Chapter 8

Higher demand and production in 2004, but growth wavers in 2005: Markets for paper, paperboard and woodpulp, 2004-2005 [53]

Highlights

- In Europe, production of paper and paperboard increased 4.1% in 2004 to a record 103.1 million m.t., in response to growth in GDP and exports, while pulp output rose 2.4%.
- In North America, production of paper and paperboard increased 3.3% in 2004 to 104.2 million m.t., with a robust increase of 4.1% in the United States and 2.3% in Canada.
- In the CIS, production of paper and paperboard increased 6.6% in 2004 to 8.0 million m.t., while paper and paperboard consumption increased 6.5%.
- The annual growth in apparent consumption of paper and paperboard within the CIS halved between 2003 and 2004, while in North America, growth rebounded over the same period.
- Net exports of paper and paperboard from Europe increased by 34.3% in 2004 to 12.1 million m.t., as exports to Asia rose substantially.
- In Europe, policy issues are related to industry competitiveness, simplification of EU legislation on chemicals and dramatic energy price increases.
- In the CIS, ratification of the Kyoto Protocol by Russia was an important policy development that is fostering industry accountability for greenhouse gas emissions.
- In the United States, a decline in the exchange value of the US dollar in 2003 to 2004, as well as labour productivity gains, helped restore industry competitiveness and profitability.
- Growth rates for US industrial production and advertising expenditures, key determinants of demand in US for paper and paperboard, appear to be lower in 2005 than in 2004.
- A labour strike and lockout halted paper production in Finland for more than six weeks in mid-2005, impacting world markets for products such as coated paper, and creating opportunities for competitors to fill the void.

[53] By Dr. Peter J. Ince, Prof. Eduard Akim, PhD, Mr. Bernard Lombard and Mr. Tomás Parik.

Secretariat introduction

The secretariat of the UNECE/FAO Timber Branch wishes to thank Dr. Peter Ince,[54] Research Forester, USDA Forest Service, for again coordinating the production of this chapter with his co-authors. Professor Eduard Akim, PhD,[55] The Saint Petersburg State Technological University of Plant Polymers and The All-Russian Research Institute of Pulp and Paper Industry produced the analysis of the Russian pulp and paper sector. Mr. Bernard Lombard,[56] Trade and Competitiveness Director, Confederation of European Paper Industries (CEPI), documented trends among CEPI member countries in Europe. Mr. Tomás Parik[57], Director, Wood and Paper, A.S., wrote about trends in central and eastern Europe.

We also thank Mr. Eric Kilby, Statistics Manager, and Ms. Ariane Crevecoeur, Statistics Assistant, at CEPI, for their work in European data review. CEPI collects data from its member associations, which is the basis for the European analysis. Some differences in definitions exist between CEPI and UNECE/FAO statistics, but although the figures may vary slightly, the trends are generally the same. We thank these contributors for the overview of paper, paperboard and woodpulp developments across the UNECE region.

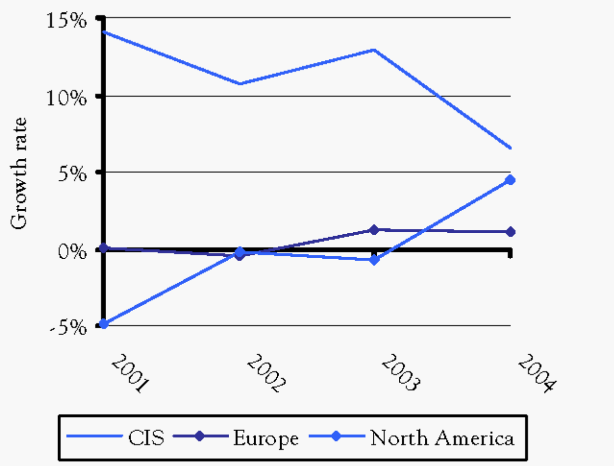
8.1 Global and regional trends

Global pulp, paper and paperboard markets improved in 2004 and 2005, as indicated by generally higher prices for most pulp, paper and paperboard products in comparison with 2003. While growth in demand was quite robust in 2004, by the end of the first half of 2005, markets appeared more hesitant and prices appeared to waver or reach a plateau.

Within the UNECE region, annual growth in consumption of paper and paperboard halved within the CIS subregion (from 12.9% in 2003 to 6.5% in 2004), while growth rebounded in North America (from –0.7% to 4.5%). Thus, there were converging rates of growth in apparent consumption of paper and paperboard for Europe, North America and the CIS subregion (graph 8.1.1).

GRAPH 8.1.1

Rates of growth in apparent consumption of paper and paperboard in the UNECE region, 2001-2004



Source: UNECE/FAO TIMBER database, 2005.

In recent years, growth in paper and paperboard consumption in Europe has been relatively low but fairly steady. In North America consumption declined from 2000 to 2003, but increased in 2004. Meanwhile, in the Russian Federation (and the CIS subregion) and central and eastern Europe, consumption has increased significantly. In 2004, consumption of paper and paperboard expanded in each subregion, with relatively robust growth in North America, while the growth rate was still higher but less divergent in Russia and the CIS subregion. Since 1990, European and North American paper and paperboard production have gradually approached equivalency in total tonnage, with more expansion of production in Europe since 1990 than in North America, while production dropped in the CIS subregion during the early 1990s but has been steadily climbing since then (graph 8.1.2).

The stronger euro and weaker dollar in 2004 limited price appreciation in Europe for pulp and paper commodities. North America, and the US in particular, experienced significant improvement in pulp, paper and paperboard commodity prices in 2004. The improvement in dollar-denominated prices for pulp, paper and paperboard commodities was in part a reflection of continued weakness in the exchange value of the US dollar as well as increased product demand in 2004. Consequently, paper and paperboard production increased in both Europe and North America in 2004, but US producers experienced better gains in profitability than European or Canadian producers in 2004.

[54] Dr. Peter J. Ince, Research Forester, USDA Forest Service, United States Forest Products Laboratory, One Gifford Pinchot Drive, Madison, Wisconsin, United States of America, 53726-2398, telephone +1 608 231 9364, fax +1 608 231 9592, e-mail: pince@fed.us

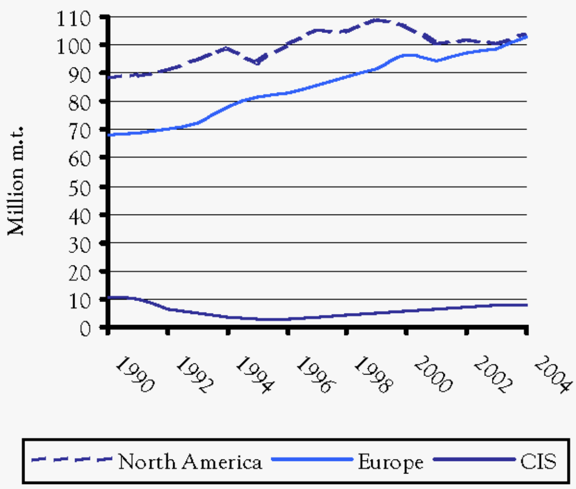
[55] Prof. Eduard Akim, PhD, The Saint Petersburg State Technological University of Plant Polymers, The All-Russian Research Institute of Pulp and Paper Industry, 4, Ivana Chernykh Str., Saint Petersburg, RF-198095 Russia, telephone +7812 247 3558, fax +7812 534 8138, e-mail: akim@Ed.spb.su

[56] Mr. Bernard Lombard, Confederation of European Paper Industries, 250 avenue Louise, B-1050 Brussels, Belgium, telephone +32 2 627 49 11, fax +32 2 646 81 37, e-mail: b.lombard@cepi.org

[57] Mr. Tomás Park, Director, Wood & Paper a.s., Hlina 18, CZ-66491 Ivancice, Czech Republic, telephone +420 546 41 82 11, fax +420-546 41 82 14, e-mail: t.parik@wood-paper.cz

GRAPH 8.1.2

Production of paper and paperboard in the UNECE region, 1990-2004



Source: UNECE/FAO TIMBER database, 2005.

As expected last year, the global upturn and improvement in pulp, paper and paperboard markets continued into 2004 and 2005. In spite of the more hesitant market growth in the first half of 2005 the outlook for the second half of 2005 and 2006 remains positive, though less certain than a year ago.

8.2 Europe subregion

Production of paper and paperboard in Europe reached a record level of 103.1 million m.t in 2004 according to UNECE/FAO data, an increase of 4.1% over 2003. Production among the subset of EU-25 countries was a record 95.9 million m.t. in 2004, an increase of 4.3% (table 8.2.1). Similarly, according to industry data, production of paper and paperboard among member countries of the Confederation of European Paper Industries (CEPI[58]) reached a record level at 99.5 million m.t. in 2004, an increase of 4.5% over 2003. The operating rate (capacity utilization rate) for 2004 was 91.9%.

Overall output of graphic paper increased among CEPI countries by 6.8% in 2004. Half of the increase came from the coated graphics sector (+8.8%). Production ofuncoated graphic grades also rose (+5.9%). Mechanical grades (+7.7%) marginally outperformed woodfree grades (+7.2%).

[58] CEPI countries include: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, The Netherlands and the UK.

TABLE 8.2.1

Pulp, paper and paperboard balance in Europe, 2003 - 2004

(*1,000 m.t.*)

	2003	*2004*	*Change%*
Paper and paperboard			
Production	99 043	103 113	4.1
Imports	52 062	53 071	1.9
Exports	61 082	65 181	6.7
Net trade	9 020	12 111	34.3
Apparent consumption	90 023	91 002	1.1
Of which: EU-25			
Production	91 970	95 942	4.3
Imports	48 025	48 946	1.9
Exports	57 143	61 104	6.9
Net trade	9 118	12 158	33.3
Apparent consumption	82 852	83 784	1.1
Woodpulp			
Production	41 694	42 681	2.4
Imports	18 014	18 586	3.2
Exports	11 349	11 579	2.0
Net trade	-6 665	-7 007	...
Apparent consumption	48 359	49 688	2.7
Of which: EU-25			
Production	38 262	39 173	2.4
Imports	16 898	17 490	3.5
Exports	10 443	10 663	2.1
Net trade	-6 455	-6 826	...
Apparent consumption	44 717	45 999	2.9

Source: UNECE/FAO TIMBER database, 2005.

For the packaging sector, production increased by 2.4%. Case material and carton board production rose respectively by 2.4% and 2.3%. Production of wrappings returned to the 2002 level (+3.4%). Hygienic paper manufacturers increased output by 2.1%. Production of industrial and speciality grades rose by 1.8%.

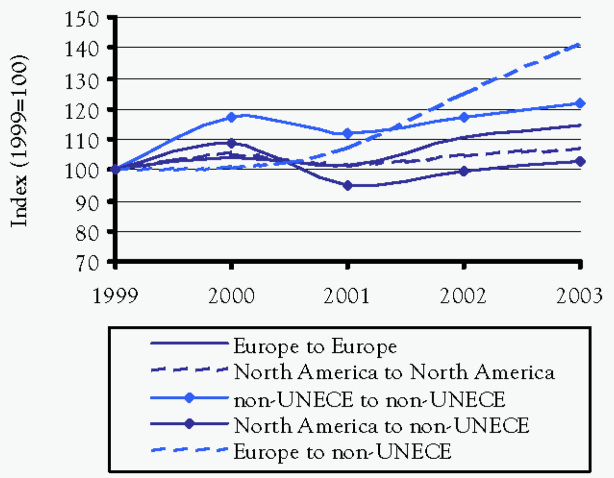
Apparent consumption of paper and paperboard among CEPI member countries totalled 88.2 million m.t. in 2004, an increase of 2.4% compared with 2003. This increase in consumption slightly exceeded the growth in GDP of 2.2% in those countries. Growth in European consumption of many graphic paper grades exceeded GDP growth. Consumption of graphic paper grades increased overall by 2.9%. After a decline in 2003, consumption of newsprint increased by 2.7% in 2004. Consumption of uncoated mechanical grades rose by 3.1%. Growth in demand for coated mechanical grades increased by 6.5% and for coated woodfree grades by 0.9%. Consumption of uncoated woodfree grades rose by 2%. Overall demand for coated grades rose by 3.4%, with uncoated grades rising by 2.4%.

Overall demand for packaging grades rose by 1.7%. Amongst the packaging grades, consumption of case materials increased by 2% and carton board rose by 2.3%. Demand for wrappings increased by 0.8%. Demand for sanitary and household grades grew by 5.1% to 6.7 million m.t.

In 2004, despite the relatively strong euro, exports of paper and paperboard from CEPI member countries increased by a robust 13.2% to 14.8 million m.t., reflecting the general growth in European exports (graph 8.2.1). Shipments to Asian markets accounted for 36% of exports. Exports to "Non-CEPI" Europe rose by 17.3% and to North America by 5.2%. Exports to Latin America topped 1 million m.t. for the first time. For the fourth consecutive year, imports of paper and paperboard into CEPI member countries fell, in 2004 to 4.2 million m.t., a decrease of 5.1% from 2003. Overall CEPI member countries had a positive trade balance in paper and paperboard of 10.5 million m.t. in 2004.

GRAPH 8.2.1

Paper and paperboard trade flows, 1999-2003



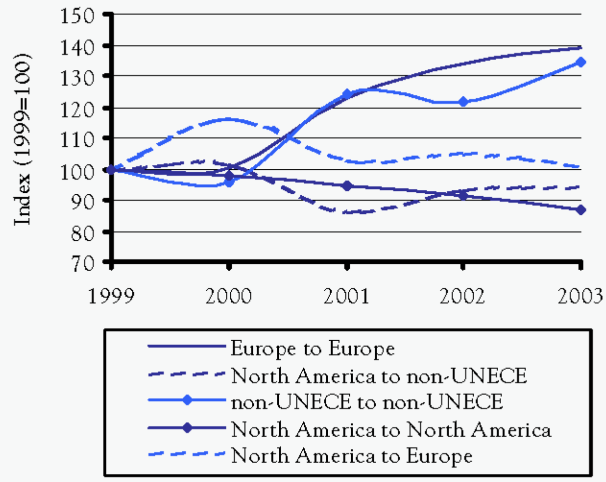
Note: Full trade flow table in the electronic annex.

Source: UN COMTRADE/EFI, 2005.

Total pulp output, both integrated and market pulp, reached 42.7 million m.t. among CEPI member countries, an increase of 4.2% over 2003. Production of chemical pulp increased by 4.2% and production of mechanical and semi-chemical pulp rose by 3.9%. Market pulp production reached 13.1 million m.t., rising by 1.3 % over 2003. European pulp exports remained strong in the face of increased global competition (graph 8.2.2).

GRAPH 8.2.2

Woodpulp trade flows, 1999-2003



Note: Full trade flow table in the electronic annex.

Source: UN COMTRADE/EFI, 2005.

Utilization of recovered paper increased by 4% over 2003 to 46.5 million m.t. Apparent collection (domestic utilization plus export) increased by 7.5% to 51.5 million m.t. Exports of recovered paper to CEPI non-member countries reached 5.9 million m.t., 92% to Asian markets.

The production of paper and paperboard among CEPI member countries during the first quarter of 2005 increased by 1.7% over the first quarter of 2004: pulp production increased by 1.5% over the same period.

While the European industry has continued to increase exports of paper and paperboard, it nevertheless faced challenges in maintaining global competitiveness in 2004 and 2005. The increase in the exchange value of the euro from 2003 to 2004 eroded production cost advantages and the benefits of dollar-denominated price increases. European companies also reported that their competitiveness was severely hit during the last couple of years by the dramatic increases in electricity prices. In particular, this was reported to be a possible indirect effect of the forthcoming Emissions Trading Scheme and a dysfunction in electricity and gas markets, which recent market liberalization has not fully corrected.

The European paper industry has expressed concern about the proposal by the European Commission for a New Chemicals Policy (REACH), which has been developed with the main objective of safe use of man-made products from the chemical industry. However, as currently presented, it could potentially cover not only chemicals, but also the paper industry's raw materials.

A labour strike and lockout halted pulp and paper production in Finland for more than six weeks in May and June of 2005, impacting global markets for products such as coated printing paper, for which Finland is a leading exporter. The dispute was settled in early July, but an estimated 1.4 million tons of graphic paper output was lost during the lockout [Pulp & Paper Week, 27(25)]. The reduction in supply squeezed the global market for printing paper just as it was entering the normally busy season for commercial printing. The lockout had significant ramifications for European paper markets since Finland accounts for a large share of European paper and paperboard production in many product grades (e.g. in 2004, 20% of graphic paper production, 32% of mechanical woodpulp output, and 28% of chemical woodpulp production). The impact on pulp production in turn caused the closure of some European sawmills that were unable to find adequate markets for the woodchips that the pulp producers would normally take.

Developments in central and eastern Europe in 2004 followed trends observed among new EU member countries in recent years. Membership of the EU and the opening of borders has resulted in strong economic development as well as structural changes, such as a change in the flow of goods in many sectors. The pulp and paper industry in this region was already linked to global market channels since producers in the region are connected to global enterprises. Strong economic growth has also brought a strengthening of local currencies, which pushes producers in all export-oriented industries to increase productivity, including the pulp and paper industry.

New EU member countries are still considered as good opportunities for investment, and some new projects are being considered in the pulp and paper sector. Availability of raw material, cost advantages and stable economic conditions provide investors with a good business environment. Local governments are supporting new investments while the unemployment rate in certain regions is relatively high due to restructuring of the economy and industry in general. Long-term sustainable management of local forest resources will help attract new investment in the forest industry, with benefits for other sectors.

Policies influencing paper and paperboard market development arise in several areas that influence business on a daily basis. For example, transportation policy is becoming a key issue for business development. Central and eastern Europe need to catch up relatively quickly in the quality of their industrial infrastructures. Rapid ongoing development of industry is also increasing pressure and demand for better infrastructure, especially for transport. Truck transportation is one of the main concerns of local communities as increasing transport of goods creates pressures on infrastructure costs, the environment and safety.

Bio-energy production continues to be viewed as one of the biggest threats, as well as an opportunity, for the pulp and paper industry. The market has yet to establish the balance between wood energy and fibre use, while subsidies and support for bio-energy vary from country to country. There is, however, already some evidence of a negative influence on wood availability for the particleboard and the pulp and paper industries. Prices of raw materials are higher in certain regions than those industries are able to pay due to the strong energy subsidy policies of some local governments. There is a great opportunity to expand wood availability and mobilization for green energy production that does not compete with sustainable wood industries for their raw materials.

The pulp and paper industry has a future and continues to grow in central and eastern Europe and among new EU member countries. If new policies of the EU community and local governments respect the mutual interests of all stakeholders and support sustainable development and global competitiveness, there will also likely be a good future for the pulp and paper industry in this region.

8.3 CIS subregion

In 2004 and the first half of 2005, Russia continued to experience robust economic growth, and the growth in paper and paperboard output (6.8% in 2004) contributed to 6.6% growth in output in the CIS subregion, where Russia is by far the largest producer (table 8.3.1).

TABLE 8.3.1

Pulp, paper and paperboard balance in CIS, 2003 - 2004

(1,000 m.t.)

	2003	*2004*	*Change %*
Paper and paperboard			
Production	7 498	7 994	6.6
Imports	1 631	1 820	11.6
Exports	2 695	2 959	9.8
Net trade	1 065	1 139	7.0
Apparent consumption	6 434	6 855	6.5
Woodpulp			
Production	6 851	6 973	1.8
Imports	178	160	-10.1
Exports	1 917	1 868	-2.6
Net trade	1 739	1 708	-1.8
Apparent consumption	5 111	5 265	3.0

Source: UNECE/FAO TIMBER database, 2005.

Russia's GDP also increased by 7% in 2004. For the first five months of 2005, Russia's GDP growth ran at 5.4%, indicating a modest slowdown but continued growth. President Putin has set a target of doubling Russia's GDP over the next decade, implying an average growth rate of around 7% per year (IEA, 2004). Growth averaged 6.7% from 1998 to 2003. Forecasts of economic growth in Russia vary, influenced mainly by oil price trends, but forecasts generally point to continued economic growth, and thus continued long-run growth in Russia's pulp and paper sector is expected (see chapter 3 for more economic trends).

Important forest sector policy issues of 2004 in Russia were the Kyoto Protocol ratification (which took effect in February 2005 with new efforts to monitor carbon emissions), debates about private ownership of forests in the context of a new Forest Code to be adopted, use of space satellite monitoring for preventing illegal timber cuttings, and the continuing "forest wars" (legal disputes over ownership and management of certain Russian pulp mills and forest operations).

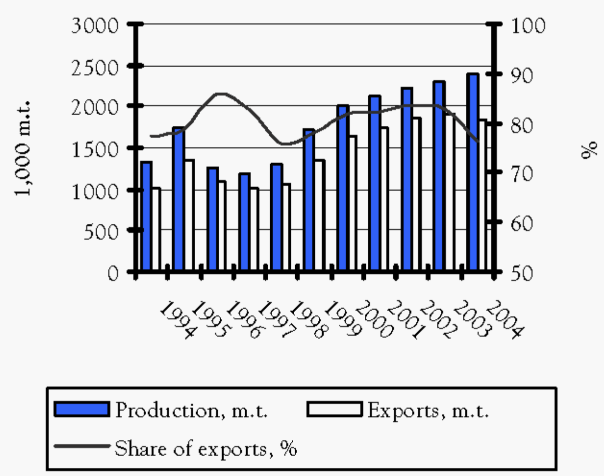
Owing to the major currency revaluation of 1998 and expansionary macroeconomic policy under President Putin since 1999, there has been a continuous increase in output of pulp, paper and paperboard, more than doubling since 1996, although output has yet to reach previous record levels of 1988-1989 pre-transition periods. During 2004, Russia's output of pulp (for paper and paperboard, and market pulp) increased by 2.6% over 2003, output of market pulp increased by 4.0%, and output of paper and paperboard increased by 6.8%, with a 9.0% increase in output of paperboard.

The pulp and paper market situation in Russia definitely appeared to have weakened by the first half of 2005 as the production of a number of pulp and paper products suffered some setbacks by May of 2005. The slowdown of growth for pulp and paper output in Russia coincided with global wavering of pulp and paper demand and prices in the second quarter of 2005. With more than one third of Russia's paper and paperboard production exported, there is strong correlation between global market trends and domestic market trends in Russia.

In 2004, exports of paper products continued to increase to a record level, while pulp exports declined slightly (graphs 8.3.1 and 8.3.2). However, Russian exports as a percentage of production have remained largely unchanged since 1996, with exports comprising about 80% of output for market pulp, and around 40% for paper and paperboard. Major export destinations for these Russian products are China (market pulp, kraft linerboard), Ireland (market pulp, kraft linerboard), India (newsprint), and Turkey (newsprint).

GRAPH 8.3.1

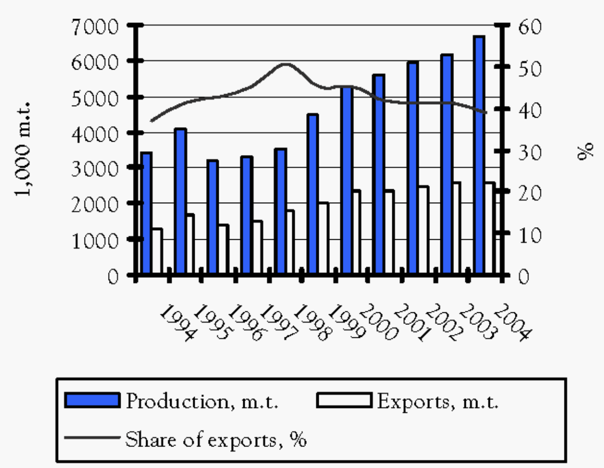
Russian production and exports of market pulp, 1994-2004



Sources: Goscomstat, PPB Express and author's data interpretation, 2005.

GRAPH 8.3.2

Russian production and exports of paper and paperboard, 1994-2004



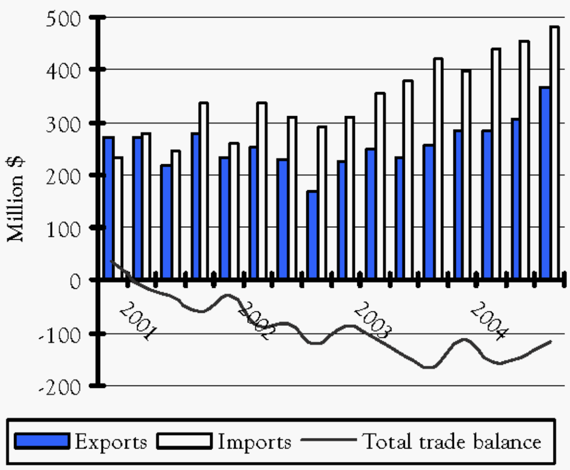
Sources: Goscomstat, PPB-express and author's data interpretation, 2005.

Although the tonnage of Russian paper and paperboard exports greatly exceeds the tonnage of imports, the trade balance in value has continued to deteriorate, as Russia has expanded imports of higher value paper products. The trade deficit in paper and paperboard has been negative since 2001, and in 2004 it was over one-$500 million (graph 8.3.3).

The higher value of imports of paper and paperboard as compared with exports reflects that Russia imports expensive products, such as high quality materials for container and packaging, clay-coated paper, and tissue, and exports less expensive commodity products, such as newsprint and kraft linerboard.

GRAPH 8.3.3

Russian paper and paperboard imports, exports and trade balance, 2001-2004



Sources: State customs committee, PPB Express, PPB Exports, PPB Imports and author's data interpretation, 2005.

In connection with ratification of the Kyoto Protocol, a number of mills (the Arkhangelsky pulp and paper mill, for example) initiated an inventory of greenhouse gas emissions. Such accounting for carbon and greenhouse gas emissions is being done at the Arkhangelsky mill and elsewhere to prepare for limits on emissions and perhaps trading in carbon emissions. The vast majority of analyses on the topic find that Russia will gain a large net surplus of emissions allowances—in the range of 300 to 1,000 MtCO2 per year, on average, between 2008 and 2012 (Haites 2004). Thus, according to these studies, Russia will not lose, but will in fact gain financially from the Kyoto Protocol, by selling part of its excess allowances to Europe (Lecocq 2004).

The so-called "forest wars" (a journalistic term for legal disputes among managers and owners of forest enterprises) continued in 2004. The Kotlassky pulp and paper mill and the Bratsky pulp and paper mill were both the objects of disputes. Those disputes were settled in 2004 and the mills have become the property of the Ilim Pulp Enterprise. At the same time, the Basic Element Company was involved in a struggle for possession of two other mills, the Arkhangelsky pulp and paper mill and OAO Volga – the Balakhninsky pulp and paper mill. In past years such disputes have involved the occupation of plants by armed guards (hence the term "forest wars"), but more civil legal proceedings now characterize the resolution of such disputes.

8.4 North America subregion

In North America, output of paper and paperboard increased by 3.3% in 2004 to 104.2 million m.t., while apparent consumption of paper and paperboard increased by 4.5% to 101.1 million m.t. (table 8.4.1). Production of woodpulp increased by 1.7% to 80.7 million m.t.

TABLE 8.4.1

Pulp, paper and paperboard balance in North America, 2003 - 2004

(1,000 m.t.)

	2003	*2004*	*Change %*
Paper and paperboard			
Production	100 832	104 190	3.3
Imports	19 505	21 152	8.4
Exports	23 611	24 285	2.9
Net trade	4 106	3 133	-23.7
Apparent consumption	96 726	101 057	4.5
Woodpulp			
Production	79 401	80 725	1.7
Imports	6 546	6 547	0.0
Exports	16 821	17 150	2.0
Net trade	10 275	10 603	3.2
Apparent consumption	69 126	70 122	1.4

Source: UNECE/FAO TIMBER database, 2005.

In the US, growth in paper and paperboard output finally resumed after several years of decline, with robust economic expansion in the second half of 2003 and expansion continuing through 2004. An upturn in US industrial output from the second half of 2003 through 2004 stimulated increased domestic demand for paper and paperboard (in packaging and print advertising). The upturn in US paper and paperboard output, as well as overall industrial output, was supported by depreciation in the exchange value of the US dollar during 2004, which boosted profitability for US manufacturers in general, and also for the US pulp and paper industry.

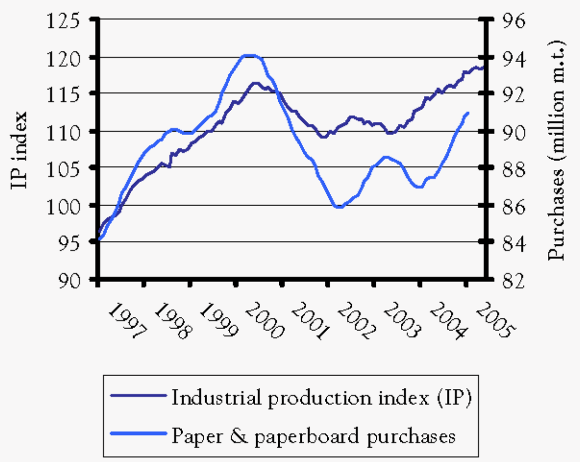
Canada also experienced growth in paper and paperboard production in 2004, partly reflecting growth in US demand for Canadian exports and also reflecting growth in Canadian exports to other countries, particularly exports to Asia. The volume and value of Canadian exports to the us in 2004 were offset by the appreciation of the Canadian dollar against the US dollar. Thus, compared with the robust increase of 4.1% in US paper and paperboard production (and the 4.0% increase in US purchases of paper and paperboard), Canadian production increased by just 2.3% in 2004.

In recent years, trends in domestic purchases of paper and paperboard in the US have generally followed trends in overall US industrial production (graph 8.4.1). US paper and paperboard purchases generally spiralled downward from 2000 to 2002 along with industrial production, reflecting the close connection between the demand for packaging paper and paperboard in industry, and the demand for printing paper for industry advertising and business communication (catalogues, brochures, etc.). The graph also shows that both US industrial production and production of paper and paperboard have climbed since 2002, with robust growth in 2004.

Prices for fibre inputs have also shown signs of recovery and increase in North America over the past few years. Upward trends are apparent in the nationwide US price indexes for recovered paper in general, and for old corrugated containers in particular (graph 8.4.2). The recent increases in recovered paper prices stem, in part, from the upturn in North American paper and paperboard output (with increased demand for recycled fibre), and also from substantial increases in export demand for recovered paper, particularly from China. The US exported 12.8 million m.t. of recovered paper in 2004, 8.6 million of which was exported to the Far East and Oceania (AF&PA, 2005).

GRAPH 8.4.1

United States industrial production index and purchases of paper and paperboard, 1997-2005

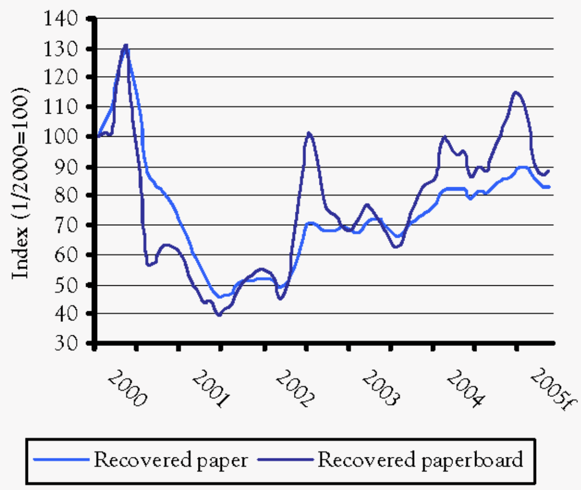


Note: Monthly data. Purchases on a year to date annual basis.

Sources: US Federal Reserve and American Forest & Paper Association, 2005.

GRAPH 8.4.2

Recovered paper and paperboard prices in the United States, 2000-2005



Note: f = forecast for February – May 2005.

Source: US Bureau of Labor Statistics, Producer Price Indexes, 2005.

Higher orders and production volumes offset lower average prices for paper and paperboard in the first quarter of 2004, when prices bottomed out, followed in the second quarter by announced price increases for key pulp, paper and paperboard grades. Advertising expenditures and demand for packaging both rebounded in the first half of the year. Growth in total US advertising expenditures, an important indicator of printing paper demand, increased by 7.4% in 2004 (the best rate of growth since 2000), although advertising expenditures are expected to increase by only 5.7% in 2005 (AdAge.com, 2005). Export markets also improved in 2004 as a weaker dollar afforded improved cost competitiveness for US producers. North American pulp, paper and paperboard prices, denominated in US dollars, generally increased in 2004.

In contrast to robust growth in 2004, US demand and prices for pulp, paper and paperboard wavered somewhat in the first half of 2005, as the US dollar regained some strength versus the euro and as overall US industrial production and advertising expenditures began to experience slower growth. It also appears that the slowdown of growth in US paper and paperboard markets in 2005 might reflect a similar cyclical slowdown of growth in overall US industrial production following the robust growth of 2004.

8.5 References

American Forest & Paper Association (AF&PA). Paper, Paperboard & Wood Pulp, Monthly Statistical Summary. Volume 83,. No. 5. (May 2005, and other issues).

American Forest & Paper Association (AF&PA). 2005 Annual Statistical Summary - Recovered Paper Utilization. AF&PA, Washington DC.

Coen, R. 2005. "Insiders Report," Universal McCann, AdAge.com, 29 June.

Confederation of European Paper Industries (CEPI). (www.cepi.org).

Pulp & Paper Week. Paperloop, Inc., Vol. 27, No. 25 (and other issues).

Haites, Erik. 2004. "Estimating the CDM". PCFplus Research Report No 19. World Bank, Washington DC.

Institute of Economic Analysis (IEA). 2004. Possible Ratification of the Kyoto Protocol by the Russian Federation and its Economic Implications. Russian Institute of Economic Analysis. Moscow.

Lecocq, Frank; and Zmarak, Shalize. 2004. Will the Kyoto Protocol Affect Growth in Russia? World Bank Policy Research Working Paper 3454, November. Development Economics Research Group, World Bank. Washington DC.

Pulp & Paper Products Council of Canada. 2004. Canadian Pulp and Paper Industry Key Statistics.

Additional statistical tables for this chapter may be found in the electronic annex on the UNECE Timber Committee and FAO European Forestry Commission website at: www.unece.org/trade/timber/mis/fpama.htm

Tables for this chapter include:

- Chemical woodpulp apparent consumption, 2000-2004
- Paper and paperboard apparent consumption, 2000-2004
- Graphic papers apparent consumption, 2000-2004
- Sanitary and household papers apparent consumption, 2000-2004
- Packaging materials apparent consumption, 2000-2004
- Production of chemical woodpulp, 2000-2004
- Exports and imports of chemical woodpulp by volume, 2000-2004
- Chemical woodpulp balance in UNECE, 2000-2004
- Exports and imports of chemical woodpulp by value, 2000-2004
- Production of mechanical woodpulp, 2000-2004
- Exports and imports of mechanical woodpulp by volume, 2000-2004
- Mechanical woodpulp balance in UNECE, 2000-2004
- Exports and imports of mechanical woodpulp by value, 2000-2004
- Production of graphic paper, 2000-2004
- Exports and imports of graphic paper by volume, 2000-2004
- Graphic paper balance in UNECE, 2000-2004
- Exports and imports of graphic paper by value, 2000-2004
- Production of packaging paper, 2000-2004
- Exports and imports of packaging paper by volume, 2000-2004
- Packaging paper balance in UNECE, 2000-2004
- Exports and imports of packaging paper by value, 2000-2004
- Wood pulp balance in UNECE, 2000-2004
- Paper and paperboard balance in UNECE, 2000-2004
- Major paper trade flows in the UNECE region 1999-2003
- Major woodpulp trade flows in UNECE region 1999-2003

Full statistics used in the *Forest Products Annual Market Review,* 2004-2005 may be found in the UNECE/FAO TIMBER database at:

www.unece.org/trade/timber/mis/fp-stats.htm#Statistics