentID=58215§ionid=872&channelid=311&channelID=311>

¹⁰ <http://timber.unece.org/fileadmin/DAM/country-info/russianfederation.pdf>

¹¹ <http://www.cintrafor.org/publications/newsletter/C4news2009winter.pdf>

¹² The UNECE Member States include the countries of Europe, Canada, the United States, Israel and the Central Asian Republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan <http://www.unece.org/oes/nutshell/region.htm>

¹³ Current indications are that introduction of the tax will be delayed by 9-12 months from its proposed introduction on 1 January 2009.

¹⁴ http://www.unece.org/press/pr2009/09tim_p06/StatementForPressRel.E.pdf

crisis was the reason cited for the policy change. In late 2008, Prime Minister Vladimir Putin told an international forestry meeting in St Petersburg that the “Russian log export duty will remain unchanged in 2010, and this same level may be extended into 2011”. In effect, the export duty on roundwood exports from Russia will remain unchanged at least until January 2011¹⁵.

However, the earlier imposition of export taxes by the Russian Federation has caused importing countries to move to reduce their dependence on Russian roundwood. Measures include the development of alternative sources of supply and the closure of selected timber processing facilities. In 2009, the volume of roundwood exported from the Russian Federation declined dramatically. In the first eight months of 2009, softwood exports declined by 29%, with hardwood exports 78% lower than the corresponding period in 2008¹⁶.

China¹⁷

Within the past decade, China has become a major exporter of forest products. In 2008, the total output value of China’s forest products industry reached RMB1.44 trillion yuan¹⁸, up 15% from 2007. The total value China’s forest product exports topped US \$70 billion. Output by product type is shown in Table 10.

In 2008, the Chinese forest products sector used 81 M m³ of roundwood. Roundwood imports from the Russian Federation continued to dominate this market. In 2008, the other main suppliers of roundwood to China were New Zealand, Papua New Guinea, the Solomon Islands, Gabon and the US.

Table 10: Output of the Chinese forest products sector by product type (2008).^{a,b}

Product	Unit	2008 output
Sawn timber	M m ³	28.41
Of which tropical sawnwood	M m ³	1.27
Wood-based panels	M m ³	94.03
Veneer	M m ³	22.84
Decorative panels	M m ²	227.00
Wood flooring	M m ²	377.00
Wooden furniture	M pieces	178.00
Wood pulp	M tonnes	64.00
Paper and paperboard	M tonnes	79.80

^a http://www.lfpdc.lsu.edu/unece/logging/documents/2009Sept/r109_07.pdf

^b http://www.fordaq.com/fordaq/news/Sawnwood_Prices_Plywood_22029.html

¹⁵ <http://www.risiinfo.com/blogs/Russian-Log-Export-Tax-Increase-Delayed-Again.html>

¹⁶ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/09-Ekstrom141009.pdf>

¹⁷ <http://timber.unece.org/fileadmin/DAM/publications/dp-57.pdf>

¹⁸ 1 Chinese yuan = 0.146509 U.S. dollars

¹⁹ <http://al.china-embassy.org/eng/xwdt/t527777.htm>

²⁰ Source: China Paper Association

²¹ http://www.ihb.de/wood/news/furniture_logs_Woodbasedpanel_21503.html

²² http://www.fordaq.com/fordaq/news/Sawnwood_Prices_Plywood_22223.html

²³ http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

China’s paper industry has developed rapidly since the Reform and Opening Up Policy of 1978¹⁹. In 2008, there were 3,500 paper product manufacturers in China, with a combined annual output of 79.8 M tonnes of paper and paperboard products, and 64 M tonnes of wood pulp²⁰. Output grew by 12.8% per annum over the period 2000–2008.

In 2008, production of wood-based panels (WBP) was 94.03 M m³, up 6% from 2007; the breakdown by product over 2007–2008 is shown in Table 11.

Chinese wood flooring output grew by 9.8% over the period 2007–2008 (Table 12).

However, China has not been immune from the global recession. In the first three quarters of 2009, the total export value of forest products exported from China amounted to US \$45 billion, a decline of 6% on the same period in 2008^{21, 22}.

Europe²³

Beginning in 2007, Europe has had the severest economic downturn since the oil crisis of the 1970s. In 2008, the consumption of forest products in Europe fell by 5.9% over 2007 (Table 13). On an annual basis, this equates to a reduction of 38.5 M m³ in roundwood usage.

Table 11: Chinese wood-based panel output by product (2007-2008).^a

Product	Output M m ³	
	2007	2008
Plywood	35.61	35.41
Fibreboard	27.30	29.00
Blockboard	13.24	13.10
Particleboard	8.29	11.42
Other panel products	3.94	5.10
Total	88.38	94.03

^a http://www.globalwood.org/market/timber_prices_2009/aaw20090702d.htm

Table 12: Chinese wood flooring output by product type (2007-2008).

Product	Output M m ²	
	2007	2008
Solid composite flooring	113.48	79.00
Solid wood flooring	77.84	123.00
Laminated flooring	94.86	116.00
Bamboo/wood composite flooring	20.48	13.68
Other flooring	36.77	45.32
Total	343.43	377.00

In 2008, the demand for sawn timber and for wood-based panels in Europe fell by 10.6% and 4.3%, respectively (Table 13). During 2008, European particle board production was down 3.3%, OSB production shrank by 9% and plywood production declined by 7.2%²⁴.

Table 13: Apparent consumption of forest products in Europe (2007–2008).

Product/Year	Unit	2007	2008	Change (2007–08) %
Sawnwood ^a	M m ³	124.42	111.28	-10.6
WBP	M m ³	75.11	71.90	-4.3
Paper and paperboard	M mt	99.67	96.03	-3.7
Total	RWE ^b M m ³	657.12	618.61	-5.9

^a This includes sawn softwood and sawn hardwoods

^b RWE: roundwood equivalent

Sectoral overview

Roundwood

In 2008, industrial roundwood removals in the UNECE region declined by 12% to 1,018 M m³ (Table 14).

Sawn softwood

As a result of the economic and financial crisis, the demand for sawn softwood fell sharply in both Europe and in North America. This caused the consumption of sawn softwood in the UNECE region to decline by 13.7% over the period 2007 to 2008 (Table 15).

Table 14: Industrial roundwood removals by region in the UNECE region (2007 – 2008).^a

UNECE region	Total removals (2008) M m ³	Change (2007-08) %
Europe	378	-8
CIS	152	-14
North America	488	-14
Total	1,018	-12

^a <http://timber.unece.org/fileadmin/DAM/meetings/20091013/09-Ekstrom141009.pdf>

Table 15: Apparent consumption of sawn softwood in the UNECE region (2007-2008).

UNECE region	Apparent consumption M m ³		Change %
	2007	2008	
Europe	106.44	95.87	-9.9
CIS	12.04	13.15	9.2
North America	108.36	86.64	-20.0
Total	226.84	195.66	-13.7

²⁴ Source: European Panel Federation (EPF); www.europanel.org

²⁵ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/14-Lundt.pdf>

²⁶ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/12-Wiles051009.pdf>

²⁷ i.e. from June 2009

²⁸ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/16-Parik.pdf>

²⁹ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/15-EPF.pdf>

The collapse of the US housing market (Table 3) has already been referred to; in 2008, the production of sawn timber in North America and in Europe declined by 18.8% and 8.2%, respectively²⁵.

Sawn hardwood²⁶

In 2008, sawn hardwood production in the UNECE region was 42.8 M m³, representing a decrease of 8.2% over 2007. During 2008, the total consumption of sawn hardwood across the UNECE region was 44.2 M m³, a reduction of 6.1% over 2007.

Production of sawn hardwood in Europe fell by 6.8% to 14.3 M m³. This marked the first downturn in the temperate hardwood sector for 18 years. This was largely driven by the slowdown in the European housing sector. In 2008, the production of sawn hardwood in North America was 24.6 M m³, a decline of 9.1% on 2007. This reduction was due to weak demand for sawn hardwood in both the domestic US market and in export markets.

Oak continued to dominate the global sawn hardwood market, with European oak and American white oak accounting for 58% of European hardwood flooring output. However, the ongoing credit crunch, with the related slowing of construction activity and a reduced level of consumer confidence in both the US and Europe is likely to have a negative impact on demand and production of sawn hardwoods for at least the next six to twelve months²⁷.

Pulp and paper²⁸

In 2008 and in 2009, the production and consumption of pulp and paper products declined in both Europe and in North America as the global economic crisis took hold. In early 2009, pulp and paper trade associations reported a year-on-year decline of 17% in total paper and paperboard production in both Europe and in the United States. Capacity utilisation rates have deteriorated in both Europe and in North America. Pulp and paper manufacturers have responded by introducing short-time and by closing production facilities.

Wood-based panels (WBP)²⁹

The wood-based panel sector has also been affected by the ongoing global downturn. As a result, the consumption of wood panels in the UNECE region declined by 9.4% over the period 2007–2008. In 2008, the consumption of wood-based panels in North America and in Europe declined by

18.9% and 5.2% respectively. Over the same period, WBP use in the countries within the Commonwealth of Independent States (CIS)^{30,31} showing an increase of 0.9% (Table 16).

Table 16: Estimated consumption of wood-based panels in the UNECE region (2007–2008).^a

UNECE region	2007	2008	Change
	M m ³		%
Europe	78.17	74.10	-5.2
CIS	13.08	14.42	0.9
North America	62.31	50.51	-18.9
Total	153.56	139.03	-9.5

^a http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

The production and consumption of wood-based panels in North America continues to be strongly affected by the collapse of the US housing market (Table 3). In addition, the closure of sawmills in North America as a result of the decline in the demand for sawn timber (Table 15), has reduced the volume of sawmill residues which are available for the manufacturing of non-structural panel products, such as chipboard/particleboard, medium density fibreboard (MDF) and hardboard.

During 2008, 15 wood-based panel mills closed and two OSB mills opened, resulting in a net capacity loss of 2.2 M m³ (Table 17). This brought capacity utilisation to the lowest level since the early 1990s.

In January 2009, the California Air Resources Board (CARB) formaldehyde emission regulation³² was introduced. This limits the amount of formaldehyde which can be emitted from wood-based panels and from products which use and/or are manufactured from them³³. This regulation has had little impact on domestic panel producers. The North American WBP sector has changed the resin which it uses in its manufacturing process to ensure that its products meet the new formaldehyde-

Table 17: Capacity reduction in the North American WBP sector by product and volume (2007–2008).

Panel product	Capacity reduction (2007–2008)
	000 m ³
Plywood	-690
Oriented strand board (OSB)	-490
Particleboard/chipboard	-250
Medium density fibreboard (MDF)	-350
Hardboard	-550
Total	-2,330

emission standards as set by CARB. However, many foreign panel producers, particularly those in South-east Asia have struggled to gain CARB accreditation³⁴. From July 2010 furniture retailers and manufacturers who wish to sell their goods in California will be required to offer only products that are CARB-compliant.

Tropical timber³⁵

Although the prices paid for many primary tropical timber products reached record highs in 2007, prices began to flatten in early to mid-2008, before plunging in 2009; a direct impact of the global economic downturn. Moreover, in 2008, China's tropical log imports decreased by 14% to 7.1 M m³, the lowest level of tropical timber imports for five years. This was as a result of China's competitive advantage in wood processing being eroded by rising production costs and by diminishing demand. Reduced prices in traditional markets also played a role. Tropical log supply continued to be a constraint for the plywood sector, caused mainly by a reduction in illegal logging and reduced resource availability. Changes in the production and trade of primary tropical products over the period 2006–2008 are shown in Table 18.

The medium-term prospects for tropical hardwood products are likely to continue to be influenced by demand side factors, particularly by construction demand in Japan and in the US. The demand for certified tropical products is increasing.

Table 18: Production and trade of primary tropical forest products (2006–2008).^a

Product	2006	2007	2008	Change
	M m ³			2006–2008
				%
Roundwood				
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	44.3	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

^a Source: ITTO annual review and assessment of the world timber situation (2008 – 2009).

³⁰ The Commonwealth of Independent States (CIS) was founded in 1991 after the dissolution of the Soviet Union. The CIS comprises 12 Member States. These are: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

³¹ <http://www.cisstat.com/eng/cis.htm>

³² <http://www.arb.ca.gov/toxics/compwood/compwood.htm>

³³ http://www.apawood.org/level_b.cfm?content=srv_env_form

³⁴ <http://www.arb.ca.gov/toxics/compwood/compwood.htm>

³⁵ http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

Wood biomass energy^{36, 37}

In 2008/9, in contrast to other forest market sectors, the demand for wood energy within the UNECE region has continued to grow. This was despite an oil price drop of more than 50% over 2008³⁸. Wood biomass energy is the most important source of renewable energy in the European Union. Market development is strongly influenced by policy measures which address security of energy supply, climate change mitigation and rural development. Likewise, renewable energy markets in North America are strongly influenced by policy measures and support programmes. However, the support measures for biomass in North America have slightly different objectives to those in Europe. North American biomass programmes are primarily focused on promoting the development and use of liquid biofuels for use in transportation. These are largely produced from agricultural crops. In contrast, European countries have established support mechanisms to promote the development of efficient heat and electricity generation from the use of renewable energy sources, including wood biomass.

Currently, wood biomass does not play an important role in the global production of liquid biofuels. However, this may change in the near future. In January 2009, the biomass research and development initiative³⁹ of the US Departments of Energy and Agriculture stated that it intended to ensure progress towards meeting the Federal Renewable Fuels Standard (RFS)⁴⁰.

Driven by the US Energy Independence and Security Act (EISA) [2007]⁴¹, the RFS⁴² programme was expanded in key ways:

- As well as petrol, diesel fuel was included
- The volume of renewable fuel required to be blended was increased from 9 billion gallons in 2008 to 36 billion gallons by 2022.

The standard also requires further increases in the production of advanced biofuels, including cellulosic ethanol, to reach an output of 60 million tons (20 billion US gallons) per year by 2022. Of that amount, at least 15 billion tons (4 billion US gallons) of cellulosic ethanol are to be derived from wood that comes from forests and/or from the use of residues from the US forest products sector.

According to the International Energy Agency (IEA)⁴³, biomass resources – such as forestry and agriculture crops, biomass residues and wastes – are already providing about 14% of the world's primary energy supplies. However, this is principally in the form of inefficient wood use for cooking and home heating. However, the IEA's view is that bioenergy production using modern technologies offers cost-effective and sustainable opportunities with the potential to meet 50% of the world's energy demands during the next century. This has the added advantage that it reduces carbon emissions from fossil fuels.

The global wood energy market is mainly driven by expanding production and consumption of wood pellets. Production and traded volumes are expected to double by 2012. Europe remains the biggest producer, importer and consumer. In recent years, Europe has become a significant net importer of wood chips and pellets. In 2008, 29.8 M m³ of wood residues and wood pellets were imported. As in other regions of the UNECE, wood pellet manufacturers in Europe are increasingly in competition with pulp mills and with wood panel producers, especially for the use of sawmill residues.

Factors promoting the uptake of renewable energy use in the UNECE region⁴⁴

The following mechanisms are being used to promote the uptake of renewable energy in key regions of the UNECE.

- *European Union (EU)*: Within the EU, the uptake of renewable energy use is being promoted using the 20/20/20 goal i.e. promoting a 20% reduction in greenhouse gas (GHG) emissions; a 20% increase in energy efficiency and that renewables have a 20% share of total energy supply by 2020. This is being promoted by using support mandates, feed-in tariffs, and taxes.
- *Russian Federation*: In 2009, the Russian Federation passed a Decree on Renewable Energy Sources (RES)⁴⁵. Currently, the renewable share of power generation in the Russian Federation amounts to less than 1%. However, the potential for RES use by the sector by 2020 is estimated to be at least 5%. There are also opportunities to improve the use of renewable energy in district heating systems, which currently represent 25% of energy consumption in the Russian Federation.

³⁶ http://timber.unece.org/fileadmin/DAM/publications/Final_FPAMR2009.pdf

³⁷ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/10-Mabee.pdf>

³⁸ In May 2010, a barrel of Brent crude oil for June settlement was selling at \$82.61 per barrel; Source: www.businessweek.com/news/2010-05-05/oil-falls-to-seven-week-low-as-euro-drops-on-greek-debt-crisis.html

³⁹ <http://www.brdisolutions.com>

⁴⁰ <http://www.epa.gov/OMSWWW/renewablefuels>

⁴¹ energy.senate.gov/public/_files/RL342941.pdf

⁴² <http://www.epa.gov/otaq/fuels/renewablefuels/index.htm>

⁴³ <http://www.iea.org>

⁴⁴ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/10-Mabee.pdf>

⁴⁵ http://ec.europa.eu/europeaid/documents/case-studies/russia_renewable-energy-policy_en.pdf

- *US*: The Energy Independence and Security Act (2007)⁴⁶ promotes the uptake of biofuels in the US. It sets a usage target of 136 billion litres of biofuels by 2022, of which 61 billion litres are to be of cellulosic origin. There is a growing interest in the production of renewable electricity from biomass.
- *Canada*: Federal bioenergy policy is focused on the development of liquid biofuels for transport, not the production of heat or electricity. National mandates include 5% renewable content in gasoline (2010) and 2% renewable content in diesel fuel (2012).

Climate change and forests

Carbon sequestration in forests - US

Forest ecosystems and forest products represent a significant carbon dioxide sink in the US. Over 90% of sequestration from land use occurs in the forest sector, with an additional 7% sequestered in urban trees. The total carbon stock in forest ecosystems in the US is estimated as 184,800 Tg CO₂ eq. Over the period 2005-2009, the net increase in carbon stocks in forest ecosystems was 547 Tg CO₂ eq., excluding biomass harvested and used as lumber, panels, paper and fuelwood⁴⁷.

Other issues

Mountain pine beetle outbreak in North America

To date, 14.5 million ha of lodgepole pine in Canada (comprising 620 M m³) have been killed by mountain pine beetle. Further losses are predicted, as the beetle spreads across Canada and the US. Latest estimates are that the infestation will, over the period 2017-2020, result in the loss of over 1 billion m³ in interior BC's forests, about one third of the total volume of the harvestable land base. In 2008, a new form of forest tenure was enacted in Canada to allow salvage logging on impacted areas⁴⁸. However, many sites are not economically accessible and usage will be limited.

As the beetle is only killed by extremely cold weather (-40°C), global warming is considered to be the main reason for the outbreak, and is also considered to be responsible for other insect outbreaks affecting coniferous forests elsewhere in North America.

*Forest certification*⁴⁹

The volume of certified industrial roundwood by region is shown in Table 19.

The overwhelming proportion (97%) of certified roundwood supply originates from North America and from Europe. Sustainable forest management (SFM) certification remains low in tropical countries.

Other issues affecting the supply of certified forest products in the UNECE region include:

- The US Government move in 2008 to prohibit the trade of illegally sourced wood under the Lacey Act Amendment⁵⁰.
- The proposed EU Due Diligence Regulation for forest products⁵¹ will require that operators placing timber on the EU market for the first time implement and run a 'due diligence system' to minimize the risk that the timber comes from an illegal source. This applies to all timber, originating within or outside and the EU.

Table 19: Volume of certified industrial roundwood by region (May 2009).^a

Market	Volume M m ³	%
Europe	238.1	56
North America	175.6	41
Other	14.7	3
Total	428.4	100

^a <http://timber.unece.org/fileadmin/DAM/meetings/20091013/04-Oliver061009.pdf>

⁴⁶ http://energy.senate.gov/public/_files/RL342941.pdf

⁴⁷ http://www.fpl.fs.fed.us/documnts/fplrn/fpl_rn313.pdf

⁴⁸ http://www.for.gov.bc.ca/hfp/mountain_pine_beetle

⁴⁹ <http://timber.unece.org/fileadmin/DAM/meetings/20091013/04-Oliver061009.pdf>

⁵⁰ http://www.fs.fed.us/.../Lacey_Act_amendments_public_summary.doc

⁵¹ http://ec.europa.eu/development/center/.../flegt_timber_proposal_oct08.pdf