8 Paper, paperboard and woodpulp markets, 2010-2011

Lead Author, Peter Ince
Contributing Authors, Eduard Akim, Bernard Lombard, Tomas Parik and Anastasia Tolmatsova

Highlights

- Paper and paperboard output rebounded along with overall industrial production in both Europe and the United States, but has not yet fully recovered to the peak levels of 2007-2008.
- Generally more robust market conditions prevailed from 2010 to early 2011, with higher consumption and prices for most pulp, paper and paperboard commodities.
- Prices reached a plateau by late 2010 and may have peaked in a cycle that began with rebound from the global financial crisis of 2008-2009; but prices still remained high in early 2011.
- The Russian Federation is seeing an almost complete recovery of pulp and paper output to the levels that preceded the global financial crisis of 2008-2009.
- European pulp, paper and paperboard output rebounded in 2010 after declining in 2008-2009, but the production levels before the crisis have not yet been reached.
- Similarly, US production of pulp, paper and paperboard all rebounded from the sharp declines of 2008-2009, but production levels in 2010-2011 remained below previous cyclical peak levels.
- A major project to expand use of larch was initiated in the Russian Federation, while wood pellet output and wood energy use also expanded in the Russian pulp and paper industry.
- The market rebound coincides with expanding industry interest in the contributions of paper and paperboard products to green and sustainable development.
- Green and sustainable product features such as use of renewable resources and product recyclability help support sustainability initiatives and an evolving symbiotic relationship between pulp and paper market development and the green economy.
- The theme of sustainability resonates among pulp and paper enterprises throughout the UNECE region as firms develop pathways to help achieve product innovation and market growth, such as biorefining, bioenergy production, and development of nano-cellulose technology.

8.1 Introduction

A global rebound of pulp, paper and paperboard markets began soon after the global financial crisis in 2008-2009. It has continued and we are now seeing more robust market conditions in 2010 and early 2011. Marketing strategies evolved as pulp and paper producers of the UNECE region were faced with dual challenges of limited growth, or decline, in European and North American consumption and expanded global competition. One such strategy is evident in the increased emphasis on the contributions of the pulp and paper industry to the green economy.

For example, the International Council of Forest and Paper Associations (ICFPA), a worldwide network of forest and paper industry associations, formed in 2002 to promote cooperation in areas of common interest, has developed a statement of commitment to global sustainability (CEO Leadership Statement, June 8, 2006). It also recognized in 2008 that the forest products industry was an essential partner in combating climate change. Its commitment to global sustainability includes:

- Promoting sustainable forest management worldwide via sustainable forest management principles and certification systems.
- Combating illegal logging.
- Supporting recovery for recycling of paper and wood products.
- Improving environmental and energy performance.

Its membership includes leading pulp and paper industry or forest product industry trade associations within the UNECE region.

Green and sustainable features of paper and paperboard, such as the use of renewable resources and recyclability of the products, have helped support the industry's sustainability initiatives and create a symbiotic relationship between pulp and paper market development and the green economy. The industry is exploring completely new pathways to a greener economy such as integrated biorefining and production of biofuels and wood-based chemicals. More partnerships are needed among industries to fully develop green pathways, such as between forest industries and energy, chemical, textile, food, and agricultural industries. As stated by ICFPA, "In the last decade, sustainable development has become part of daily business. The challenge no longer only consists in providing goods and services required by society in a cost-effective way, but also in doing so in a sustainable manner that meets the needs of both present and future generations"[17]. This chapter looks at some noteworthy examples of industry contributions to the green economy and sustainable development in the UNECE region.

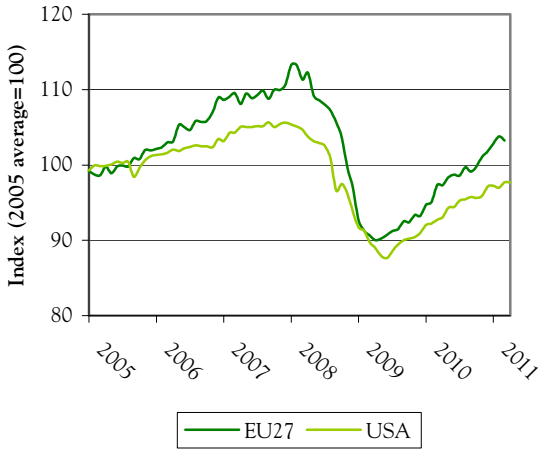
8.1.1 UNECE region experiences more robust market conditions in 2010-2011

Generally more robust market conditions prevailed in the UNECE region and globally from 2010 to early 2011, with relatively high market prices for most pulp, paper and paperboard commodities. Their production in both Europe and North America responded to improved industrial production in both regions following the global financial crisis. Asia's rapid economic recovery boosted export markets in 2010, particularly for pulp and recovered paper.

Industrial production rebounded in both Europe and North America from 2009 through early 2011, following steep declines precipitated by the global financial crisis, as shown by industrial production indices for the EU27 and the USA (Graph 8.1.1). Demand for pulp, paper and paperboard showed a similar pattern, leading to a rebound in prices in the second half of 2009 and early 2010.

GRAPH 8.1.1

Industrial production indices for EU-27 and US, January 2005 – April 2011



Note: Industrial production excluding construction.

Sources: EUROSTAT and US Federal Reserve, June 2011.

However, industrial production levels have not yet fully recovered to the peak of 2007-2008. Regional demand in 2010-2011 for packaging and case materials and for graphic papers used in print advertising climbed well above the depressed levels of 2009, but demand was still below earlier peaks.

In Europe and North America in 2010-2011, regional capacity shutdowns leading to tighter mill supply combined with growing demand led to higher prices for

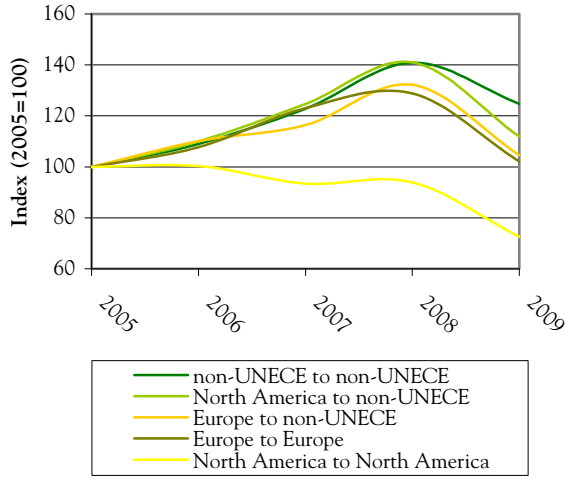
[17] http://www.icfpa.org/issues_statements/

most pulp, paper and paperboard commodities. Market pulp prices for example climbed in early 2011 to just over $1,000 per tonne, a nominal price level last seen during the historical price spike of 1995 (http://www.foex.fi/). However, after adjusting for inflation, real prices for market pulp were still well below 1995 peak levels. Decelerating growth in demand, the sharp downturn in industry profits in 2008-2009, and now a prospect of perhaps less than full recovery in output, are all trends that impel the sector towards more diversified green technology development, such as wood-based biorefineries and biofuels.

Paper and paperboard trade flows between UNECE subregions reflect differences in regional growth, competitiveness and shifts in currency exchange rates. The decline in trade flows of paper and paperboard between the US and Canada from 2003 to 2007 clearly reflected the decline in Canadian exports to the US as a result of the stronger Canadian dollar and negligible growth in US demand (graph 8.1.2). Expanding Asian markets and increased competitiveness of producers in non-UNECE regions is reflected in large increases in trade flows for woodpulp between Europe and non-UNECE countries, and among non-UNECE countries (graph 8.1.3).

GRAPH 8.1.2

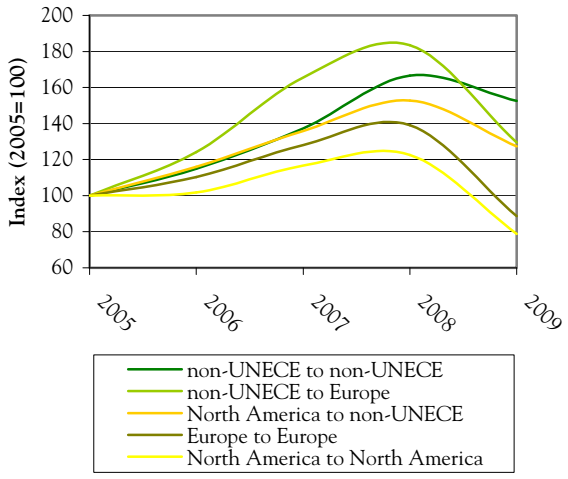
Top five international trade flows of paper and paperboard by value, 2005-2009



Notes: Total value of imports for 2008-2009 was $200 billion.
Sources: UN COMTRADE, 2011.

GRAPH 8.1.3

Top five international trade flows of woodpulp by value, 2005-2009

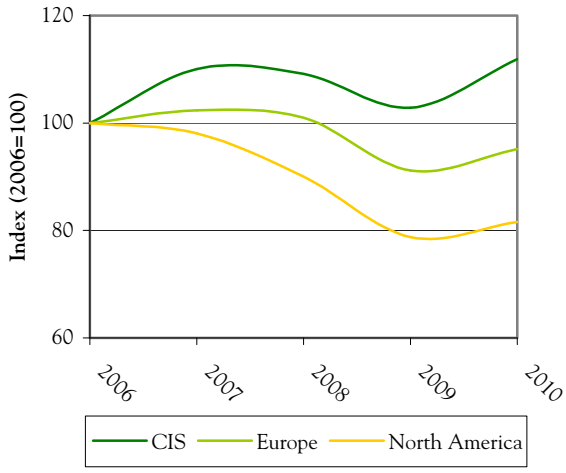


Notes: Total value of imports for 2008-2009 was $58 billion.
Sources: UN COMTRADE, 2011.

Paper and paperboard consumption in the UNECE region rebounded in 2010 (graph 8.1.4). North American consumption increased by 3.6%, after dropping by 19.7% between 2007 and 2009. Consumption increased by 8.8% in the Commonwealth of Independent States (CIS), and by 4.3% in Europe. The rebounds were only partial reversals of sharp declines suffered during the global financial and economic crisis of 2008-2009.

GRAPH 8.1.4

Consumption of paper and paperboard in the UNECE region, 2006-2010



Source: UNECE/FAO TIMBER database, 2011.

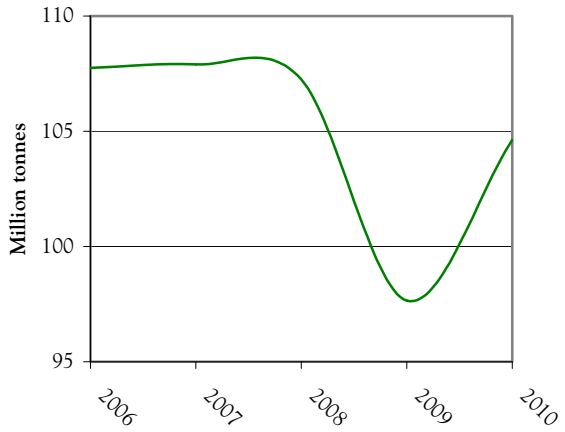
8.2 Europe subregion[18]

8.2.1 *European paper and board output rebounds*

Production of paper and paperboard in Europe rose 7.1% in 2010 but still falls short of pre-crisis levels (graph 8.2.1).

GRAPH 8.2.1

Total production of paper and paperboard in Europe subregion, 2006-2010



Source: UNECE/FAO TIMBER database, 2011.

The paper and paperboard trade and apparent consumption balances for Europe show similar trends, with exports higher by 9.6%, and an increase of 4.3% in consumption (Table 8.2.1)

TABLE 8.2.1

Paper and paperboard balance in Europe, 2009-2010

(1,000 tonnes)

	2009	*2010*	*Change %*
Europe			
Production	97 651	104 624	7.1
Imports	53 007	55 771	5.2
Exports	60 638	66 488	9.6
Net trade	7 631	10 717	40.4
Apparent consumption	90 020	93 907	4.3
of which: EU27			
Production	88 469	94 382	6.7
Imports	48 320	51 079	5.7
Exports	58 185	63 773	9.6
Net trade	9 865	12 694	28.7
Apparent consumption	78 604	81 688	3.9

Sources: UNECE/FAO TIMBER database, 2011.

In contrast to 2009, production increased in all European paper sectors in 2010 (Table 8.2.2). Coated wood-free grades rose to 9.0 million tonnes, but was still below the annual output of 2002. The operating rate (capacity utilization ratio) for graphic papers in 2010 is calculated to be 91.2% (82.8% in 2009), indicating a much improved supply/demand balance. Graphic grades accounted for 44.2% of all paper and board produced in Europe in 2010 (43.6% in 2009, 47.4% in 2006).

In the packaging sector, production rose by 9.9% to 47.1 million tonnes. In case materials, which represent 55.5% of the packaging sector in terms of production, output increased by 8.9 % in 2010, less than 1% below the 2006 peak in production of this grade. Because only tonnage variations are being measured, these volumes are affected by the continuing trend towards light-weighting (lower sheet grammage or basis weights). Production increased for all packaging grades while the operating rate for packaging papers in 2010 is calculated to be 92.7% (87.2% in 2009), indicating a clearly better supply/demand balance favouring more robust market conditions. Packaging grades represented 45.0% of all paper and board produced in Europe in 2010 (43.9% in 2009, 41.8% in 2006).

Output of hygienic papers increased in 2010 by 4.4% to 7.5 million tonnes. Hygienic papers represented 7.0% of all paper and board produced in Europe in 2010 (7.4% in 2009). Production of industrial and speciality grades rose by 8.0% (+316,000 tonnes) to 4.3 million tonnes. Industrial and speciality grades represented 4.4% of all paper and board produced in Europe in 2010 and the average annual production between 2000 and 2010 was 4.3 million tonnes.

8.2.2 *European consumption rebounds but recovers only partially in 2010*

European paper and paperboard consumption increased by 4.3% in 2010, after a reduction of 10% in 2009 and 4% in 2008. Graphic and packaging papers and paperboards have recorded increases in their consumption thanks to the rebound in manufacturing activity and advertising expenditures. Graphic papers and print media, however, are facing increased competition from alternative communication technologies (digital and electronic media and devices). Sanitary and domestic papers, related to everyday goods consumption, recorded lower growth. Detailed data for all these grades are given below, which includes data from 2006, when most products were at their peak of production and consumption (table 8.2.2).

[18] Information on trends and changes in this section was supplied by CEPI.

TABLE 8.2.2

Paper and paperboard in Europe

(million tonnes)

	Production				*Apparent Consumption*			
	2006	*2009*	*2010*	*Change % 2009-2010*	*2006*	*2009*	*2010*	*Change % 2009-2010*
Paper and paperboard	107.7	97.2	104.6	7.1	98.7	90.0	93.9	4.3
Graphic papers	51.1	42.6	46.3	8.7	44.4	38.1	39.7	4.2
Newsprint	11.1	9.3	10.3	10.2	12.0	10.3	10.5	2.4
Uncoated mechanical	8.8	7.8	7.9	1.4	6.5	6.4	6.2	-1.9
Uncoated woodfree	10.4	9.1	10.0	9.9	9.7	8.6	10.1	17.5
Coated papers	20.9	16.3	18.0	10.7	16.3	12.9	12.9	-0.2
Sanitary and household papers	6.8	7.3	7.6	4.4	6.2	7.2	7.2	0.1
Packaging materials	45.1	42.9	47.1	9.9	43.8	39.7	43.2	8.9
Case materials	26.5	24.0	26.2	8.9	27.2	24.0	25.5	6.2
Cartonboard	9.7	9.3	10.3	11.3	9.0	7.5	8.0	6.4
Wrapping papers	4.6	4.3	4.6	7.5	3.5	3.3	4.0	21.8
Other papers mainly for packaging	4.1	5.3	6.0	13.7	3.9	4.8	5.6	17.3
Other paper and paperboard	4.8	4.4	3.7	-16.5	4.3	4.6	3.8	-16.9

Source: UNECE/FAO TIMBER database, 2011.

There was an overall increase in consumption of graphic grades in 2010 over 2009. The printing sector (other than newspapers) saw its activity contracting over the same period.

Demand for packaging grades rose by 8.9% in 2010 to 43.2 million tonnes. The manufacture of corrugated paper and board and of containers of paper and board expanded moderately in 2010, while industrial production rose more significantly (+6.9%) and retail trade inched up by 0.7% over the same period.

Source: Metsäliitto, 2010.

Graphic grades represented 42.3% of all paper and board consumed in Europe in 2010, equivalent to 2009. Consumption of corrugated grades accounted for 55.1% of all paper packaging materials used and packaging grades in total represented 46.0% of all paper and board consumed in Europe in 2010 (44.1% in 2009).

Hygienic grades in total represented 8.4% of all paper and board consumed in Europe in 2010 (7.6% in 2009).

The year 2010 was a return to more typical operation levels for the pulp and paper business in central and eastern Europe following the global business crisis. Although the business environment changed in other areas, the pulp and paper industry in that part of Europe had a relatively stable year, and pulp producers, in particular, benefited from high demand for their products. Newsprint and magazine paper demand fell significantly, with the ongoing development of digital electronic technology and shifts in advertising towards electronic media. It is increasingly clear that accession to EU membership has produced trends that are similar to the rest of Europe.

8.2.3 *Market prices and wood fibre demands follow the rebound in paper and board*

Market prices for pulp, paper and paperboard products, and also wood fibre demands have generally

followed the rebound in paper and paperboard output and consumption. For most of 2009, pulp and paper commodity prices registered continuous declines. This trend ended in spring 2010, and since then prices have been increasing steadily.

In 2010, production of pulp increased by 13.1% in Europe, after contracting by 13.2% the previous year. Pulp production remains 5.5% below its 2006 peak. Part of the reduction in output is related to reductions in production capacity for paper and paperboard (integrated pulp). This limits the impact on the markets for market (commercially traded) pulp. Market pulp production increased by 9.2% in 2010. The woodpulp trade and apparent consumption balance for all of Europe shows a similar trend, with exports increasing by 7.9%, and consumption by 18.1% (Table 8.2.3).

TABLE 8.2.3

Wood pulp balance in Europe, 2009 - 2010

(1,000 tonnes)

	2009	*2010*	*Change %*
Europe			
Production	37 120	41 966	13.1
Imports	17 109	20 902	22.2
Exports	11 623	12 547	7.9
Net trade	-5 486	-8 355	
Apparent consumption	42 606	50 321	18.1
of which: EU27			
Production	34 993	39 825	13.8
Imports	15 814	19 566	23.7
Exports	11 014	11 955	8.5
Net trade	-4 800	-7 612	
Apparent consumption	39 793	47 436	19.2

Sources: UNECE/FAO TIMBER database, 2011.

After the steep price decline of about 40% between mid-2008 and mid-2009, prices for market pulp (hardwood and softwood) jumped by nearly 80% by the end of 2010 to reach levels not seen since 2000. Since then, pulp prices have remained at a high plateau level in Europe.

Since 2009, pulpwood prices in Europe have risen on average between 10% and 25%. Policy support for biomass-based renewable energy at national and European levels may contribute to higher wood prices if overall demand for wood increases. The recent agreement between the EU and the Russian Federation ahead of the future Russian accession to the WTO opens up the possibility of easier access to Russian wood, possibly from 2012.

After falling sharply in 2008, prices for recovered paper increased steadily in Europe through 2009 and continued to climb in 2010, reaching a high point in late 2010/early 2011 as harsh winter conditions made used paper collection difficult. In 2010, 54 million tonnes of recovered paper were collected.

8.2.4 Growth likely to moderate in 2011, while corrective actions on imports are applied

In Europe, after the healthy rebound of 2010, driven largely by resumption of economic activity and replenishment of inventory stocks, 2011 is expected to see more moderate gains in production of paper and paperboard. A better outlook in emerging markets should help to support European exports, which remain partially dependent on the exchange rate of the euro as well as on responses to protectionist measures.

Late in 2009, the EU adopted, after the United States, provisional anti-dumping and anti-subsidy measures against Chinese coated woodfree exports. Definitive measures were adopted in May 2011 and will last for five years. This is the first time that the EU formally denounced these Chinese government subsidies and took corrective action. Nevertheless, according to the China Paper Association, China's production and consumption of paper and paperboard continued to expand, establishing that country as the world's leading producer and consumer of paper and paperboard since 2009, and now well ahead of the United States.

Regulation of raw material sourcing is one key question for central and eastern Europe. Regulations to avoid use of illegally harvested wood are being introduced. Generally the pulp and paper industry in that part of Europe is not thought to be using much illegally harvested wood, with any exceptions investigated by local state authorities. However, administrative demands related to implementation of such regulations could place added burdens on the industry in the whole EU, and especially in that region, possibly increasing the costs of wood sourcing significantly.

In many countries in eastern Europe, the majority of forests are owned and managed by state organizations. This situation opens up the possibility of being able to offer a sustainable supply of significant amounts of wood over the medium- to long-term. With the right support, this may attract investment and stimulate the development of wood-processing industries and wood energy production, creating employment and prosperity in what may otherwise be socially fragile rural areas.

State forest management organizations are being encouraged to place more wood on the open market via so-called public markets, mainly electronic and classic auctions, and partly also commodity exchanges. These measures help to generate competition and ensure that the forest manager receives a fair market price. However,

part of that competition arises because it allows buyers from the larger western European wood market to use such auctions as a spot market to buy additional supplies of wood as they may be needed. While the presence of such buyers may boost prices, which would be seen as a good development, it may also produce turbulence in local markets, possibly leaving local buyers short of wood.

8.2.5 *Contributions to sustainability and the green economy gain more attention*

The pulp and paper sector has been included in the EU-Emission Trading Scheme (ETS) since 2005, but binding emission benchmarks have yet to be imposed. This will change as the industry group CEPI has prepared EU industry-wide benchmarks to set the levels of emission allowances by product group. These will be incorporated into EU-ETS in Phase 3, starting in 2013. If the industry emits above the benchmark, it will need to buy European Union Allowances (EUAs) from the carbon market for compliance. This is discussed in more detail in chapter 12 Carbon. In Europe, action plans for the promotion of renewable energy have been developed in recent months by the Member States as part of the climate change and energy objectives for 2020. They will be reviewed by the European Commission and will undoubtedly impact the future availability of wood. The development of policies aiming at a low carbon – recycling economy presents challenges for the paper industry but may also offer opportunities. Some companies are turning resolutely towards the production of bio-energy and new products, particularly in organic chemistry and nano-cellulose.

The production of energy from woody biomass is high on the policy agenda in central and eastern Europe. Concern about nuclear power following the Fukushima nuclear disaster in Japan may result in even greater pressure on governments to move towards renewable energy, including energy produced from biomass. An expansion in the use of wood for energy has positive benefits in terms of rural employment, but the competition for wood can result in rises in raw material costs that may reduce profitability in some wood processing sectors. It is essential therefore for policies to be developed that take account of wood availability, the sustainable yield from forests and that consider how increased competition may affect wood processors already located in a particular area.

8.2.6 *Textile production from wood increasing along with interest in nano-cellulose*

Wood's versatility as a raw material is shown by its use in manufacturing natural cellulose-based fibres, which have a variety of names which are often registered trade names. In 2010, the textile industry experienced its largest growth in 25 years. Manufacturing volumes of both natural and man-made fibres grew by 8.6% bringing total global production to 80.8 million tonnes. The value of world imports for 2008-2009 was $7 billion (COMTRADE, 2011).

The most well-known cellulose-based fibre used for clothing and interior fabrics, viscose, is manufactured from renewable wood cellulose made typically in Europe from birch or spruce (Forest.fi, 2010). The market for cellulose fibres is on the increase in Europe. The main market for these companies is Asia where significant new investments have been made in recent years. According to the *International Fiber Journal* (2010), viscose production, in particular, achieved a record-breaking growth of 17% in 2010. Demand for viscose is also growing rapidly in North America, and new production units are being established.

A potential future derivative of viscose pulp is a range of products that could be made with nano-crystalline cellulose (nano-cellulose). In 2010, Domtar Corporation, which operates pulp mills throughout North America, and FPInnovations of Canada announced they were forming a joint venture to build a commercial-scale nano-crystalline cellulose demonstration plant at the Windsor pulp mill in Quebec. Nano-crystalline cellulose is a renewable, recyclable fibre with potential uses in a range of sectors, including textiles. (CNW, 2011)

Source: Markus Renner, 2011.

Natural fibres can be utilized not only in the textile industry but also in other applications such as medical or hygiene products through textiles to filters or speciality papers (Kelheim Fibres, 2010). Some manufacturers are penetrating new market areas with automotive

applications such as carpets, seat covers, injection-moulded components, non-woven components and battery separators (Textile World, 2010). Alongside human-made fibres, carbon fibres are making their way to the textile market as a result of trendsetting developments in the aircraft and automotive industries (*International Fiber Journal*, 2011). While currently it may not be feasible to produce carbon fibre from wood, research is being carried out to investigate how to convert lignin, from the pulping process, to carbon fibre. If the process can be made commercially viable, a 650.000 tonne pulp mill, could, using only 10% of the lignin produced in the pulping process, manufacture 16,000 tonnes of carbon fibre. That quantity of carbon fibre would be enough to replace 40% of the steel in 160,000 cars. The aim of the research by Innventia AB of Sweden is to produce carbon fibre at a price that would make it competitive with steel. Since carbon fibre is much lighter than steel, the energy savings could be considerable.

The world textile industry is convinced that cotton prices will remain high in the future and stocks are predicted to remain below the long-term average. The growth in demand for cellulose-based fibres in 2010 was helped by a surge in cotton prices, which increased by 48% due to increased demand based on economic growth in China and shortages of cotton due to flooding in Pakistan, which is one of the world's largest cotton producers (Taloussanomat, 2010). New investments show that the market will develop in favour of wood-based fibres. Economic growth is expected to lead to increased textile consumption in 2011.

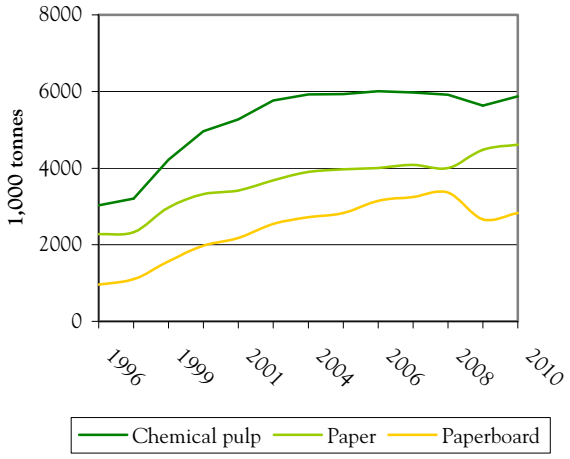
8.3 CIS subregion, focusing on the Russian Federation

8.3.1 *Almost complete recovery in the Russian Federation*

Demand and output of pulp and paper products increased in the Russian Federation from the late 1990s to 2007 and into the first half of 2008. However, in the second half of 2008 there was a slump in total production of pulp, paper and paperboard, coinciding with the global financial crisis and economic downturn. This setback in production continued in 2009 but recovery was under way in 2010. Pulp and paper output almost completely recovered to levels that preceded the global financial crisis, with a particularly robust recovery for paper production, while pulp production was almost fully recovered and paperboard output was on the rebound but lagging behind (graph 8.3.1).

GRAPH 8.3.1

Output of pulp, paper and paperboard in the Russian Federation, 1996-2010



Sources: Goskomstat of the Russian Federation, PPB-express, Moscow, author's estimates, 2011.

During the downturn in 2009, the country's total output of pulp (both pulp for paper and paperboard and market pulp) fell by 7.5%, the output of market pulp by 11.9%, and the output of paper and paperboard by 2.9%. But there was a 1.0% increase in output of newsprint. With the rebound of production in 2010, output of chemical woodpulp increased by 4.3%, paper production increased by 2.9%, and paperboard production increased by 6.4% (table 8.3.1).

TABLE 8.3.1

Output of chemical woodpulp, paper and paperboard in the Russian Federation, 2009-2010

(1,000 tonnes)

	2009	*2010*	*Change %*
Chemical woodpulp:	5 630	5 870	4.3
Paper:	4 480	4 612	2.9
Paperboard:	2 660	2 829	6.4

Source: Goskomstat of the Russian Federation; PPB-express, author's data handling, 2010.

8.3.2 *Commonwealth of Independent States and the Russian Federation balance of trade*

Exports of paper and paperboard in the CIS subregion decreased in 2010 (pulp increased), but imports of paper and paperboard increased (table 8.3.2).

TABLE 8.3.2

Paper, paperboard and woodpulp balance in the CIS, 2009-2010

(1,000 tonnes)

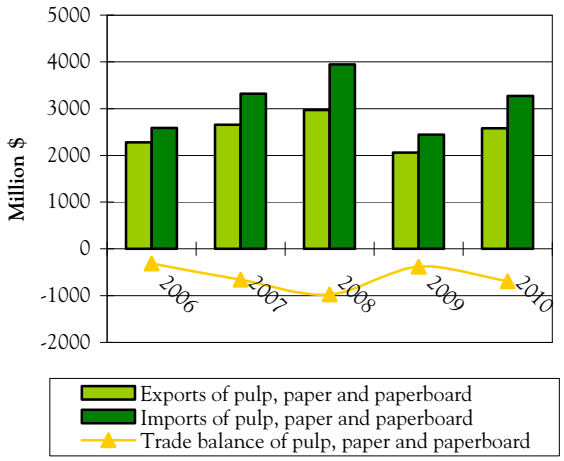
Paper and Paperboard	*2009*	*2010*	*Change %*
Production	9 100	9 126	0.3
Imports	2 592	3 149	21.5
Exports	3 120	2 947	-5.6
Net trade	528	-202	
Apparent consumption	8 572	9 329	8.8
Woodpulp			
Production	6 805	5 980	-12.1
Imports	195	221	13.4
Exports	1 715	1 833	6.8
Net trade	1 520	1 611	6.0
Apparent consumption	5 284	4 369	-17.3

Source: UNECE/FAO TIMBER database, 2011.

In recent years, the value of Russian paper and paperboard imports has exceeded the value of exports as demand for higher value paper and board products has expanded. In particular, the Russian Federation is importing expensive products such as high quality materials for container and packaging, coated paper, and tissue, whereas it exports lower value commodity products such as newsprint and kraft linerboard, as well as wood pulp. It has a large trade surplus in wood pulp (just over $1 billion in 2010), but a larger deficit in the value of primary paper and paperboard trade (-$1.75 billion in 2010). The country's annual trade deficit in total for pulp, paper and paperboard has been negative for a number of years. The total pulp, paper and board trade deficit was $975 million in 2008, but the trade deficit dropped to $383 million in 2009, with a larger drop in imports than exports; however, in 2010 the deficit rose again to $693 million, with similar gains in imports and exports (graph 8.3.2).

GRAPH 8.3.2

Russian exports and imports of pulp, paper and paperboard, 2006-2010

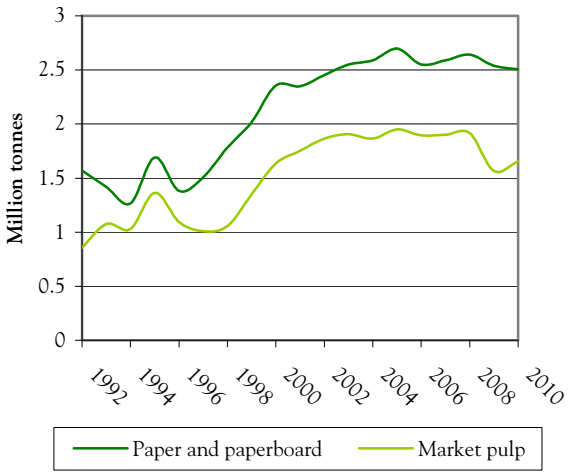


Sources: State Customs Committee, "Pulp. Paper. Board." -Magazine, PPB-express, PPB Exports, PPB Imports, author's estimates, 2011.

The Russian Federation's export volumes of market pulp, paper and paperboard all declined in 2009, but generally rebounded in 2010 (graph 8.3.3). Export volumes had been increasing since the mid-1990s but peaked around 2005. Exports have steadily comprised about 80% of Russia's output of market pulp, but have fallen from 50% of paper and paperboard output in 1998 and 45% in 2000 to just 33% in 2010, as a larger share of production serves the growing domestic market. Major export destinations for Russian products are China (market pulp, kraft linerboard), Ireland (market pulp, kraft linerboard), India (newsprint) and Turkey (newsprint).

GRAPH 8.3.3

Exports of market pulp, paper and paperboard from the Russian Federation, 1992-2010



Sources: Goskomstat of the Russian Federation, PPB-express, Moscow, author's estimates, 2011.

8.3.3 *Russian projects aim to expand pulp and paper contributions to the green economy*

A problem faced by the forest sector in Russia is inadequate wood processing capacity close to the regions of wood availability. This means a lack of significant numbers of jobs, reduced currency earnings, and slow growth for the green economy. However, a strategic aim is to develop more in-depth wood processing at an accelerated pace in the pulp and paper industry and also biofuels production.

Two examples of ongoing projects that support this strategy are "The Larch" project to expand use of larch wood for pulp, paper, and chemical products, and another project that has expanded output of wood pellet biofuels in conjunction with a pulp and paper enterprise.

Source: D. Torgerson, 2010.

"The Larch" project is an example of a public-private partnership that may become more common in the future. In April of 2011 the Commission of High Technologies of Russia, headed by Prime Minister Putin, approved the first 25 Russian technology platforms, among which was the Russian Forest Technology Platform (RFTP) as part of Platform "BioTech2030".

RFTP has developed a National Research Agenda (NRA) for the forest-based sector, available in a long version (in Russian) and in a short version in Russian and English[19]. Technology platforms are built on the principles of public-private partnership. "The Larch" project ("Development of innovative technologies for complex processing of larch wood with conclusion of a new kind of pulp on the world market") is a first real example of such a public-private partnership in the Russian pulp and paper industry. It is a joint project of JSC "Ilim Group" and the St. Petersburg State Technological University of Plant Polymers (STUPP). The project is designed for 2010-2012, with total project cost of 300 million roubles (over $11 million).

The project is directed towards development and industrial implementation of innovative technologies for the sulphate cooking (kraft pulping) of larch wood, and also biorefining or chemical processing of components that can be pre-extracted as wood sugars prior to pulping, primarily arabinogalactan (polysaccharide of arabinose and galactose monosaccharides). Dahurian and Siberian larch contain between 10% and 30% of the water-soluble polysaccharide, arabinogalactan, which is considered to be a potentially valuable and promising raw material for many industries and animal husbandry.

There is an estimated merchantable volume of larch wood in the Russian Federation of up to 105 million m^3. and more than 97% is localized in the Siberian and Far Eastern Federal Districts. Larch in the Russian Federation is seldom used for pulp and is not processed efficiently into pulp by traditional methods. It has high density and high arabinogalactan content, with typically low yield of cellulose and high solid content in black liquor (placing additional load on limited kraft recovery boiler capacity). Pre-extraction of arabinogalactan from larch wood presents an opportunity but also technical challenges associated with extraction and further processing into useful products.

On the other hand, larch wood has a unique set of properties that are beneficial for fibrous absorbent products. Its density is 1.5 times higher than that of pine and spruce. It has a well-developed capillary-porous structure and on condition of its fixation on the level of nano-fibril it is a promising raw material for hygienic products. "The Larch" project is thus a scientific and technological project focusing on forest sector development in the Irkutsk region and Krasnoyarsk Territory, offering hope for expanding the contribution of the Russian pulp and paper industry to the green economy.

Examples of more immediate contributions of the pulp and paper sector to the green economy are the expansions of biofuel production or biomass energy use in the pulp and paper industry. The Vyborg pulp and paper mill, for example, is starting a production line for wood fuel pellets with a capacity of 1 million tons per year, an output of biofuel that is equivalent in gross heating value to approximately 3 million barrels of heating oil. Meanwhile the Svetogorsk mill, which started up a new bark boiler in 2001, reconstructed it in 2008; while the mills at Arkhangelsk and Kotlas have done fundamental reconstruction work on their bark boilers, and similar work is also being done at other mills. Planned increases in natural gas prices in the Russian market will bring them more into line with world prices, and the increase in domestic prices for gas will likely result in considerable changes in the competitiveness of biofuels.

[19] Available at: http://www.forestplatform.org/easydata/customers/ftp/files/New_files/NRA_Russia.pdf)

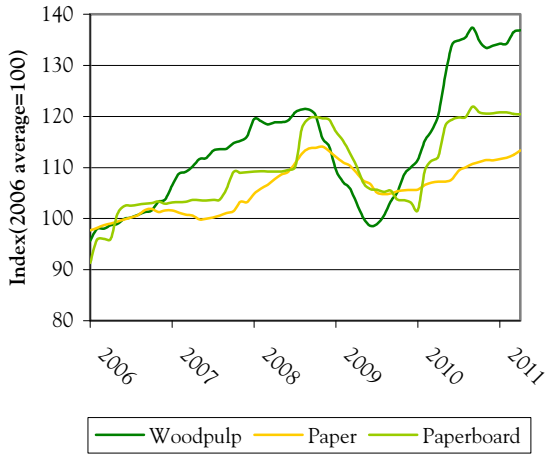
8.4 North America subregion

8.4.1 *Prices on the rebound in 2010-2011*

The rebound in North American market conditions can be seen in the recent trends in US price indices for wood pulp, paper and paperboard. Prices were generally on the rebound from the second half of 2009 into the first half of 2011 (graph 8.4.1). They had collapsed during the financial crisis of 2008-2009, after peaking in the third quarter of 2008. They subsequently rebounded for most pulp, paper and paperboard commodities in the second half of 2009, and the nominal price indices show that fairly robust market conditions prevailed through 2010 into 2011. Prices for fibre input commodities such as market pulp and recovered paper had more than fully recovered (to well above 2008 peak levels) by the first half of 2010. The paperboard nominal price index was also fully recovered by early 2010 and remained high into 2011. The weakest recovery was in the nominal price index for paper, generally reflecting weakened demands for graphic paper and secular declines for newsprint demand in US markets.

GRAPH 8.4.1

US monthly price indices for woodpulp, paper and paperboard, 2006-2011



Sources: US Department of Labor, Bureau of Labor Statistics, Producer Price Indices, 2011.

The fact that prices for fibre inputs such as market pulp have led the market rebound is an indicator of strong resurgence in global fibre demands, particularly in Asia, within a context of limited global fibre supply. The more modest rebound of domestic paper and paperboard prices reflects a modest rebound in domestic paper and paperboard demands. Export prices for recovered paper have also climbed well above historical averages as demands for recovered paper in China remain strong. Factors contributing to limited global fibre supply since 2009 included generally reduced volumes of paper recovery for recycling because of reduced paper consumption in Europe and North America, the severe Chilean earthquake in February of 2010 that curtailed market pulp supplies from Chile for several months, and limited investment in pulp capacity expansion following the global financial crisis.

In general, while North American paper and board consumption and demand modestly improved, commodity prices had much improved by mid-year 2010 relative to 2009. As well as the higher prices for fibre inputs (pulp and recovered paper), the higher paper and board prices are attributable also in part to higher energy and chemical costs, capacity withdrawals and mill downtime following the global financial crisis, and a rebound in paper and board export demands.

In 2009, the tonnage of US paper and paperboard exports exceeded imports for the first time in modern memory, and the US remained a net exporter of pulp, paper and paperboard products (in total value) in 2010 and the first half of 2011. By early 2011, the Canadian pulp and paper industry achieved positive pre-tax profits for the first time in eight years according to the Conference Board of Canada (*Canada's Paper Products Industry: Industrial Outlook Spring 2011*).

North American production of paper and board increased by 5.2% in 2010 (table 8.4.1), while separately US output increased by 6.2% and Canadian output declined by less than 1%. Generally North American production, consumption and exports all experienced gains in 2010, following sharp declines in 2009.

TABLE 8.4.1

Paper and paperboard balance in North America, 2009-2010

(1,000 tonnes)

	2009	*2010*	*Change %*
Production	84 178	88 519	5.2
Imports	13 047	13 148	0.8
Exports	19 994	21 658	8.3
Net trade	6 947	8 510	22.5
Apparent consumption	77 232	80 009	3.6

Source: UNECE/FAO TIMBER database, 2011.

8.4.2 *Output rebounds but may have reached a plateau below previous peak levels*

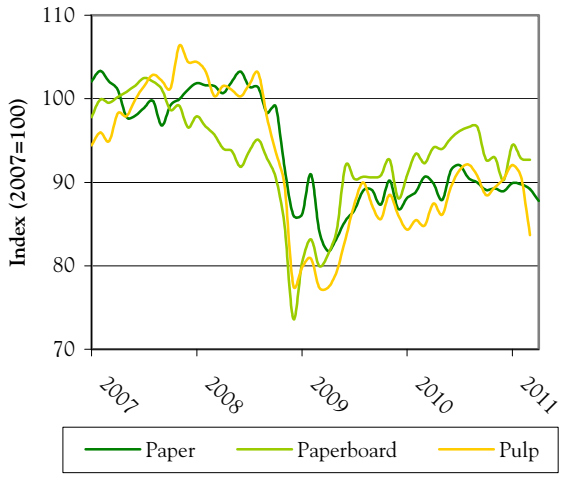
As a leading indicator of North American production trends, US production indices show that output quantities for pulp, paper and paperboard all rebounded from the sharp downturn during the global financial crisis of 2008-2009, but production levels in 2010-2011 remained below previous cyclical peak levels of 2007-

2008 (graph 8.4.2), and well below the all-time historical peaks of the late 1990s. Total US paper and paperboard production peaked in 1999, when output was more than 20% higher than output in 2010.

Monthly production indices in early 2011 were all trending downwards, a reflection of weaker US GDP growth in the first quarter of 2011 (1.8% versus average GDP growth of 2.9% in 2010). In commenting on pulp and paper market conditions on June 14, 2011, FOEX reported that the global as well as the US economy, though losing steam, were unlikely to enter a double-dip recession (http://www.foex.fi/). Thus, although some economists expect a return to higher economic growth in 2011, it may be that output and prices have reached a plateau and the recent market cycle may have peaked around the end of 2010 or early 2011, with output below the preceding 2007-2008 levels. If so, the long-term market trend will be in line with the declining trend in US output that has prevailed since 1999.

GRAPH 8.4.2

US pulp, paper and paperboard production indices, 2007-2011



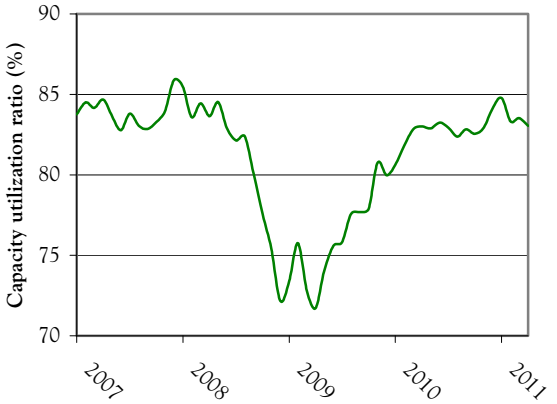
Sources: US Federal Reserve, 2011.

Industry capacity utilization, the industry-wide ratio of product output to production capacity, is a widely recognized indicator of the market supply/demand balance that influences market price behaviour in the pulp and paper sector. A high capacity utilization ratio generally indicates little excess supply and tight market conditions that support high prices, while a low capacity utilization ratio generally indicates excess supply (excess capacity on the market) and weak market prices. Of course, long-run shifts in capacity and shifts in product demand also influence market prices.

The recent history of capacity utilization for the US paper industry reflects frail markets and weak pricing conditions of 2008-2009, followed by the rebound to more robust market conditions of 2010-2011 (graph 8.4.3). Because of mill shutdowns and capacity reductions, the capacity utilization ratio has nearly returned to the levels that prevailed before the 2008-2009 downturn, and prices have been high (graph 8.4.1), even though production did not return to prior levels (graph 8.4.2). Thus the market balance between demand and supply was restored and prices have rebounded despite declining trends in product demand and output.

GRAPH 8.4.3

US paper industry capacity utilization ratio, 2007-2011



Sources: US Federal Reserve, 2011.

8.4.3 *Contributing to the green economy*

In North America, contributions of the pulp and paper sector to the green economy continue to gain importance in terms of product development initiatives and in shaping public environmental policies. Green and sustainable features of paper and paperboard products are supporting new market strategies and an evolving symbiotic relationship between paper and paperboard market development and the green economy.

For example, policy makers in the United States have come to recognize the recyclable and compostable properties of paper and paperboard packaging as an alternative to plastic packaging materials. The state senate in California recently passed a bill prohibiting food vendors and restaurants from dispensing prepared foods in plastic polystyrene foam containers, and similar laws are already adopted by many local communities in that state (*Packaging Digest*, 6/5/2011). The laws are aimed at reducing the problem of foam plastic litter in storm drains, waterways and beaches. In this case, paper and paperboard packaging is favoured in part because

California has created easy ways for the public to recycle paper and paperboard.

At the same time, a recent business survey by Accenture of nearly 250 high-level corporate decision makers across a range of industries in the USA, UK, and China found that well over 90% are in companies that have sustainability initiatives, and over two-thirds said that resulting benefits of such initiatives have exceeded expectations. Only a "hard-core minority" (less than one-third) do not see sustainability as a critical or strategic investment (Mohan, 2011). Perhaps most importantly, three-quarters of the respondents reported that they had confidence in the financial sector to provide funding for sustainability initiatives.

Given such policy trends and corporate direction, it is not surprising that a recent survey of more than 500 packaging professionals by DuPont found the largest share (over 40%) cited "sustainability" as their leading challenge, while a smaller fraction indicated that "cost" was their biggest challenge (press release 5 May 2011[20]). The survey also revealed that sustainable packaging initiatives are directed mostly at recyclability or recycled content, weight reduction, use of renewable or bio-based materials, and compostable materials, all of which are goals that may be compatible with market development strategies for paper and paperboard packaging.

Not only packaging product markets, but other paper product markets in North America are also being influenced by sustainable product development initiatives. In Canada, for example, Kruger Products announced recently the receipt of the Forest Stewardship Council (FSC) Chain of Custody certification for a wide array of consumer and away-from-home tissue products, reportedly making it the first Canadian company in that market area to achieve this standard (*Pulp and Paper International*, April 2011, p. 10). Also in Canada, in 2011 Domtar Corporation, a leading pulp and paper company, was recognized by a Canadian business media magazine as among the top three corporations in Canada based on environmental, social, and governance indicators as well as assessment of how the companies manage their carbon, energy, water usage, and waste production[21].

Source: M. Fonseca, 2009.

Completely new pathways to a greener economy are being explored in Canada and the United States. These include concepts for integrated biorefining and production of biofuels or wood-based chemicals at pulp mills. For example, Canada's BioPathways Project is a bold initiative, co-sponsored by Forest Products Association of Canada and FPInnovations, aimed at investigating new opportunities to produce a wider range of bio-products from wood fibre, including possibly converting older pulp mills to produce bio-chemicals[22]. Meanwhile in the United States the concept of integrated biorefining is being actively investigated at several different pulp mill locations[23].

Yet another frontier of the green economy is found in the competition between print and digital media. From a market growth and demand perspective, graphic paper grades have been facing some of the most challenging market conditions of the past decade, as advertising expenditures have shifted away from print media to electronic digital media, making deep inroads into graphic paper demands.

Recent historical trends in US newsprint consumption and newspaper print advertising expenditure, show that both have declined (graph 8.4.4). Clearly the shift of growth in advertising expenditures away from print to other media (chiefly electronic media) has led to reduced US newsprint consumption, although the declining trend was slightly moderated by the economic rebound in 2010-2011. Displacement of graphic paper demand and print media by expansion of electronic media will likely continue according to industry experts (Maine, 2011).

[20] http://onlinepressroom.net/DuPont/NewsReleases/

[21] http://www.corporateknights.ca/

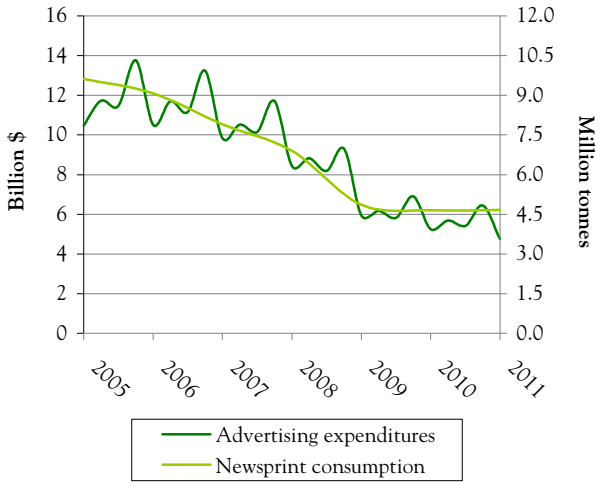
[22] http://www.fpac.ca/publications/BIOPATHWAYS%20II%20web.pdf

[23] http://www1.eere.energy.gov/biomass/integrated_biorefineries.html

However, as graphic paper demand has been increasingly challenged by electronic media, some reports have focused on the green aspects of print versus digital media. For example, the Institute for Sustainable Communication recently published a report on environmental dilemmas and choices related to print versus digital media (Carli, 2010). The report noted that a feeling of guilt and concern has been on the rise among consumers about using paper and its alleged impact on the fate of trees, forests and the environment, and that these feelings may contribute to the ongoing shift from print to digital media, but the report questioned whether these feelings were justified. One finding was that a significant cause of deforestation in the United States is coal mining, particularly in hardwood forests of Appalachia, and that America's adoption of networked broadband digital media alternatives to print is driving record levels of electrical energy consumption, produced primarily from coal in the United States. Thus the report by Carli points out that there is a significant flaw in a popular perception that adopting paperless digital solutions will "save trees".

GRAPH 8.4.4

Quarterly US newspaper print advertising expenditures and annual US newsprint consumption, 2005-2011



Sources: Newspaper Association of America, American Forest & Paper Association, 2011.

More broadly, consumers are beginning to learn about other environmental impacts of digital media such as energy consumption required to make news content continuously available on the Internet, energy consumption by consumer electronic devices, and problems with ultimate disposal of electronic devices and batteries. Of course the issue of print versus digital media is multi-faceted, involving other important criteria such as relative efficacy of advertising expenditures in different media outlets, and neither print nor digital media are absolutely green or not green.

Thus, the theme of sustainability and contribution to the green economy resonates more strongly today among pulp and paper enterprises in North America and throughout the UNECE region, being perceived more widely as a logical way to achieve product innovation, more supportive policies, and potentially more positive market growth.

8.5 References

American Forest & Paper Association. 2011. Press releases and industry statistics. Available at: www.afandpa.org/ and http://www.statmill.org.

Carli, Don. 2010. Print vs. Digital Media: False Dilemmas and Forced Choices. The Institute for Sustainable Communication: New York, NY. 10 p. Available at: www.sustainablecommunication.org/.

Confederation of European Paper Industries (CEPI). 2011. CEPI Preliminary Statistics 2010. Available at: www.cepi.org/content/default.asp?pageid=5.

Federal State Statistics Service, Goskomstat of the Russian Federation. 2010. Available in English at: www.gks.ru/wps/wcm/connect/rosstat/rosstatsite.eng/

Maine, John. 2011. Worldwide graphic paper demand is growing again, but the forecast risks are high. Pulp & Paper International. April (p. 48).

Mohan, Anne M. 2011. Sustainability initiatives exceed expectations, businesses say. Packaging World. June 3rd, 2011. Available at: www.packworld.com/news-31864.

PPB-Express, PPB Exports, PPB Imports. Pulp Paper Board (PPB) magazine (of Russia). 2010. Available at: www.cbk.ru/eng/cbk_mag.php.

UNECE/FAO TIMBER database. 2011. Available at: www.unece.org/timber

ECE/TIM/SP/27

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

UNECE

Forestry and Timber Section, Geneva, Switzerland

Geneva Timber and Forest Study Paper 27

FOREST PRODUCTS ANNUAL MARKET REVIEW 2010-2011

Project Manager

Douglas Clark

UNITED NATIONS
Geneva, 2011

NOTE

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

ABSTRACT

The UNECE/FAO *Forest Products Annual Market Review, 2010-2011* 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 description of the macroeconomic situation. Next it includes an analysis of government and industry policies affecting forest products markets. Five chapters are based on annual country-supplied statistics, describing: 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, forest carbon, tropical timber, and market developments in China. 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 UNECE Timber Committee and FAO European Forestry Commission website at www.unece.org/timber.

KEYWORDS

Bioenergy, biomass, builders joinery, carbon, cardboard, carpentry, certification, certified forest products, climate change, China, construction, consumption, engineered wood products, EWP, exports, fiberboard, fibreboard, Forest products markets, forestry industry, forestry statistics, fuelwood, furniture, housing market, imports, lumber, market analysis, MDF, OSB, paperboard, particle board, particleboard, plywood, production, pulp and paper industry, pulplogs, pulpwood, REDD, roundwood, sawlogs, sawn hardwood, sawn softwood, sawnwood, sustainable forestry, timber, tropical timber, wood energy, wood fuels, wood industry, wood pellets, wood products, wood-based panels, woodpulp

ECE/TIM/SP/27

UNITED NATIONS
PUBLICATIONS

Sales No. 11.II.E.13

ISBN 978-92-1-117050-4

ISSN 1020-2269