

Industries

Forest, paper & packaging

Risks and rewards*

Forest, paper & packaging in Russia

October 2006



*connectedthinking

PRICEWATERHOUSECOOPERS 

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Key contributors:

Elizabeth Montgomery, Clive Suckling, Loren Gerlach, Tony Antoniou, Michael Cracknell, Olga Yurilina.

Design:

Hamilton-Brown Business Graphics

01 Welcome

 In 2005, PricewaterhouseCoopers released its report on the paper and packaging market in China, part of the China Risks and Rewards series. In that report we looked at what is now the world's second largest market for paper and packaging and suggested ways for companies to understand the opportunity better.

This year, we follow up our look at the China market with a detailed focus on Russia, home of over one-fifth of the world's forests and another possible source of opportunity for companies in the industry. Given that Russia is currently harvesting well below what experts consider to be a sustainable rate, there is great potential for the development of modern, sizeable forest-based industries. The Government is also working to reform industry legislation and tariffs to stimulate development.

Furthermore, Russia and neighbouring countries are experiencing growth spurred to a large degree by their mineral wealth. This in turn is starting to create large, new consumer markets for the products of the forest, paper and packaging industries.

As in China, harnessing the country's potential comes with substantial risks. Changes to regulations are controversial, infrastructure is still patchy and the availability of finance, technology and people skills to maximise opportunities is restricted.

Our focus on emerging markets in the forest, paper and packaging industry will continue in 2007, with a planned look at the risks and rewards of investing in Latin America.



Robert Barnden

Global Forest, Paper &
Packaging Leader
PricewaterhouseCoopers



Alexei Ivanov

Russian Federation Forest, Paper &
Packaging Leader
PricewaterhouseCoopers

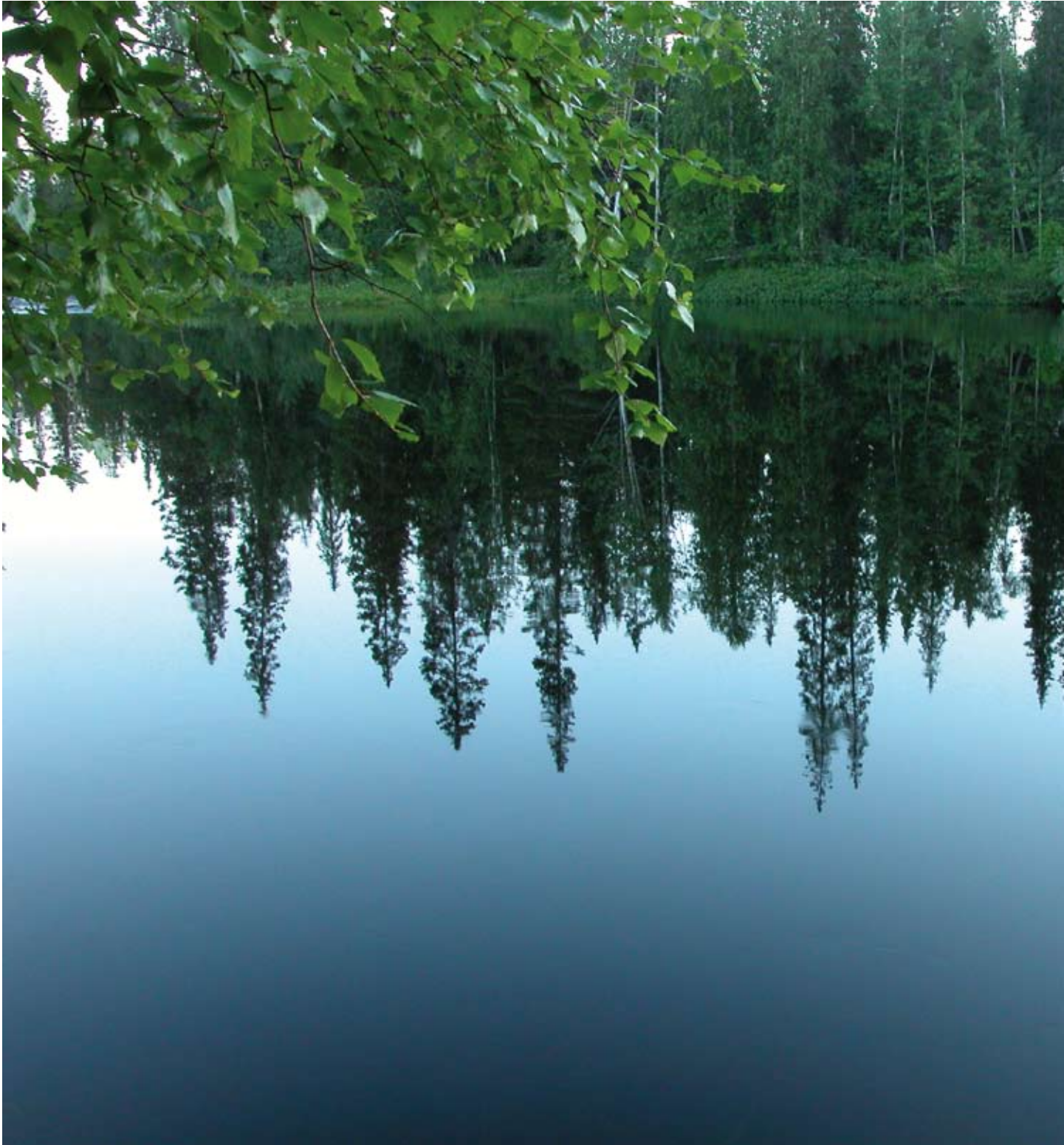
A note on methodology:

This paper draws upon a wide range of sources, including official Russian Government statistics, trade organisation and non-governmental organisation figures, data from the UNECE-FAO and USDA-FAS, press reports, company and industry websites, as well as reports produced by industry consultants. It is important to note that the statistics cited in some of these sources are not always consistent, in part due to inconsistencies in the terminology used or data collection methods. In many segments of the industry, there is a proliferation of small enterprises, whose output may not always be reflected in official or other figures. As this is the case, we cannot guarantee the completeness or accuracy of external data used in our report.

Currencies referred to in the document:

- \$ US Dollar
- € Euro
- RR Russian Rouble

02 Market Overview





Russia's sweeping forests are one of the most important natural resources on the globe.

They span 11 time zones, from the Baltic Sea to the Pacific and account for more than 20% of the world's timber resources. Russia's forests cover more sheer area than Brazil and Canada's forests combined and are an important contributor to the global carbon balance.

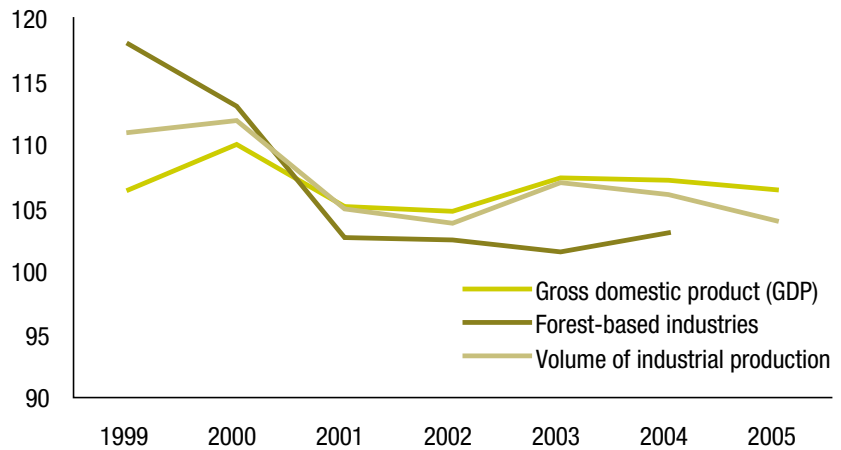
Despite this impressive natural resource base, Russia's forest-based products industry is not a global player in most segments of the market, with unprocessed timber as the notable exception.

No official figures have been published - however, a conservative estimate is that the Russian forest-based products industry generated a total output of around \$12 billion in 2005, including logging, wood products, and pulp, paper and paperboard. In addition, there appears to be a significant amount of undocumented activity in the sector, which cannot be reasonably estimated.

Domestically, about 35% of the estimated value of forest-based production is generated by the pulp, paper and paperboard sector, the wood products sector accounts for around 40% and the forestry/logging sector the remainder. The total output of packaging, with its higher value-added, is estimated to be around \$20 billion, of which non-paper packaging accounted for around \$9 billion.

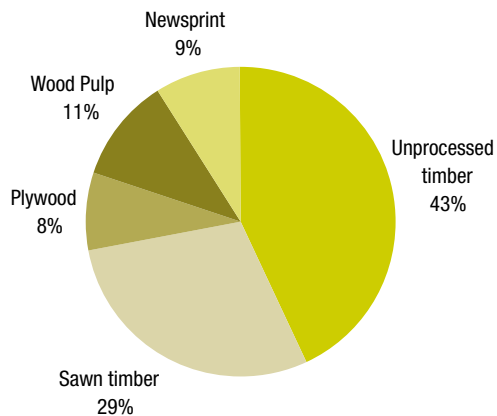
While the industry grew more strongly than overall GDP and industrial production in 1998-2000, growth subsequently slowed, with increases

Figure 1: GDP, industrial production & forest-based industries production growth vs. previous year, in %, 1999-2005



Source: Federal Bureau of Statistics, Interfax-CNA.

Figure 2: Structure of main forest products exports in 2005 by volume



Source: Lesprom Overall Results 2005. Lesprom Industry Consulting.

of 1.5-3% in 2000-2004 (see Figure 1). In addition, production in most segments of the forest-based industry still lags far behind Soviet-era levels.

An examination of export values tells a somewhat different story. Overall forest-based product export values soared in 2005, reaching \$7.5 billion, up from \$6.3 billion in 2004. This growth is due in part to higher prices for raw timber, processed timber, pulp and newsprint, and follows strong growth in 2003. Sources suggest that Russian forest products output accounts for just over 3% of global output in value terms, but much more in volume terms.

Why this discrepancy? Figure 2 shows the main export categories of forest products, which provide at least a partial answer. Unprocessed timber dominates export figures, accounting for just over 40% of export values in 2005. Add in sawn timber, and the total percentage of exports with low or lower value-added has been hovering at around 70% in recent years. Higher value-added export categories are represented by plywood, pulp and newsprint, which together make up only slightly more than a quarter of total export values.

Domestic demand for most sectors of the industry has been on the upswing, and foreign demand is also strong, particularly from neighbouring China in the South-East, Central Asia in the South and Finland and Sweden in the North-West – Finland and Sweden together account for the vast majority of shipments to Europe. Baltic states, such as Estonia, have also increased their import levels, however this trend may be temporary as timber prices are on the rise. Demand is strongest for unprocessed timber, although newsprint, pulp and plywood have also found strong markets and sources suggest that demand for other, higher-value segments would probably exist if production capacity were in place.

Russian President, Vladimir Putin has noted that Russia's neighbours are making billions of dollars by adding value to Russian raw materials and

expressed the intention of shifting domestic production into more value-added product areas.

Unprocessed timber accounts for just over 40% of export values - but the Government is looking to change this situation, including re-vamping tariff structures to favour higher value-added production.

Significant progress can only come, however, following certain necessary reforms including changes in export tariffs that continue to favour the export of unprocessed timber. Although the Government has identified the forest products sector as a critical area for Russia's future growth and development, reform has been proceeding slowly. In 2002, an announced government forest programme set a target of doubling processed output by 2010 with the aim of making the industry "profitable and self-financing". Unfortunately, though, the programme was more theoretical than practical, and its ambitious goals look unlikely to be met. During Mr Putin's first term, most of the industry's attention focused around intra-sector conflicts (the so-called "Forest Wars") and few reforms were driven by the Government.

Mr Putin reiterated the Government's commitment to making forest reform happen in early 2006. In a keynote address at a forest meeting in April 2006, he stressed the need to pass a proposed new Forest Code, promote structural reforms, e.g. vertical integration, and create an enabling environment for investment into wood processing, including pulp and paper.

Mr Putin's speech underscores long-term policies currently being pursued by the Russian Government to improve the sector's efficiency. The proposed new Forest Code and a unified national forestry policy, with more responsibility given to regional governments, is expected to supply

a legislative base for the industry and provide the stability needed to attract foreign investments. At the same time, various tariff modifications and other government measures are being implemented to promote the export of higher-value processed products rather than logs. The Government is also looking for ways to curb illegal harvesting of timber, including a proposed system of obligatory forest certification.

Substantive growth in the sector will require not only action from the Government - major inflows of capital from both domestic and foreign investors will be needed. Bumprom has estimated that the pulp and paper sector alone requires \$12.5 billion in investments between 2004 and 2015. According to Interfax-CNA, the industry's return on assets (ROA) is considerably lower than that of Russian industry as a whole, averaging just over 3% in 2003 and January-September 2004, compared to an overall average of nearly 6%. This may reflect the antiquated state of equipment in many facilities.

Capital investment and vertical integration are key factors to ensuring industry growth.

The Russian Ministry of Industry and Energy is also developing a National Target Program to improve non-waste processing of timber products and develop new forest areas for the period to 2015. The aim of the program is to improve the investment climate in the timber complex, create a system to support investment projects and introduce provisions to build larger integrated structures in Russian forest products industry. Reports suggest that a large number of projects have already been proposed for support, however, specific details are still forthcoming.

Mr Putin's emphasis on the need for vertical integration reflects the views of larger industry players as well. Foreign investors operating in Russia stress the need for close cooperation with local timber suppliers, both to

ensure that logging is sustainable and to maintain a secure stream of supply. Domestic players are also looking to become more vertically integrated, with Ilim Pulp as a prime example.

While global forest products markets are generally over-supplied and most market observers expect to see further mergers, consolidation, and the removal of production capacity in the developed world, Russian demand remains buoyant and growth prospects are good for all forest products. In addition to the domestic market, there is a significant opportunity to export eastwards to the fast growing markets in Asia, most notably China, where demand for wood fibre far outstrips supply and to more mature markets westwards, where efficiently produced and delivered value-added forest products would be highly competitive.

Key enablers and constraints on the future growth of the Russian industry include the following:

Power generation: Production of chips, pulp and paper is highly energy-intensive, and most large paper plants have their own power plants on-site. In many cases, these plants are running at or near full capacity and additional power plants would have to be built to significantly increase pulp and paper output. One argument for making this investment, is that domestic natural gas prices are held by Russian Government edict at well below world market prices, giving Russian producers an important cost advantage over other nations. However, Russia is under pressure from the World Trade Organisation to increase prices over time.

Forestry: As already described, significantly more wood could be cut each year than is currently cut, without threatening sustainability. Even if stumpage prices increased as a result of a new Forest Code being adopted, costs can be expected to remain highly competitive by world standards - the issue is accessing the timber (see Infrastructure.)

Infrastructure: A key issue in two respects: on the upstream side, the limited number of roads, especially paved roads, in forestry areas is a key impediment to increased cutting. Public-private partnerships will be needed to address this. On the downstream (delivery) side, Russian State railways are constrained with respect to both the engines and freight cars essential to get forest products to market over Russian distances.

Availability of qualified staff: This is a mixed picture. Layoffs and efficiency gains in recent years by major producers have in principle created a pool of spare labour in forestry-producing areas. However, in many cases, these people are of advanced age and trained in Soviet techniques, challenging to re-train with world-class modern techniques and technologies. With regard to younger forestry professionals who have lost their jobs in these localities, they have sometimes already moved elsewhere for lack of alternative opportunities in their native regions.

03 Russian Economic Indicators



Overall, economic indicators for Russia look fairly solid. The GDP has grown strongly for seven years running, including a growth rate of 6.4% in 2005, although this did reflect a slowing pace compared to 2003 and 2004 (see Figure 3). Growth in industrial production also remains strong. Much of the positive performance can be attributed to improvements in commodity prices, and in particular to the sharp rise in oil and gas prices.

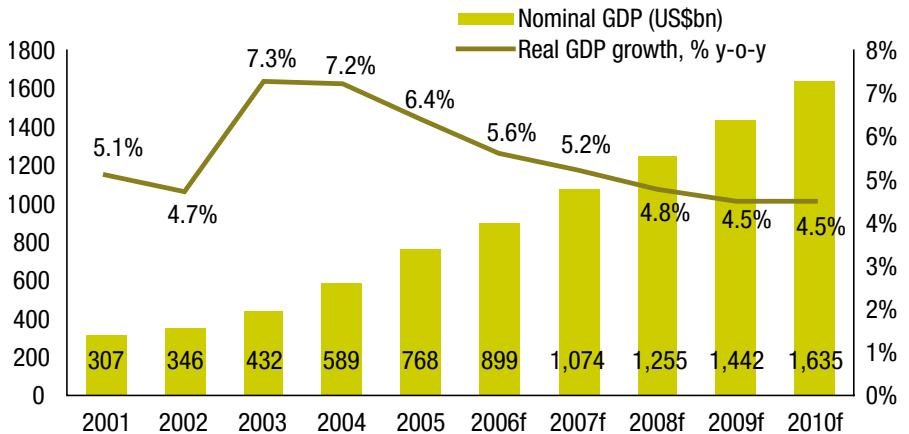
The rouble is strong and continuing to appreciate. Inflation also remains relatively high, albeit tending downwards, with double-digit rises in 2003, 2004 and 2005. Government efforts to dampen inflation include a tight budget policy and strict control over monetary growth.

A strong balance of payments has consolidated macroeconomic stability. Export revenue increased by 30% to \$284.2 billion in 2005, partially due to high oil prices.

There has also been a substantial increase in FDI inflows into Russia within the last couple of years, reflecting improvements in the business climate and Russia's economic outlook (see Figure 4).

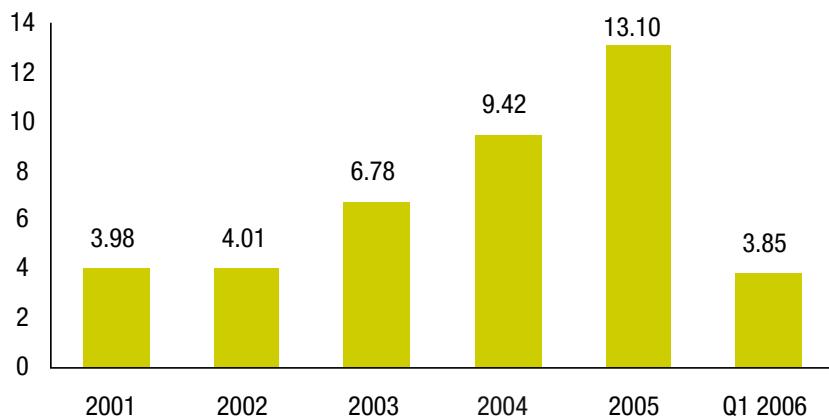
Russia's prime working age population is declining and in the long-term, this is expected to hinder GDP growth. However in the short-to-medium-term i.e. over the next 5 or even 10 years, prospects for the Russian economy look reasonably good with growth rates expected to remain above the world average.

Figure 3: Nominal GDP and real GDP growth, 2001 - 2010 (F)



Source: Federal Statistics Service

Figure 4: Foreign direct investment in Russia, in \$ billion



Source: Reuters, Federal Statistics Service of Russia

04 The Regulatory Environment



The New Forest Code

Russia's current Forest Code has already undergone numerous amendments - however critics have viewed it as unfriendly to investment and inadequately sensitive to sustainability issues. It also failed to specify any government participation in infrastructure requirements or to mandate transparency on the part of industry players.

It is hoped that the new code will rectify several of these issues and provide a stable basis for further development of the industry - however its ratification has faced substantial delays, attributable to controversies over various aspects of the bill. After passing the first reading in the State Duma in April 2005, the second reading has been rescheduled several times and is currently expected in October 2006, with a third and final hearing in December 2006.

According to the new code as proposed at the time of writing, the maximum lease period will be reduced to 49 years (from 99 years). Leases will be awarded in part via use of auctions, and no limitations will be placed on foreigners or foreign legal entities. The code will institute reforestation requirements for timber contractors - forestry officials anticipate that the level of reforestation will increase as much as threefold as a result of the changes. The Government will also provide around \$200 million in infrastructure support for timber projects, most of which will involve the construction of forest roads. National forest management will be diversified into 40-50 "eco-regions".

The new Forest Code has generated controversy – if passed it may help provide a more stable basis for industry investment.

These changes will follow on a resolution signed by Mr Putin in December 2005, shifting forest management from the federal government to regional authorities. Since the federal government will retain ownership of the forests, its oversight agency, the Federal Forestry Agency (FFA) will continue to exist but will oversee and supervise the fulfilment of the law, rather than managing it directly. Only some regions are in favour of the change, given budgetary constraints.

There is already controversy over stumpage rates. It appears that these will be determined at a regional level, but with contrary views on how they should be set and at what level. For example, The Timber Agency of Komi Republic (North-West Russia) recently stated that for 2007, rates should rise by at least 12.5%, leading the regional trade body to retort that rates should be negotiated taking due account of the rights and obligations of each party.

Further widespread controversy continues to plague the new code, with NGOs registering a number of objections. In addition, concerns have been raised in the Duma that the bill as proposed may lead to a monopolistic situation in some regions, unless limits on the size of parcels to be leased are also imposed. Industry players are also concerned that forest land will no longer be subject to regulation under

the Forest Code, but will instead be regulated by the Land Code. This will create significant difficulties in applying the legislation in practice, as the various regulations are potentially contradictory. Given the current status, it looks unlikely that the Code, if enacted at 1 January 2007, will meet the expectations of most of the parties concerned.

Tariff Developments

As already noted, long-term, the Russian Government is looking to shift the timber industry away from raw material exports and increase local production of value-added wood products. To achieve this goal, the Government is looking to apply a selective tariff policy that gives preferential rates to exports of value-added forestry products. In the past several years, the Government has approved a number of resolutions lowering export duties for several categories of value-added forestry products, while raising duties on unprocessed forestry products. Some increases are being made in multiple steps to help buffer the impact on the local industry, particularly employment levels.

Beginning 1 January 2006, a single export duty for unprocessed forestry products was established at the rate of 6.5%, but not less than €4 per cubic metre. This reflects an increase of around €1.55 per cubic metre, however further increases are expected. The Government Commission on Foreign Trade Protection and Customs Tariff Regulations is working to adjust the remaining export duties for unprocessed wood and finished products. Beginning January 2007, export tariff rates for unprocessed wood, except for coniferous species, will be set at 10% of the customs value, but not less than €6 per cubic metre. In our view, the biggest impact is likely to be on exports of birch pulpwood to Scandinavia.

In addition, the export duty for sulphate pulp, the main export category, was set to zero beginning 21 January 2006. This follows on several changes to pulp duties in 2002-2003 and is aimed at stimulating pulp exports.

Export duties have been reduced to zero on sulphate pulp and increased on unprocessed wood as part of a programme to redress the current imbalance in industry trade patterns.

A recent breakthrough in the Russian Government tariff policy was the temporary lowering of import duties to zero for some types of forestry processing equipment designed for MDF processing. This reduction responds to calls from the industry to reduce import duties on the new equipment and machinery needed to shift production towards more value-added wood products.

Further, some discussion has taken place around instituting export duties on waste paper and trash in order to encourage domestic use of recycled fibre sources.

05 Forest Wars

Russia's forest wars dominated the industry scene from 2000 to 2004, as some Russian

oligarchs looked towards the forest industries sector for desirable investment opportunities. The major conflict happened when Continental Management, reportedly an affiliate of BasEI holding that controls RUSAL, one of the world's largest aluminium producers, sought to take over the main production assets of Ilim Pulp, a holding that had managed to consolidate a group that is Russia's largest pulp producer and exporter. While battling Ilim Pulp, Continental Management accumulated some medium-sized pulp and paper mills and logging companies.

Ilim Pulp was eventually able to prevail and retain its assets, primarily through a series of court decisions. This conflict painted the mixed picture: the issues and tactics show negative aspects of investing in Russia – that the dispute was resolved shows hope for the future.

The 2000-2004 forest wars had an extremely deleterious effect on investment in the industry. One M&A publication estimated that the Russian forest industry received €2 billion less in investments as a result.

Perhaps the most deleterious effect of past “Forest Wars” was the dampening of investments, both domestic and foreign.

06 Forestry and Logging

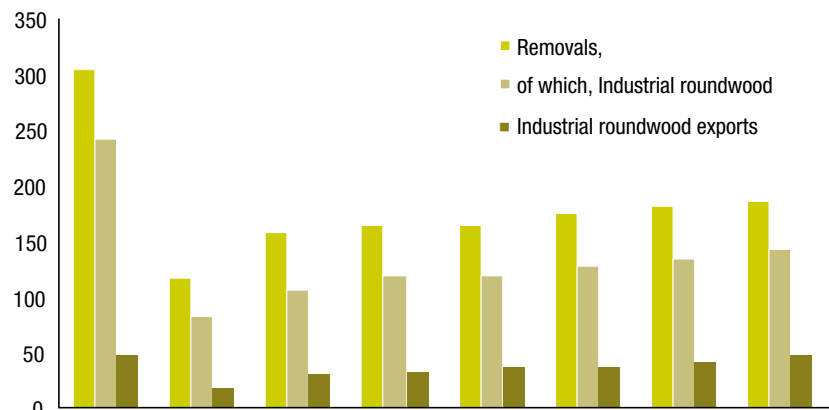


Vast stretches of Russia are covered in forest, amounting to over one-fifth of the world's timber reserves. Russian forests are also ecologically important, making a substantial contribution to the global carbon balance and housing diverse ecosystems. The total forested area, with boreal forests predominating, is estimated at anywhere from around 760 million hectares to around 1,180 million hectares, with the UN's Food and Agricultural Organisation (UNECE-FAO) settling on 809 million hectares in its most recent study. The discrepancies are probably due to complexities in how the Russian Government classifies forest lands.

Estimates of Russia's timber reserves also vary but the most recent data from UNECE-FAO suggests 89 billion m³, with larch (30%) and pine (20%) the predominant species. Removals totalled around 186 million m³ in 2005, of which around 140 million m³ comprised industrial roundwood (see Figure 5). At this level, Russia ranks third globally to the USA and Canada in terms of the size of its annual timber harvest.

Removals have increased sharply in recent years, mainly due to demands for industrial roundwood, and especially for raw logs in export markets. The harvest classified as industrial roundwood has increased by around one-third since 2000. Fellings classified as for fuel wood (the difference between total removals and total industrial roundwood) have been more stable, running at between 45-50 million m³ per annum in recent years. However, removals remain well below the levels of the Soviet era - in 1990, removals were reported to be at least 300 million m³.

Figure 5: Russia timber harvest and log exports (million m³)



Source: Federal Statistics Service, UNECE-FAO, PricewaterhouseCoopers analysis

Russia is currently harvesting only around a third of the Government's estimated total technical annual allowable cut (AAC), which has been ranging from 500-550 million m³ in recent years.

While Russia has the resources to absorb substantial sustainable increases in timber harvesting, the gap between available resources and those which are being utilised is not as large as it may first appear. Many of Russia's forests are located in remote and inaccessible areas. The UNECE-FAO estimated in 2001 that more than half of Russia's forests are growing in perma-frost soil in Siberia and the Russian Far-East. Not only is it highly costly and difficult to develop infrastructure in these regions, the forests themselves are less productive, making logging less viable. Interfax-CNA also notes that the majority of timber resources near existing roads have already been removed.

Although exact figures vary, even the most conservative estimates suggest that Russia has the potential to substantially increase felling without jeopardising sustainability.

The more practical AAC based on economically available timber has been published as high as 382 million m³, although other calculations have been published indicating that it could be as low as 250 million m³. European industry associations also view this latter figure, still some 40% above present harvest levels, as a realistic harvest to be reached within the next 10 years, if necessary regulatory and industry changes are implemented.

All forests are state owned - the large majority are part of the Lesnoy Fond, or forest fund, which also includes non-forest lands. However, some belong to other government entities such as the Ministry of Defence or Ministry of Agriculture. Russia's forests have been divided into three categories which are organised around location and economic, social or environmental significance. Further, the Russian Government designates some forests as "specially protected natural territories", including nature reserves and parks, spas and national monuments. UNECE-FAO reported in 2001 that around 5% of forest fund lands fall under this classification - however as the forest fund also includes some non-forest lands, it is difficult to calculate an exact percentage. Various sources estimate that anywhere from 2-7% of Russia's forests are protected, according to common usage of the term.

Russia's woods are primarily northern boreal forests, while mixed and broad-leaved forest are found in the south. Russian forests include both coniferous and non-coniferous species, although the former predominates, particularly in the northern and eastern regions (see Figure 6).

Lesprom estimates that 80% of Russia's total timber harvest is concentrated in 15 of Russia's 88 regions. Those regions and their approximate outputs as a percentage of the Russian total are shown in Figure 7. These fall into four general clusters:

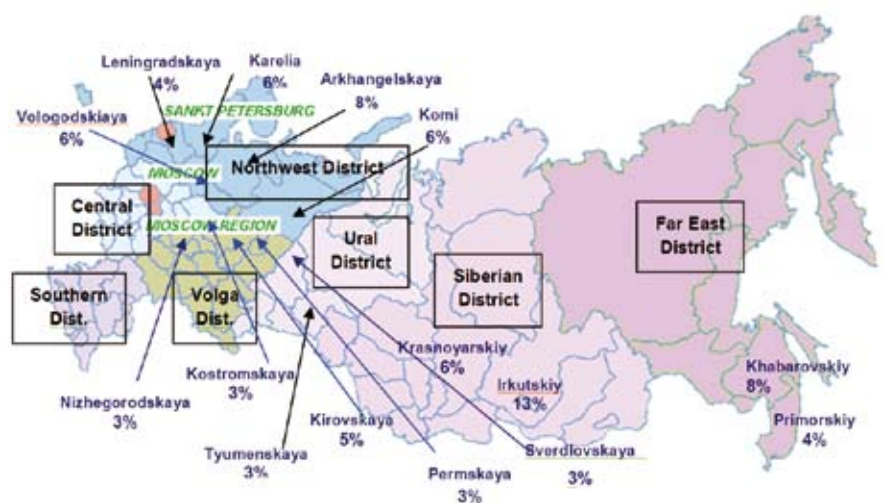
- The North-West, a preferred location for Western investors who, in addition to supplying the domestic market, wish to export to the West and/or tie in with the Scandinavian industry;
- South-Central Siberia along the two main trunk lines of the Trans-Siberian Railway, where the Chinese export market is of particular growing interest;

Figure 6: Map of predominant forest species



Source: Forest and Forest Products Country Profile, Russian Federation, 2001. UNECE-FAO.

Figure 7: Map of Russian Federal Districts and key forestry regions



Source: Lesprom, PricewaterhouseCoopers analysis

- The Far East, with maritime export routes throughout the Pacific Rim. It should be noted that the figures quoted for this region are probably understated as undocumented activity is particularly prevalent here;
- The Central & Volga districts in the European Russian heartland. While this is the smallest of the clusters in terms of forestry resources, it is a focus for the manufacture of value-added goods, given the high density and average affluence of the population. Moscow and the provincial capitals on the Volga command a highly disproportionate share of the nation's wealth.

Exports of raw logs have increased dramatically in recent years and were nearing the 50 million m³ mark in 2005 (see Figure 5). However profitability remains low and many small logging enterprises are struggling. The major consumers of Russian logs are European neighbours Finland and Sweden, and China, with notable outflows also to Estonia and Latvia. UNECE-FAO reports that officially recorded imports from China of Russian logs have increased 21 times since 1997, to near 20 million m³ in 2005. Of the additional 20 million m³ headed for Europe in 2005, around 85% was bound for Finland or Sweden. Hence over 75% of official raw log exports are to three adjacent overseas markets.

Although less dramatic, domestic timber consumption is also on the rise. UNECE-FAO reports that domestic consumption of roundwood in Russia grew annually by 3% on average from 2001-2005 and reached 92 million m³ in 2005. Despite increasing domestic demand, Russia still exports more than a third of total industrial roundwood removals.

Issues and Opportunities Facing the Logging Industry

Russia's forestry segment struggles with inadequate infrastructure and the impact of an enormous illegal logging industry. The summer of 2006 also brought some additional challenges, as the number and severity of forest fires surged throughout Russia.

The Russian Financial Control Monitor reports that Russia has 1.6 million km of lumber roads but needs four times more (30% are public roads, and 70% forestry roads). According to this source, only a small portion of these roads are surfaced, and of the unsurfaced roads, only around a third can be used year-round. Generally speaking, unsurfaced roads are most easily used in winter when covered with ice, and are passable during the dry summer, but are generally impassable in spring and autumn. A comparison of forest roads published by Lesprom indicates that Russia has only about 1 km of forest roads per 1000 hectares - in marked contrast to major forest centres such as Sweden and the USA, which have around 10 km/1000 hectares (see Figure 8). Germany and Austria have developed forest infrastructure even more intensively, with Germany leading the way at an impressive 45 km/1000 hectares.

Similar to the long-distance rail network, long-distance roads of varying quality can be found throughout European Russia and along the southern tier of Asian Russia. The rest of Asian Russia is largely accessible only by boat or plane.

Russia needs more forest roads. Some efforts are underway by the Government and private investors, but more road construction is imperative if production is to increase.

Both the Government and private industry are looking to improve transportation infrastructure. According to the FFA, 500 million roubles (\$17.7 million) was due to be allocated for road construction in 2006, with funds coming from the federal budget, regional and local budgets, and bank credits.

Foreign investors are also building roads themselves. Mondi Business Paper estimates that it builds 70 km of year-round forest roads per year, and Stora Enso has announced plans to invest about \$30 million in the construction of roads at leased wood blocks in the Leningrad region, nearly twice the level of planned spending of the Russian federal government in 2006.

Figure 8: Stretch of forest roads in Russia as compared to other countries, km/1k hectares



Source: Lesprominform magazine

Investors can address the shortage of forest roads by targeting locations that have water access. Indeed one of the latest announcements for a planned pulp and paper mill greenfield construction project has come from the Khanty-Mansiysk region in Western Siberia, where the planned mill is to be constructed on the banks of the Ob river. It should be noted, however, that all major Siberian rivers flow northward to the Arctic, and are only navigable for export purposes for around 3 months of the year.

Proximity to Russia's railway network can also be a critical advantage. Although service is slow by American transcontinental rail standards, and can be patchy in summer when large sections of track are often under scheduled maintenance, the service is on the whole remarkably reliable given the challenging state of Russia's geography and climate. The rail network is quite comprehensive across European Russia - in Asia it consists largely of two East-West trunk lines running close to the Chinese and Mongolian borders (see Figure 9). Northern Siberia and the northern Far East are largely without rail access. Furthermore, producers

are forced to own and track their own fleet of rail cars since the Russian state fleet is inadequate to meet current (and rapidly growing) demand.

Illegal logging is another serious challenge facing the industry in Russia. Reports on the scope of illegal logging vary widely. While in the past the Ministry of Natural Resources asserted that illegal logging only accounted for 0.5% of total logging in Russia, in March 2006 Valeriy Roshchupkin, head of the FFA, estimated the volume of illegal logging in Russia at 10-15%. Other sources in the industry have estimated that up to 20% of timber harvests might be classed as illegal, placing the level of illegal logging at up to around 30 million m³ at today's rate of cutting. In fact, some environmental groups believe that the actual rate of illegal logging is much higher. Regardless of the exact extent of illegal logging, it is clear that it is costly to the Russian economy and has a negative impact upon the legitimate trade in forest products, not least by keeping wood prices low, discouraging the development of value-added wood processing and consolidation in the logging sector.

Figure 9: Russian State Railway network - major long-distance lines



Illegal logging costs both the government and industry big money. Much needed measures like additional aerial and space monitoring and more railroad checkpoints are being taken to reduce illicit felling.

The Government is taking the problem seriously. Aerial and space monitoring technologies are now being employed in a number of regions with developed timber harvesting, and the FFA plans to expand the systems to include all harvested areas by 2007. In addition to spotting illegal loggers, the technology is intended to help monitor forest fires. In June 2006, official reports indicated that the monitoring system had identified around 1.2 million m³ of illegal logging. Clearly there is still a way to go to address the problem fully.

Regional authorities are also stepping up efforts to thwart illegal logging. The Siberian province of Irkutsk has announced plans to establish 10 new inspection points along the Trans-Siberian railway, one of the main transit routes from Russia to China.

The Europe and North Asia Forest Law Enforcement and Governance (ENA-FLEG) committee is leading the fight against illegal logging globally. Russia is a relative newcomer to ENA-FLEG, but is already looking to take a leading role in its activities. In November 2005, Russia hosted a Ministerial Conference in St. Petersburg. Cooperation between ENA-FLEG members and strategies for eliminating illegal logging and timber trading formed the focus of discussions. ENA-FLEG is looking to promote standard market regulation, forest management certification, and the marking of round wood to help fight illegal logging. The organisation has also acknowledged that rural poverty in forest areas contributes to

illegal logging in some regions, and stresses the need for reform of forest legislation, as well as enforcement of existing legislation.

Russia is expected to continue to focus on efforts to combat illegal logging during its current stint as G8 president. Domestically, more wide-reaching efforts to fight government corruption should have a positive effect. Shifting authority over forest resources from federal to regional authorities may pose new challenges, however, as it will necessitate transparent cooperation between the various ministries responsible for overseeing the industry.

Russia's forests cover a vast area and the logging industry is extremely fragmented. The predominance of small players makes illegal logging more difficult to combat, as illegal cutters often strip a small area and move on before satellite monitoring or other techniques are able to detect their activities. Efforts to increase vertical integration in the industry may therefore have a positive effect on the rate of illegal logging, by decreasing the number of small players.

On another note, Russia's forest industry may benefit from several global trends which focus on generating more value from forest resources. The introduction of biomass technology can allow mills to produce products with higher value-added while minimising environment impact. Harvesting natural forest products such as resin or wild berries can also generate revenues without necessitating extensive cuttings. Domestic demand for wood-based fuels may also increase in the short and medium term, reflecting a global trend towards increased use of renewable energy sources. There are export opportunities too, for example, through converting sawmill waste into fuel pellets. Realising these opportunities however requires technology, surmounting logistical difficulties and capital.

Forest certification has been receiving increased attention in Russia in recent years. Public procurement policies as well as private sector initiatives

are driving the push towards forest certification in all industrial wood-producing regions of the world. According to UNECE-FAO, less than 3% of Russia's commercially accessible forests were certified by mid-2006, compared to over 30% in North America and over 50% in the EU/EFTA area, so certification still has the potential to expand rapidly in Russia. When Russia's current Forest Code was adopted in 1997, one stated goal was to provide only certified wood to Western markets by 2007 - an ambition which clearly will not be met.

There is a proliferation of forest certification standards, but those with the broadest reach are administered by the Programme for the Endorsement of Forest Certification (PEFC) and the Forest Stewardship Council (FSC) respectively. The latter is far more widespread in Russia - however the National Voluntary Forest Certification Council has been developing the Russian State Forest Certification System (RSFC) since 2001, with the intention of obtaining an endorsement from the PEFC. In addition, the Russian National Council for Forest Certification (RNCFC) was introduced by the Russian Ministry of Natural Resources in 2004 under the auspices of the World Bank Sustainable Pilot Forestry Project. In September 2006, PEFC announced that this latter system would also seek PEFC certification through an umbrella organisation representing both RSFC and RNCFC.

Certification is on the rise, with FSC and PEFC systems gaining acceptance.

While certified products do not currently command a substantially higher price in the market, this may change as sustainable procurement policies continue to develop. Major domestic players like Ilim Pulp and APPM have ramped up certification efforts in recent years - in fact, Ilim Pulp has more FSC-certified forest in Russia than any other player

and, in a further major initiative, became the first domestic forest products producer to prepare a corporate responsibility report. Also, most Western companies operating in Russia are choosing to source certified wood as part of rigorous chain-of-custody and procurement programmes. Whilst Russia has ambitious aims in regard to certification, for the time being, the drive toward greater use of certified materials will likely be driven by those operators who export regularly to the West and Japan. Further, certification comes at a fairly high cost - so many logging companies are currently unable to finance instituting certification schemes.

Key Industry Players

The logging industry is dominated by small players. The industry consists of about 20,000 logging and harvesting enterprises, a substantial proportion of which are also exporting their products. These small players are often using old, outdated equipment and lack the resources, both human and financial, to utilise more sophisticated logging techniques. The largest players - Ilim Pulp Group (with facilities in the North-West and central Siberia), Titan Group (based in Arkhangelsk on the Arctic), Mondi Business Paper (based in Syktyvkar northeast of Moscow), Vologodskie Lesopromyshlenniki and Cherepovetsles near Moscow, Karellesprom (north of St. Petersburg, near Segezha), and Continental Management, with its diverse spread of smaller and medium-sized facilities - together account for perhaps only just over 10% of fellings.

The logging industry is extremely fragmented, with the largest players representing only around 10% of fellings.

Russia's Nordic neighbours are present in the Russian logging industry, although until recently the emphasis has mostly been on sourcing from local players rather

than developing their own operations. For example, UPM has a major wood sourcing organisation supplying its local wood processing facilities as well as its Finnish mills - according to company press releases, yearly wood procurement from Russia is about 5 million m³. At the end of 2005 it also acquired a local forestry enterprise in Tenterpriseikhvin just east of St. Petersburg. In 2004, Stora Enso purchased Russkiy Les, a logging business with long-term forest leases based also in Tikhvin, with a stated objective of enhancing control over the entire wood value chain.

Swedish furniture giant Ikea is also investing in Russian wood supply chains. Through Swedwood, it has made investments in Russian logging in order to supply raw materials for factories producing furniture to supply Russia's growing consumer market.

In Siberia and the Far East, there are many logging operations structured in various forms involving enterprises from Russia's Asian neighbours - China, Japan, Korea and even further afield from Malaysia.

According to several August 2006 press reports quoting Russian officials, China had agreed to lease 1 million hectares of Siberian forest over the long-term. Other press reports cited Chinese officials as denying the agreement. In September 2006 a statement from Russia's presidential envoy in the Siberian Federal District, Anatoly Kvashnin, indicated that talks were continuing. According to Kvashnin, the agreement would require China to process the timber in Russia, rather than export logs. If finalised, it would mark a new-era in Sino-Russian forestry cooperation and would also represent a significant step towards increasing the production of higher value-added wood products in Russia. Whatever the outcome, it seems clear that China will have an important role in the future development of the Siberian and Far Eastern forestry sector.

07 Processed Wood Products

While the sector as a whole has grown, wood processing still has room for substantial expansion in Russia. With the exception of plywood, all wood processing volumes are at lower or at much lower levels than in the Soviet-era (see Table 1).

Since 2000, the output of the wood processing industry, also shown in Table 1, has grown by over 20%. In plywood, particleboard and fibreboard, output growth over the period has exceeded 50%, generating a steady stream of exports in the case of plywood. Overall growth has been stalled by the slower recovery of sawn timber. Estimates suggest that growth will continue, with industry sources predicting that the wood-processing sector will expand output by more than 7% annually in 2006-07.

Plywood, particleboard and fibreboard are growing extremely rapidly - sawn timber output is also increasing, but at a more modest pace.

In contrast to output, domestic consumption has continued to shrink, with apparent consumption volumes in 2005 still around 10% lower than in 2000. This is entirely due to reduced consumption of sawn timber, as the consumption of panel products has expanded vigorously due, for example, to demands from the furniture industry.

The contrasting fortunes for sawn timber can in part be explained by the continuing lack of new low-level

Table 1: Production, trade & consumption of wood products

	1990	1995	2000	2001	2002	2003	2004	2005
Sawn Timber (million m³)								
Production	75	27	20	19	19	20	21	22
Exports	25	6	8	8	9	10	13	15
%	33%	22%	40%	42%	47%	50%	60%	68%
Apparent consumption	59	21	12	12	10	10	9	7
Plywood (1000 m³)								
Production	1,600	940	1,480	1,590	1,820	1,980	2,250	2,550
Exports	730	670	970	1,030	1,160	1,200	1,440	1,540
%	46%	71%	66%	65%	64%	61%	64%	60%
Apparent consumption	1,090	–	540	580	690	820	840	1,050
Particle board ⁽¹⁾ (1000 m³)								
Production	5,570	2,210	2,340	2,550	2,740	3,200	3,640	4,050
Apparent consumption	4,830	2,060	2,270	2,740	2,990	3,600	3,950	4,360
Fibreboard ⁽²⁾ (1000 m³)								
Production	1,550	750	890	960	1,050	1,090	1,160	1,380
Apparent consumption	1,020	530	650	940	970	1,190	1,210	1,390

Notes: (1) Particleboard comprises chipboard. Production and trade in OSB is negligible

(2) Fibreboard comprises hardboard and MDF, and small quantities of Insulating Board

Sources: UNECE-FAO, Federal Statistics Service, PricewaterhouseCoopers analysis

residential building and continuing deferral of building repairs. Also there is a preference for sawmills to produce for export, where their product is more highly valued than by the domestic market. Russia's mature forests produce a high quality, old growth product that is highly valued in export markets if/when processed to appropriate quality standards. The reduction in apparent consumption may be due, at least in part, to data collection difficulties, as the output of many small sawmills producing for local use, including house and dacha construction, is probably going unrecorded.

Smaller sawmill entities have taken over most of the production capacity from the Soviet era. Lacking subsequent investment, assets have generally degraded and productivity has declined. Nevertheless, despite arcane structures, ex-Soviet mill costs have generally remained low due to low wood prices and low production costs, such as labour and energy.

Although there are several exceptions, there is a clear need for most mills to either modernise or close and be replaced by entirely new capacity, if the sector is to respond

to government calls for more local value-added processing, meet the growing demands for quality sawn timber from export markets and, in due course, meet domestic demands.

Most sawmills will need to modernise or close and be replaced by entirely new capacity if the wood processing industry is to meet domestic and export needs.

Wood Markets Group has reported that many companies are accordingly already planning capital investments, particularly those which are able to capitalise on high export prices. This source also reports that profits made from sawmills on unprocessed log exports are expected to contribute to financing the construction of new mills.

The situation in wood panels is already much brighter. Lesprom reports that the availability of a large volume of low-quality wood, unsuitable for pulp and paper production, is driving strong development in the production of various types of panel boards such as MDF and chipboard. They forecast a continuation of this trend and an increase in Russia's share of world production in the short-term. Notable also is the absence of any significant OSB production, although there are investment plans to produce this type of board, which has gained significant market share, in North America especially.

Ironically for a country with such abundant wood resources and sawmill waste, chips and other residues, Russia imports sizeable quantities of particleboard and MDF. Typically, these imports are of higher quality than can be produced locally and are used in furniture manufacture. By 2005, Russia had become a net importer of both particleboard and fibreboard.

Key Industry Players

The structure of the wood products market varies by subsector. Sawn wood is still highly fragmented and is dominated by small, independent mills, with the top five producers accounting for only around 5% of output. The larger sawmills are primarily concentrated in North-West Russia with a small number of the larger mills in the Kostroma region near Moscow.

The largest entity, Titan Group's Forest Company #25, produces 330,000 m³ per annum. Titan Group is the major supplier of APPM, one of Russia's largest pulp and paper producers. In fact many of the larger sawmills are owned by vertically integrated groups, which combine logging operations, pulp and paper production and often panel board production also. Another significant enterprise, Lesozavod-2 is controlled by Continental Management, a group diversified across all industry sectors, including logging, wood-processing, pulp, paper, board and paper packaging.

In contrast to sawmilling, panel production is more concentrated and the larger mills are also more geographically dispersed. In fibreboard, the Swiss Group Kronostar, whose MDF plant in Kostroma north of Moscow (Central Federal District) started up in 2004, is by far the largest producer, with output of 42 million m² in 2005. Altogether, the top five producers account for around 35% of industry output. It should be noted that the majority of the domestically owned producers make hardboard, rather than MDF.

The largest plywood producer is Fanplit, also based in Kostroma, which is part of the Severstal group, whose major assets are in the steel industry. Fanplit produced around 360,000 m³ in 2005, and the top five producers account for around 40% of total output.

The largest producer of particleboard (chipboard) is Permskiy FK, based in the Perm region (Urals Federal

District), with 2005 output of 240,000 m³. Permskiy has no reported affiliation with any of the vertically integrated groups. In total, the top five producers account for around 25% of output.

UPM is probably the longest standing foreign investor in the sector, with its Chudovo operation in the Novgorod region (North-West Federal District), which has been producing plywood since 1988. UPM also opened a sawmill with a 300,000 m³ capacity in the same region in 2004. Further, UPM's aforementioned purchase of a Russian logging concern at the end of 2005 included two additional sawmills. Stora Enso also has two sawmills in North-West Russia.

Kronostar Group acquired an old particleboard mill in the Kostroma region in 2002, which it is now using as the production base for a broad range of wood panels - particleboards and fibreboards. The company reports its ongoing investment programme to be the largest wood panels investment project in Russia.

Investments in the Sector

Some investments in new capacity have been made in recent years, including a number of smaller investments in saw-mills and panel board plants, and additional projects are planned in the immediate future. Wood Markets Group reported in October 2005 that significant investment in sawmilling was underway, with plans for around 30 new sawmills to be built or expanded over several years. They estimated that if all of these sawmills were built, they would require around 4 million m³ of logs.

Lesprom has also reported an increase in investment in the sector - in 2005, they estimated that in the period from 2002-2005 new production facilities have been commissioned into operation with the design capacity of 2.5 million m³ of sawn timber, 230,000 m³ of plywood, 750,000 m³ of chipboard, and 828,000 m³ of MDF.

There is a busy pipeline of new investments, including the following: Metsa Botnia (Finland) opened a 200,000 m³ circa €60 million sawmill in the Leningrad region in 2006; Pfeleiderer (Germany) opened a major new particleboard mill near Novgorod in September 2006, with a capacity of around 500,000 m³. Fritz Egger (Austria) opened a mill for raw and melamine coated particleboard in the town of Shuya, near Moscow, with a capacity for raw particleboard of 250,000 m³. These two particleboard investments alone would expand current Russian production by well over 10%, once fully operational.

Stora Enso has also announced planned investments of over €40 million at its two sawmills - the investments will upgrade its sawmills to manufacture value-added products and will increase log consumption from 400,000 m³ to 750,000 m³ per annum.

Amongst new projects announced by local companies, of note is Evraz Holding's announced plans for the construction of a new fibreboard plant in Lesosibirsk, Krasnoyarski region, in

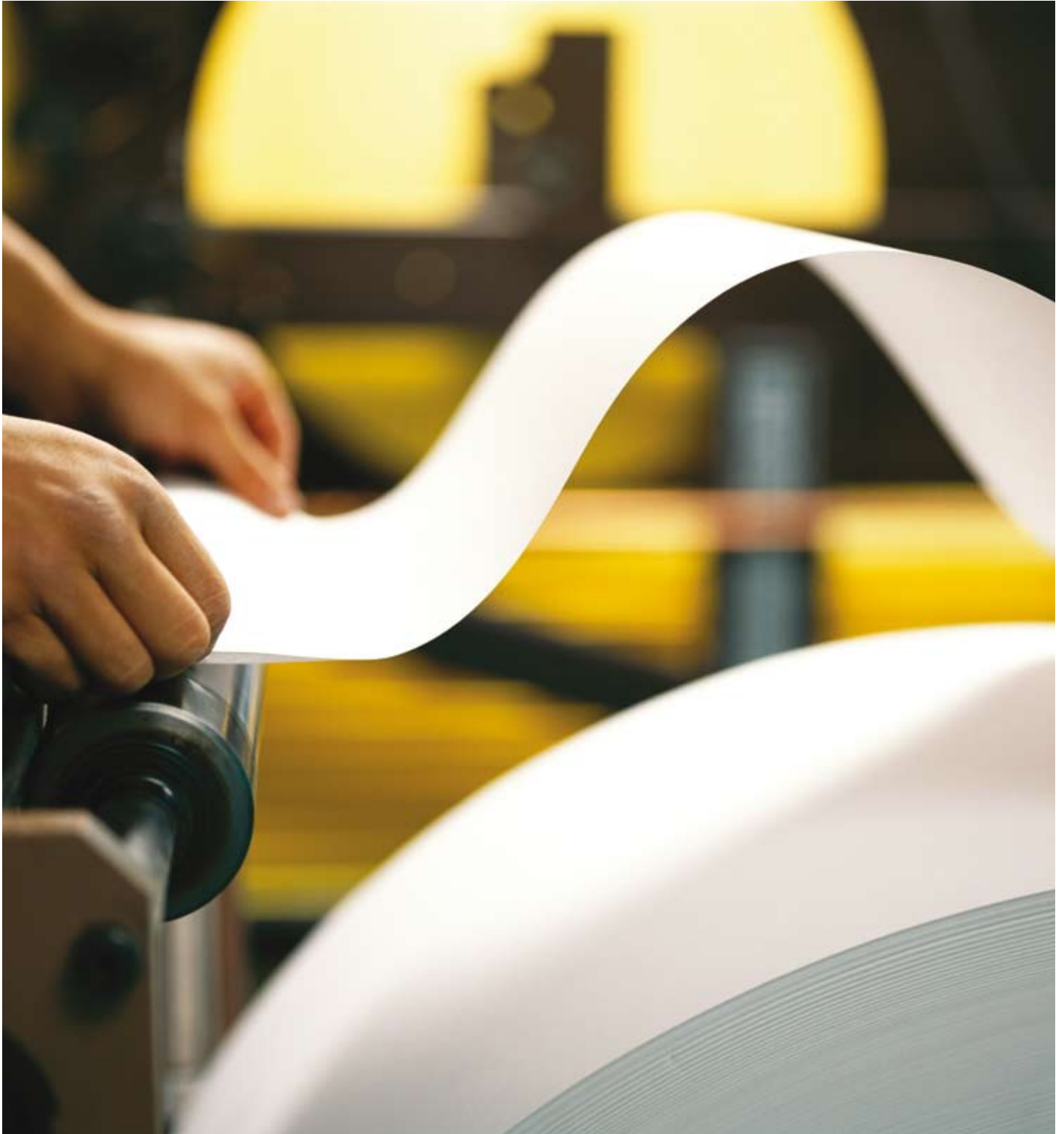
South-Central Siberia. Evraz Holding is best known as a metals company and this would represent its entry into the wood processing sector.

All of these new projects are expected to target both domestic and export markets.

Recent investments in processed wood products plus those in the pipeline look to transform this previously neglected sector.

With the recent investments plus those in the pipeline from Scandinavia, Germany, Austria and Switzerland amongst other locations bringing with them the latest wood processing technology and building scale capacity, this previously neglected sector is starting to be transformed.

08 Pulp, Paper and Paperboard



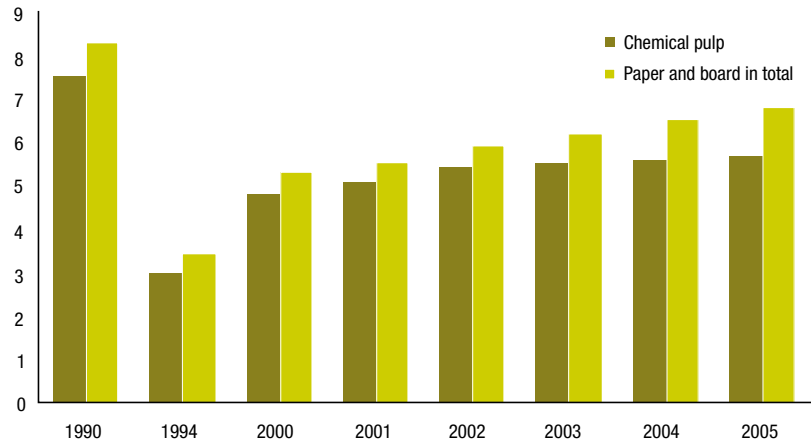
As in other forest products sectors, current levels of pulp, paper and board production remain well below levels at the end of the Soviet era (see Figure 10). Still, output has recovered strongly from the lows in the mid-1990s and has continued to grow this century. Pulp production in 2005 reached 5.7 million tonnes, up by almost 20% from 2000 and overall paper and board production at 6.8 million tonnes in 2005 was up by around 29% over the same period. Demand has also recovered from the lows in the mid-1990's, with apparent domestic consumption of paper and board up by around 45% since 2000 to reach 4.8 million tonnes in 2005.

Although design capacity for chemical pulp in 2004 was almost 7 million tonnes, implying an operating rate of 80-85%, the effective operating rate is higher given present asset conditions. Since the Soviet era, there have been increments to capacity at existing pulp mills, but no new mills - furthermore some of the Soviet era capacity has been closed. The pulp industry is now hard-pressed to keep up with demand.

Pulp producers are already operating at near capacity and the industry is hard-pressed to keep up with demand.

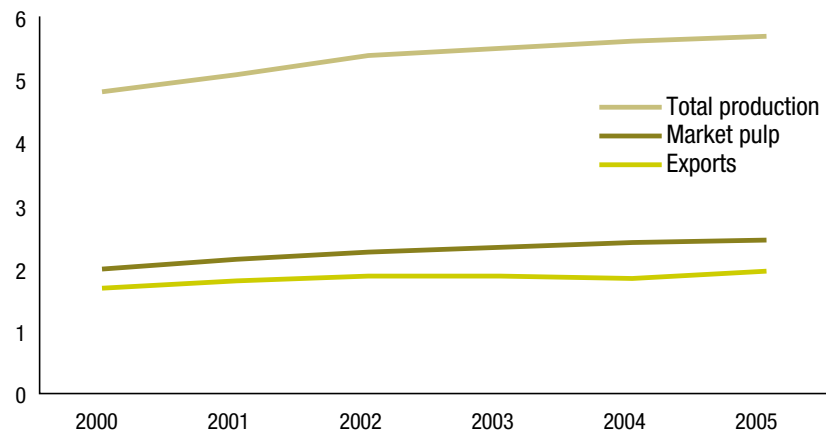
About 40% of total chemical pulp consists of market pulp, a ratio that has remained fairly constant since 2000 (see Figure 11). The majority of market pulp is exported, with exports varying between 75% and 83% since 2000. In fact, the export proportion has fallen slightly in the

Figure 10: Trends in overall pulp, paper and board production



Source: Federal Statistics Service 1990; Pyrabelisk other years

Figure 11: Chemical pulp - production and trade since 2000



Source: Pyrabelisk

past 2-3 years, reflecting growing domestic demand - there remains good demand for Russian pulp in export markets, with China remaining by far the largest market, taking close to 50% of exports.

During 2006, market pulp production levels have stalled due to problems at one producer and rebuilds connected with a capacity expansion at the leading producer, Ilim Pulp, so at present it looks that market pulp output will be little changed on 2005 levels until the incremental capacity comes on stream.

Paper and board production have risen steadily in recent years (see Table 2). But in 2005 the output exhibited a much slower rate of growth, than the 5.3% achieved in 2004, increasing by only 3.8% to 6.8 million tonnes. Growth slowed down particularly in the newsprint sector, and without strong increases in the output of corrugating materials, overall growth would have stalled out completely in 2005.

Strong increases in the output of corrugating materials drove overall growth in the paper and board sector in 2005.

Over the period since 2000, the strongest growth has been in printing & writing, and corrugating materials, up by 40% and 60% respectively. Although the growth of printing & writing output stalled in 2005, it has been on the rise again since. The growth in printing & writing has effectively all been in uncoated woodfrees, with the Svetogorsk mill (Leningrad region) and Syktyvkar mill (Komi region) leading the way, as both have invested in upgrading capacity. These mills, both of which are foreign-owned, by International Paper (USA) and Mondi (UK) respectively, have grown to meet increasing domestic demand for office papers and from printers. Mondi's mill also exports sizeable volumes.

Table 2: Production and consumption of various grade of paper and board products

Thousands metric tonnes	Production			Apparent consumption ⁽²⁾		
	2003	2004	2005	2003	2004	2005
Newsprint	1,815	1,979	2,007	624	654	664
Printing & writing	951	1,051	1,051	867	968	1,032
Tissue	159	165	167	168	182	186
Sack kraft	339	323	386	159	138	153
Liner & fluting	1,984	2,073	2,201	1,317	1,433	1,625
Cartonboards	308	315	262	484	543	554
Other Paper & Board ⁽¹⁾	637	622	703	586	587	584
Total	6,193	6,526	6,777	4,205	4,505	4,798

Notes: (1) Various grades the largest of which is wrapping papers

(2) Consumption is based on primary production volumes adjusted for net external trade in primary paper and board products. It does not take into account imports of converted paper and board products such as folding cartons and packaged tissue products.

Source: Pyrabelisk

With demand for corrugated materials closely related to overall GDP growth and ultimately growth in consumer spending, the output of all types of corrugated materials has expanded significantly in recent years, but at a rate scarcely sufficient to meet demand. Although most of the leading producers have expanded production over the period since 2000, the export of case materials has reduced to meet domestic needs, with the export proportion down from well over 40% in 2000 to around 27% in 2005. In contrast to most overseas markets, the production of corrugating materials is overwhelmingly from virgin fibre, with testliner and waste-based fluting representing little more than 10-15% of volume.

The other major grade produced is newsprint, where production levels have recovered to the point where they now exceed Soviet era levels. Production has risen steadily in recent years to meet both rising domestic needs and to feed demands from export markets, with the level of exports remaining consistently at close to 70% of output volumes over the past five years. With an abundance of reasonably priced softwood fibre and low energy costs,

the fundamentals for newsprint production are highly favourable.

In volume terms, Russia is a significant exporter of paper and board, with around 40% of industry output being sold overseas. Exports are led by newsprint, with India followed by Turkey and Germany being the largest markets. Russia is the world's third largest exporter of newsprint behind Canada and Sweden. Corrugating case materials follow, with China taking well over one-third of kraft liner exports. More than half of sack kraft production is exported to a wide spread of markets in Asia and the Middle East. Exports, albeit in reducing volumes, of lower quality uncoated woodfree grades mainly on reels continue to markets in the Middle East, but volumes are reducing as mills switch to higher-value woodfree grades - in this connection, the increasing exports from Mondi's Syktyvkar mill are notable.

Import volumes in paper and board have increased almost threefold since 2000, primarily in higher value-added grades.

Although export volumes have risen by around 25% since 2000, of much greater significance has been the trend in imports, with volumes in 2005 up almost threefold since 2000. Imports are dominated by higher value-added grades. The majority of imports comprise various printing & writing grades and cartonboards. The growth in domestic demand for higher quality paper for magazine printing and promotional purposes has attracted increasing quantities of coated mechanicals and coated woodfrees. Currently, Russia has very limited capacity to produce these higher quality grades. Further, despite the expansion of output by Mondi and International Paper in particular at their Russian plants to make high quality uncoated woodfrees in cut-size format, imports of cut-size have continued to grow strongly to meet the needs of a fast modernising

business sector. During a period when the production of cartonboard has levelled off, and indeed fell in 2005, imports of cartonboard have risen threefold over the past five years, dominated by imports of coated board to convert locally for use in the consumer goods sector. Lastly, tissue imports in reel form have increased fourfold since 2000, as local capacity has not grown fast enough to meet the demand for paper hygiene products from the growing consumer market.

Despite export volumes of paper and board in 2005 exceeding import volumes by a ratio of around 2.5:1, in value terms, exports at around \$1.3 billion were only 1.3 times import values, emphasising the inability of the Russian paper industry to meet the strongly increasing demands for higher quality paper products. That is not to say that the industry has not modernised since the Soviet era. It has, with much of the Soviet era capacity that has remained being upgraded. However, with most Russian producers operating at or near effective capacity, and with most sources indicating consumption of paper and board products will grow by perhaps 50% at least over the next five years, there is an obvious need for much more local capacity, especially in the higher value grades.

More local capacity and more efficient capacity is needed to meet local demand.

A word also on recycled fibre. Globally, the use of recycled fibre as a furnish is increasing in the paper and paper packaging industry, particularly in countries without a substantial forest base - for example, recycled fibre makes up 68% of the raw material used in paper and paper packaging production in the UK. Given the abundance of inexpensive wood fibre available in Russia, current low rates of domestic paper consumption, and an absence of recycling infrastructure for industrial

or end-users, recycled fibre is much less important to the paper and paper packaging industries than in many other regions of the world.

Recycled fibre plays a less important role in the industry than in other parts of the world.

According to Pyrabelisk Consulting, at present there are only two mills producing more than 100,000 tonnes of waste-based liner and fluting. Much of the uncoated cartonboard and tissue production are waste-based, but the quality of production is reported to be below Western standards. Pulp Mill Holding, an Austrian company that controls APPM, has been reported as having plans to open a test liner mill over the long-term.

Key Players

The pulp and paper industry is dominated by a few top players, with the five largest companies producing almost 55% of paper and board output (see Figure 12). However the remainder is highly fragmented, with reports of an additional 8,000 Russian companies involved in the paper and board production and converting process.

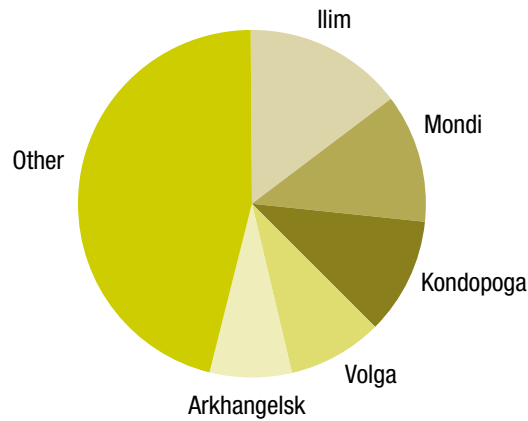
Reports suggest there are over 30 wood pulp mills in Russia, but this includes many small mills with capacity of under 50,000 tonnes per annum which operate sporadically at best. Ilim Pulp, with its three mills comprising Kotlas, in the Arkhangelsk region in the North-West, and Bratsk and Ust-Ilimsk, both in the Irkutsk region, in South-Central Siberia, dominates, producing over 2.2 million tonnes of chemical pulp, representing around 40% of total industry output. Altogether, the top five producers account for over 70% of chemical pulp production (see Figure 13).

The situation is even more concentrated in market pulp. Ilim Pulp accounts for nearly 60% of market pulp, with its 680,000 plus tonnes per annum capacity Ust-Ilimsk mill devoted entirely to market pulp. Altogether the top five pulp producers account for almost 80% of market pulp, however it should be noted that Mondi and International Paper produce solely for internal use.

Almost 80% of market pulp is accounted for by 3 players.

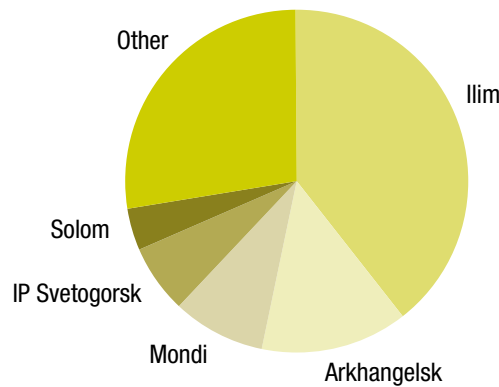
Ilim Pulp is also the largest paper & board producer with output of containerboard, cartonboard, kraft paper and uncoated woodfreees totalling over 1 million tonnes. Ilim's paper production facilities include the Bratsk and Kotlas mills plus the St. Petersburg Cartonboard & Printing Mill. Taken with its pulp operations, sawmills, panel board mills and logging operations, Ilim Pulp is the largest, most broadly-based and vertically-integrated forest products

Figure 12: Russian paper producers (total market 6.8 million mt)



Source: Pyrabelisk, PricewaterhouseCoopers analysis

Figure 13: Russian chemical pulp production (total 5.7 million mt)



Source: Pyrabelisk, PricewaterhouseCoopers analysis

business in Russia. Through Kotlas and Bratsk, it is the leading producer of containerboard, with annual output of around 500,000 tonnes, equivalent to around 25% of domestic production - through St. Petersburg Board, it is the largest producer of cartonboard, with annual output of over 200,000 tonnes equivalent to around one-third of domestic cartonboard production of all types.

Ilim Pulp ranks second to Segezha in sack kraft and also produces almost 100,000 tonnes of uncoated woodfrees.

Kondopoga and Mondi each have outputs of between 750-800,000 tonnes in paper. Kondopoga, based in Karelia adjacent to Finland, only produces newsprint and is the market leader in that grade with a share of just under 40% - over 75% of its output is exported.

Mondi has been present in Russia since 2002, when its Austrian arm, Neusiedler purchased the Syktyvkar Forest Industry Complex (Syktyvkarsky LPK) in one of the largest investments to date. Located in the Komi Republic 1,200 km North-East of Moscow, the facility is now operated by Anglo-American's Mondi Business Paper division. Since acquisition, Mondi has invested to upgrade the facility, including rebuilds to expand capacity, grade switches and enhancing environmental performance - it also divested non-core operations such as the complex's tissue and plywood mill. In 2005, the facility produced around 780,000 tonnes of paper, comprising almost 400,000 tonnes of uncoated woodfrees where it is the clear market leader, nearly 200,000 tonnes of kraftliner and 190,000 tonnes of newsprint. The site also produces around 500,000 tonnes of chemical pulp for use in the group.

Volga Pulp and Paper Mill and APPM are also major players in the market.

Volga, owned by the Ost-West Group, an investment fund, is located in the Nizhegorodskaya region (Volga Federal District) and concentrates on newsprint. The mill has a capacity

of around 600,000 tonnes, making it number two to Kondopoga. Company sources estimate it has a 32% share of the newsprint market.

APPM is affiliated with the Titan Group and Pulp Mill Holding and has a capacity of around 540,000 tonnes, of which 450,000 tonnes is in kraftliner and SC fluting. It ranks second to Ilim in corrugated case materials - between them these two top players control around 45% of the market.

Solikamsk and International Paper (IP) both produce at levels just under those of the top 5 producers. Solikamsk is an independent producer of newsprint based in the Permskaya region in Western Siberia (Urals Federal District), with output of around 470,000 tonnes per annum. Together with Kondopoga and Volga, it is considered one of the big three in Russian newsprint, which account for over 85% of total newsprint output.

IP purchased the Svetogorsk Pulp and Paper Mill in 1997 from the Swedish group, Tetra Laval. IP has subsequently made continued investments in the mill. It has a current capacity of around 400,000 tonnes of paper and board and has integrated pulp capacity of around 340,000 tonnes. Production at the mill is concentrated on high quality cut size uncoated woodfrees, for which capacity is around 320,000 tonnes. It ranks second to Mondi in uncoated woodfrees and between them they account for almost 70% of production of this grade. The remaining capacity is devoted principally to liquid packaging board. The plant is well located on the Finnish border and close to both the sea and the Helsinki-St. Petersburg rail line.

Below these large producers is a long list of smaller mills. Although several are linked by either common ownership or influence, they do not appear to be managed on a coordinated basis.

The sack kraft and tissue markets complete the overall paper and board picture in Russia. In the former, market leader Segezha, produces

well over 50% of both sack kraft and industrial sacks. Segezha is an integrated producer based in Karelia - apart from sack kraft it also produces kraft liner. The company has invested in increasing production, both in volume and quality, and reached the international headlines recently when it completed the acquisition of Korsnas Packaging of Sweden at the end of May 2006, for a sum reported to be around €74 million. This transaction propels Segezha into the clear second position globally in sack kraft and industrial sacks and represents the first overseas acquisition by a Russian forest products producer.

Segezha, a sack kraft producer, recently became the first Russian forest products producer to make an overseas acquisition.

The tissue market has grown strongly in the past three years. Local production is concentrated on three producers, two local and one foreign, which between them are reported to account for 75% of output. They are Naberezhno-Chelninsky and Syassky mills, and SCA Hygiene Products (Sweden). SCA has now overtaken Naberezhno-Chelninsky to become the market leader in toilet rolls. Georgia-Pacific (USA), now part of Koch Industries, has also established a converting plant based on the import of jumbo reels from its plant in Finland.

Investments

There have been no new mills built or new machines installed in recent history, so when one of the smaller producers, Neman Pulp Mill, which is the largest asset of St. Petersburg-based North-West Timber Company, announced in September 2006, that it had commissioned a 60,000 tonnes per annum capacity machine at its new paper mill, its press announcement claimed that it represented the first new capacity

in the post-Soviet era. According to company sources, the last new capacity was commissioned in 1988 and the new machine represented the first new capacity installed by the private sector. The equipment was in fact a second-hand machine brought in from the UK and rebuilt to produce quality uncoated woodfree papers.

Nonetheless substantial investments have been made in the sector in recent years; but in the main it has been incremental, such as rebuilds, upgrades or de-bottlenecking investments, often to bring effective capacity closer to design capacity.

Industry investments in recent years have been primarily incremental, such as rebuilds or upgrades meant to bring effective capacity closer to design capacity.

Government officials and company executives have been championing more investment and several studies have confirmed the validity of both the need and the potential opportunities that exist in the Russian market. Russian assets are, on average, quite old - a study by Poyry Consulting shows that the average technical age of paper and board capacity is currently 22-23 years, compared to an average of 18 years for the main paper and board producing regions of the world. Average capacity is hovering around 100,000 tonnes per annum - this compares with a global average of 165,000 tonnes pa. In pulp, the average technical age of assets is a whopping 25-27 years, compared with a global average of 13-17 years. On the other hand, Russian average theoretical pulp mill capacity is above the world average, reflecting the large scale of investments from the Soviet era, eg Ilim's mills.

The gap in machine capacity is even greater than it first appears, as much of the Russian industry is still unable to reach theoretical levels. However,

as the gap between effective and design capacity closes, the imperative to invest in new machines and new mills, or at least substantial upgrades to existing facilities, grows ever more pressing.

These types of improvements are generally very capital-intensive. As noted, Bumprom estimated in 2004 that the industry will need \$12.5 billion of investment in the period from 2004-2015 in order to reach its potential.

As previously noted, the Ministry of Energy and Natural Resources is developing a target programme to support development of production capacity in wood-processing and the development of the forest massif. In a May 2006 interview with Kommersant, Petr Peredery, deputy director of the industrial department of the Ministry of Industry and Energy, reported that the federal government was looking at around 200 proposals from the regions, and would probably choose 5-6 proposals for pulp and paper plants to support. He stressed that while the Government expects investment in pulp, the greater need is for facilities producing high value-added paper and board products.

A number of new pulp mills have been announced, however none have yet been confirmed.

There have been many announcements about new mills and new machines, but few appear to come with the specific details as to timing, financing etc. A selection of actual, proposed or possible investments are listed below, with those in pulp leading the way:

- Ilim Pulp is in a two-phase, \$45 million expansion of capacity at Ust-Ilimsk; the first phase increasing overall capacity to 680,000 tonnes per annum has been completed; the second phase, scheduled for completion in 2007 will add a further 70,000 tonnes. Press reports also indicate that Ilim Pulp plans to invest \$1.2 billion to increase production over the period 2006-2010.
- At Svetogorsk, International Paper is undertaking construction of a 200,000 tonnes per annum high-yield pulp line which is expected to start up at the end of 2006. Some sources suggest that IP is also considering investing around \$1 billion in a new mill, however this has not been confirmed by the company.
- A potential new entrant is Norway's Larvik Cell, which has announced plans for a €400 million high yield pulp mill in the Pskov Region in North-West Russia. The proposal, which is being championed by the regional government, would involve a mill with a capacity of 600,000 tonnes per annum with start up in 2009. Larvik Cell is the member of the Estonian Cell equity consortium, which recently started up a smaller high-yield pulp mill at Kunda in Estonia. Very recently, the Pskov regional government announced a further phase was being considered, involving a new cartonboard mill, which would increase the total project cost to €800 million. Details such as financing and participation remain unclear.

- Baikal Pulp and Paper based near Irkutsk and Continental Management's single largest forest industry asset, plans to upgrade the mill's environmental performance and overhaul the pulp line to increase capacity by 100,000 tonnes to 300,000 tonnes per annum.
- Anglo American, Mondi's parent, announced it was considering a \$1.5 billion pulp mill at its Syktyvkar site, but no further details are forthcoming at this stage.
- Both Stora Enso and Metsa-Botnia are known to have long-term ambitions to build pulp capacity in Russia. The wood supply chains, including logging, chipping and sawmilling activities in Russia may be laying the ground for pulp investments, but sources suggest that 2010 would likely be the earliest date for any such project to be completed.

Taken together, these plans, whether being implemented or just possibilities, would represent a huge increase in current capacity. They also bear testimony to the attractiveness of Russia's abundant and low-cost fibre basket. It will be interesting to see how many of these plans materialise.

If even some of the planned or possible projects in pulp come to fruition, there will be a huge increase in current capacity.

At the other end of the value chain, there are strong moves in tissue, designed to take advantage of Russia's growing consumer market:

- There was an announcement early this year that Georgia-Pacific, which owns a converting mill in Ivanteevka in the Moscow Region, plans to invest in the construction of a hygiene paper mill in Schelkovo, in the Tver region near Moscow. If it materialises, it would be, according to the announcement, Georgia-Pacific's largest project in Europe.
- SCA, which has owned the Svetogorsk Tissue mill since 1998, recently announced plans to build a new mill to produce and convert tissue in Tula, some 150 kms south of Moscow, with projected completion in the spring of 2008. SCA's total investment in the Tula mill would be around \$60 million.

Finally, China is seen as an important future investment partner, particularly given the severe fibre deficit in that country. Accordingly, there have been a series of announcements related to greenfield pulp mills, involving either Chinese partners or otherwise aimed at the China market - two are commented on here:

- It has been reported that the new Amazar pulp mill in the Chita Region (Siberia), with a projected capacity of 400,000 tonnes of unbleached pulp per year, is already under construction, with investment coming from China. However, this has not been confirmed and some sources suggest the project is dead.
- Another Chinese investment project calls for the construction of a pulp plant in the Amur Region (Far East) with a capacity of 300,000 tonnes per annum.

09 Packaging



The modern packaging industry is a fairly new phenomenon in Russia - during the Soviet period, Russia relied on extremely bare-bones, no-frills boxes to fill most packaging needs. Merchandising as it is currently understood in the west began with the transition to a market economy in the early 1990s.

During the 1990's Russia's packaging market grew along with consumer markets, and the strong macroeconomic trends starting around 2000 have created a burgeoning market, with annual growth rates of around 10-12%. The packaging market surpassed the \$20 billion mark in 2004 and the general consensus of industry analysts anticipates that it will continue to grow strongly in the period from 2005-2009 - estimates range from 10-20% growth (in value) per year (see Figure 14).

In 2003, average packaging consumption in Russia was about 80 kg per capita, which is well below levels in Europe, the US, and Japan, and strong growth is expected to continue in most sectors.

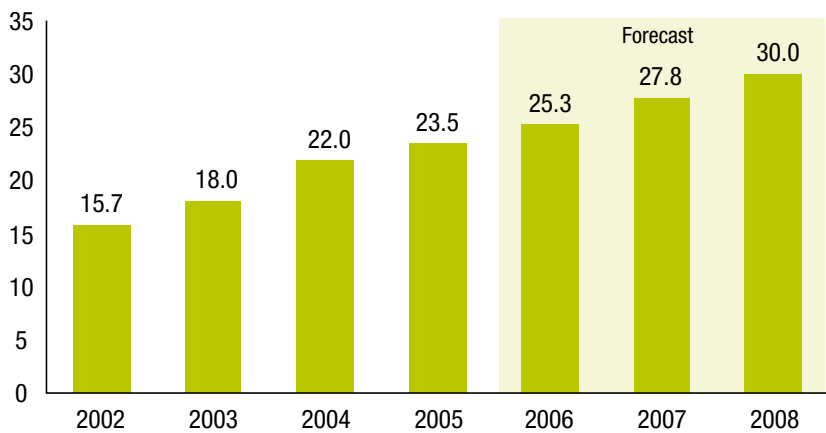
Packaging consumption growth is strong in Russia and is expected to continue.

Overall packaging consumption in 2005 was over 52 million tonnes according to Prado Consulting. However, this figure includes over 20 million tonnes of industrial metal packaging, and therefore appears to include, for example, steel shipping containers. Of the 52 million tonnes total, around 75% is 'industrial'

(predominantly metal) and around 25% is 'consumer' (predominantly glass).

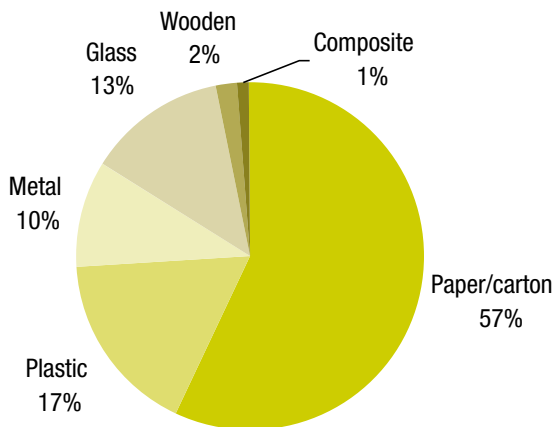
The proportions are quite different when measured on a value basis. Of the \$20 billion+ market, around 80% is industrial (predominantly paper & carton), while 20% is consumer (a mix of paper/carton, plastic, glass, aluminium and composites). The composite picture by value is shown in Figure 15.

Figure 14: Russian packaging market, \$ billion



Source: Russian Packaging Market overview, October-November 2005. PRADO consulting

Figure 15: Russian packaging market - total by type, by value



Source: Russian Packaging Market overview, October-November 2005. PRADO consulting.

At 20% of total value, the Consumer portion of the market is low by global standards – in most developed countries consumer accounts for 60-70% and Industrial for only 30-40%. However, the consumer segment is the faster-growing segment – just 10 years ago it accounted for only 10% of the total market, and its current growth rate of 15% pa. outstrips industrial's 10-12% growth rate.

Although the respective definitions of 'industrial' and 'consumer' packaging are not always clear-cut, these ratios nevertheless show that Russia's market is immature, but developing rapidly.

Russia's packaging market is currently immature, but developing rapidly.

Paper and paperboard dominate the Russian packaging market and are growing strongly. Plastic, glass and metal each maintain smaller shares while wooden packaging is quite rare (see Figure 15). As Russia's packaging market develops, plastic will probably play a larger role.

The single largest Russian market for packaging is the food industry - roughly 50% of packaging as a whole and 70% of consumer packaging is used by the some 25,000 entities making up the food industry. In this sector, flexible packaging such as thin plastics and paper are preferred. Euromonitor predicted in 2005 that packaging volumes in the food sector would increase sharply, with paper-based containers expected to increase by 70%, liquid cartons by 32%, rigid plastic by 28%, and flexible packaging by 33% before 2007.

Russia currently has only about 2% of the global packaging industry's capacity and is not able to meet this growing domestic demand - however, investments in the industry are on the rise and the outlook seems bright.

Russian packaging manufacturers are investing in modern technologies and improved graphic capability - according to one industry observer, Russia imported over 500 modern

flexographic printing presses between 2002 and 2005. These new technologies correspond with an increasing interest in promoting consumer brands, often by using cultural icons such as versions of the famous Russian matryoshka, or stacking doll.

Paper Packaging

Paper-based packaging is one of the fastest growing sectors of the forest, paper & packaging industries, with nearly all segments showing strong increases in recent years. Consumption of primary papers, – containerboard, cartonboard and sack kraft – increased by 10% in aggregate volume in 2005. The growth in primary paper packaging materials is mirrored in the growth of converted products. Production of paper bags increased by 8%, and production of paperboard containers by 26% (see Table 3). Profit margins in the high double-digits are reported to be not uncommon amongst converters, as growth in demand continues to outstrip growth of supply, keeping pricing more buoyant than in mature markets.

Table 3: Production and consumption of selected types of paper packaging

Materials	Units	2004	2005	% change
Cardboard boxes	Million m ³	1,732	1,939	+12%
Paper bags	Millions of pieces	487	526	+8%
Paper and board containers for consumer applications	Kilotonnes	98	124	+26%

Source: Lesprom

Paperboard packaging is primarily used in the food industry, chemical industry (including cosmetics) and by producers of household and office equipment. About 70% of paperboard packaging production in Russia consists of corrugated board, 80% of which is used for shipping purposes. Per capita consumption of corrugated board remains substantially less than in Europe, so additional growth can be expected as Russian consumers improve their standard of living. Folding carton makes up the bulk of the remainder.

Key players

The board converting industry remains fairly fragmented, with more than 150 companies producing various types of packaging, predominantly corrugated board and boxes. Production is located primarily in Russia's population centres, including nearly a quarter in the Central Federal District, which encompasses Moscow and surrounding areas.

The largest single producer is APPM, a vertically integrated producer which made nearly 300 million m² of corrugated sheeting in 2005. Other major domestic companies include Gotek and Naberezhno-Chelnisky, both of which make over 200 million m² of corrugated board.

The largest foreign-owned producers, all featuring in the top eight, are, in order: Stora Enso Packaging (Finland), SCA Packaging (Sweden) and Smurfit Kappa (Ireland).

Larger players, both domestic and foreign-owned, have a definite advantage in corrugated production, as they are able to meet the needs of large customers and finance capacity expansions. Indeed, the 8 largest players produce nearly 60% of output, with numerous small players producing outputs of less than 10 million m². These smaller companies are generally being squeezed as they struggle to keep pace with the needs of customers.

Production of folding cartons has also grown rapidly in recent years. The largest market segments are cigarettes, confectionery and dairy products (for liquid packaging board). This market has become highly fragmented.

In folding cartons, Western players are the driving force in meeting the increasingly sophisticated demands of consumer goods producers, many of whom are also western companies.

In order to meet quality expectations, Western-owned converters are largely using imported coated cartonboard and folding cartons, as these qualities are unavailable in the quantities needed to meet domestic demand. They have also introduced the latest die cutting, press, laminating and printing equipment.

Tetrapak (Sweden) was the first foreign company in the Russian packaging market. Tetrapak arrived in the early 1990s and opened its third facility in 2006. Other significant investors include A&R Carton (Sweden), Amcor (Australia), Mead Westvaco (USA), and Mayr-Meinhof (Austria). Alcan Packaging (Canada) started up in 2006 producing cigarette cartons. Amcor and Alcan Packaging have also recently started up flexible plastics packaging plants.

Amongst the domestic players, St Petersburg Board (part of Ilim Pulp) is the largest and an integrated producer. In recent years, investments have been made to upgrade its facilities. However, like most of the domestic players, St. Petersburg Board's production is still primarily based on lower-grade uncoated cartonboard, for example, as used for detergents. Many of the other domestic players produce folding cartons along with other forms of packaging and tend as a result to lack the specialisation, for example in printing technologies, of their Western-owned competitors.

Investments

Most of the investment projects recently announced are expansions to corrugated sheeting/case or folding carton capacity, reflecting the strong growth prospects in these segments. For example, in May 2006, Stora Enso announced plans to build a third corrugated board plant-at Lukhovitsy, 130km South-East of Moscow. Once complete in 2008, Stora Enso will have corrugated board capacity of 350-400 million m² at three mills in Russia, which, according to the company, will make Stora Enso the market leader in the Central and Volga regions.

Non-paper Packaging

Plastic Films

Plastic packaging has emerged as the second most important packaging substrate produced in Russia. Demand is on the rise and local players are stepping up to meet it, investing in new equipment and developing the capabilities to create more sophisticated products including better-quality printable material and laminates. Production of plastic films is expected to increase at an annual rate of around 12% (source: Prado). Producers in Russia are usually either petrochemical firms or subsidiaries thereof, and are widely scattered geographically.

In 2005, overall Russian capacity of PET bottles for beverages amounted to 12-13 billion pre-moulds, corresponding to about \$550-600 million per year in annual sales. Prado indicates that production of PET bottles has been increasing at roughly 7.5-8.5% annually in recent years, although observers expect this rate to slow in the future. PET bottles are transparent, light-weight, and sufficiently rigid to withstand automated filling. Future growth areas for PET bottles include shower gels, shampoos, conditioners and household care. PET bottles have also made serious in-roads into the beer market, where they hold an unusually large share of the market - around 2.3 billion litres of beer are packaged annually in PET bottles in Russia, compared with around 4.5 billion litres of beer in Europe as a whole.

Thin wall plastic packaging is also gaining in popularity. Mostly used for dairy products, this type of packaging is viewed as functional and cost-effective. Shifting consumer preferences are also driving increased use of this type of packaging in other sectors, such as baked goods.

Squeezable plastic tubes currently make up a very small share of the market, however local production facilities are being established. This type of packaging will probably also grow strongly in the near future,

particularly in the local cosmetics industry which is expected to burgeon along with increased purchasing power.

Glass Packaging

Glass packaging is the third most important packaging type. Again, the food and drink industry is the primary consumer, with 70% of units going to package food and beverages. Glass is strongly positioned in the alcoholic beverages segment, and benefits from a well-established recycling system. Sales remain generally strong and output has been increasing by 12-15% per year, according to Prado.

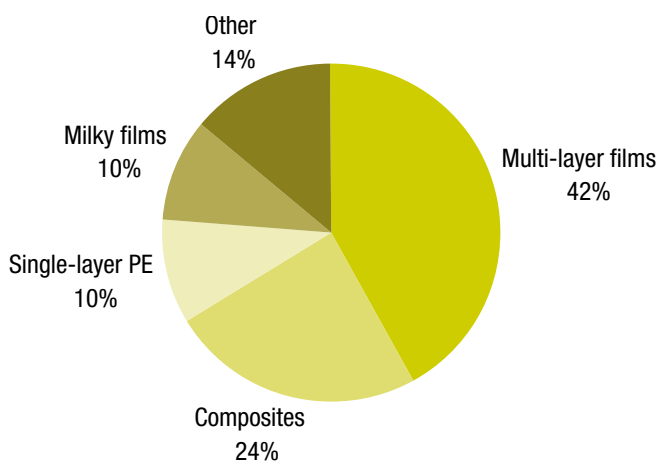
Not all the signs for glass are positive over the long-term, though. Despite growth, glass is losing market share in some important segments - PET bottles and aluminium cans have made inroads into the beer market, and liquid cartons are gaining popularity with wine manufacturers and producers of dairy products. Some products, such as premium juice brands, ketchup and olive oil will probably continue to prefer glass as a marker of higher-quality.

Other segments using glass include perfume and toiletries, and the medical and chemical industries. The demand for glass by over-the-counter healthcare producers is currently on the decline, as rigid plastic bottles gain in popularity.

Metal Packaging

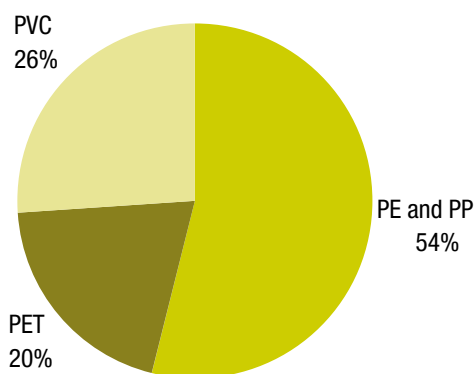
Metal packaging occupies several key niches in the Russian market. Rigid ("tin") food cans are showing a modest annual growth rate of 2-3%, according to Prado, who also note that rigid cans as a sector would probably be growing faster if there were more high-quality, world-class producers. However, for the moment, the product offering is generally still of Soviet era quality. Some Western investors are trying to improve the supply situation, in particular pet food producers such as Mars/Pedigree.

Figure 16a: Russian plastic packaging production by type



Source: PRADO consulting. Russian Packaging Market

Figure 16b: Russian plastic packaging by chemistry



Source: PRADO consulting. Russian Packaging Market

If food can producers provide quality, innovative products that meet the growing interest of Russian consumers, the sector should deliver further growth.

For example, decorative tins for tea and coffee have shown a revival in recent years, with some manufacturers investing in highly artistic lithographed tins featuring local architectural landmarks. Metal biscuit tins are also seeing increased sales as premium gifts.

Use of aluminium beverage cans, in contrast, is growing strongly. In 2005 Russia's capacity to produce aluminium cans for beverages reached close to 4.4 billion units annually. This reflects strong growth of around 25% per year from 2003-2005, following a

steep surge from 2001-2003, when capacity more than doubled.

A large part of this increased capacity has been used to package beer. Canned beer has sky-rocketed in popularity, thanks to advertising efforts on the parts of brewers. Cans' share of the beer market was a miniscule 0.2% in 2000, but reached 13% in 2004.

Key Players

Approximately 6,000 companies are engaged in local packaging manufacture in Russia. This number represents a steep increase from the 1,000 companies active in the industry in 1996. However, many of these companies are extremely small with little or no market share.

There are currently around 85 glass packaging plants (disregarding small entities) in Russia, primarily concentrated in the Central Federal District, where 45% of total glass packaging production is located.

Leaders in production of glass packaging in Russia include: RKM holding (which has three plants – Sital in Smolensk region, Kavminsteklo in Stavropolkray and Kamyshin in the Volgograd region); Ruscam, the Russian subsidiary of Anadolu Cam, a major Turkish glass packaging producer and part of the Siseecam group, with plants at Pokrovsky in the Vladimir region and a new plant at Ufa; the Russian-American Glass Company (RASCO) with three plants in Russia (Anopinsky in the Vladimir region, Voronezhsky and Khromatron in Moscow); and the VedaPack company, located in Kingisepp in the Leningrad region and owned by the integrated business group Veda.

Increased production volumes and improved quality based on technological advances in recent years have enabled some Russian glass packaging companies to begin low-level of exports. Veda has been exporting glass packaging to Finland since 2004.

Foreign investors have shown some interest in the market. In addition to

Siseecam's interest in Ruscam, France's Saint Gobain acquired majority stakes in the Russian companies Sital and Kavminsteklo in 2005.

Rigid plastic HDPE and PET bottles are fairly new to the Russian market, however around 100 local manufacturers have emerged since 1996. The number of flexible packaging manufacturers in Russia has also increased greatly, rising from only 8-10 companies in the mid-1990s to around 70 currently. Russian producers control about 80% of the flexible packaging market in Russia, while foreign suppliers account for the remainder, with Alcan Packaging and Amcor being two of the most recent entrants.

The major plastic bottle pre-mould producer in Russia is the integrated business group NB-Retal, a company resulting from the merger of a Russian and a Lithuanian producer in 2005. The merged entity has a capacity of around 7.5 billion PET bottle pre-moulds, or around half of Russia's overall production capability - although some of this capacity is located elsewhere in Central and Eastern Europe. The second largest PET bottle pre-mould manufacturer is the company Europlast, which can produce approximately 2.4 billion PET pre-moulds a year. Russian soft drink and vegetable oil producers are also starting to self-manufacture pre-moulds from granulated polymer, which may jeopardise the market position of these two major players.

The fast-growing Russian beverage can market is dominated by two producers – ROSTAR (RUSAL Group) and Rexam.

The integrated metals group RUSAL with its ROSTAR plant in Dmitrov in the Moscow region and ROSTAR – Vsevolozhsk in the Leningrad region, and the UK's Rexam with its plant in Naro-Fominsk near Moscow, clearly dominates the market. The latter is the biggest beverage can plant in Russia and is capable of producing 2.5 billion units a year. Sheet metal is supplied by subsidiaries of Alcan and Alcoa.

Investments

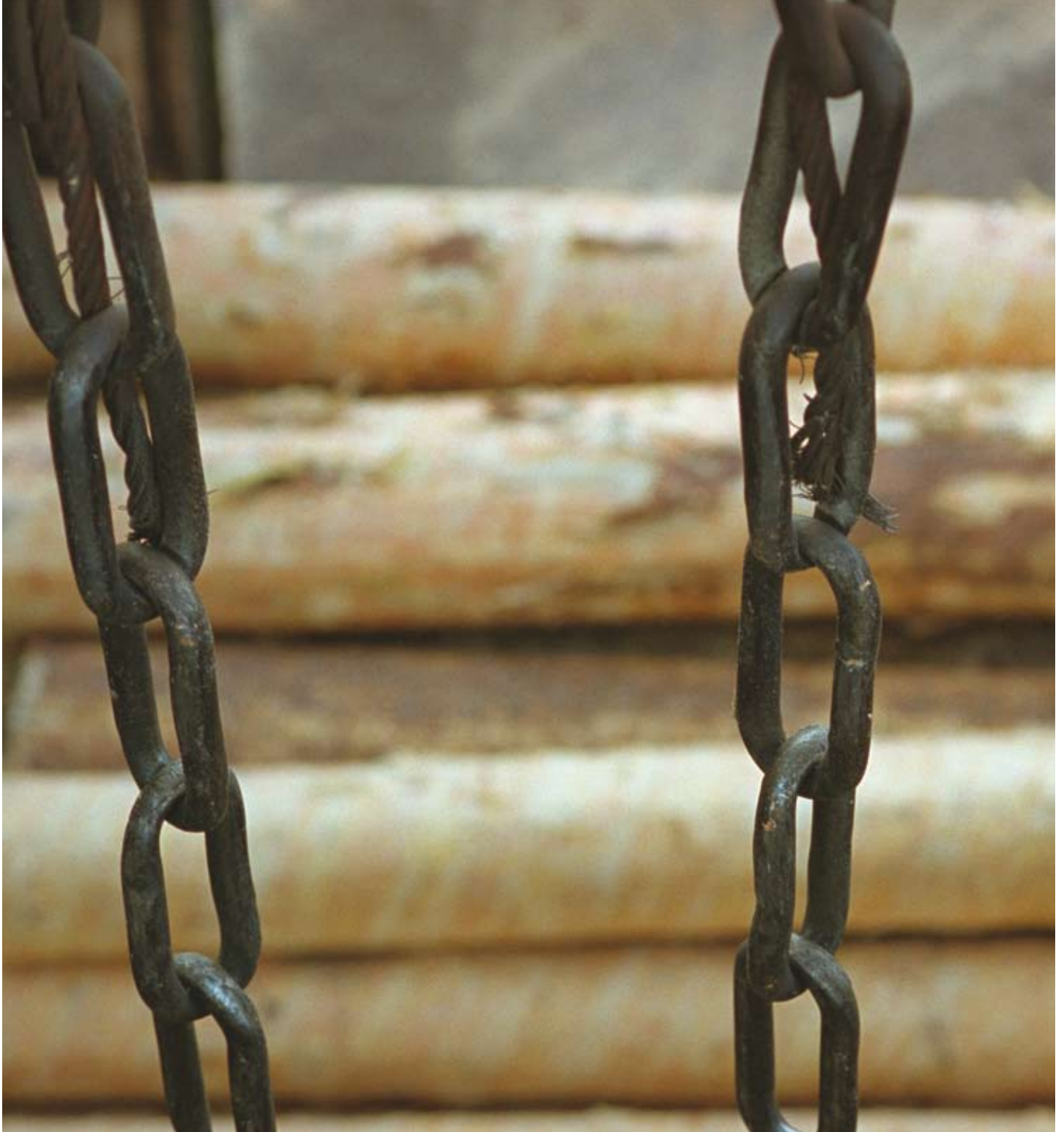
Ruscam launched a new \$80 million bottle-producing plant near Ufa in September 2006 with an annual capacity of 700 million glass bottles. Officials indicated at the launch that investors were already prepared to provide funds to expand capacity to 1.2 billion bottles per year. The new plant follows substantial investments in the company's Pokrovsky glass plant.

The concentrating mill of Ramensky Gok is currently under reconstruction. Around €20 million has already been invested in a new line to produce transparent glass packaging, as well as sheet glass, and a further €10 million is earmarked to construct a second line in 2006-07.

Rexam has also announced plans to build an additional factory to produce aluminium cans in the city of Chelyabinsk beyond the Urals. The \$73 million project will add 800 million cans to Russia's market, making Rexam the biggest producer in the country. Industry commentators have suggested that the move by Rexam follows unsuccessful attempts to purchase ROSTAR from RUSAL. News reports indicate that RUSAL is also planning to expand ROSTAR, although no concrete plans have been announced.

Alcoa Russia expanded its production of sheet for cans in April 2006 and indicated plans to increase production to a level sufficient to meet domestic demand, estimated at around 100,000 tonnes, by 2007.

10 The Risks of Doing Business in Russia



Investors looking at Russia are right to proceed with caution.

Some of the key factors currently impeding foreign investment in the forest-based industries include:

- Legislation, both industry-specific (the Forestry Code) and general (e.g. shareholder rights protection, taxation), that is unclear in many aspects, particularly regarding interpretation and application of the rules by the authorities;
- Underdeveloped infrastructure that hampers both the construction/reconstruction of a mill as well as transportation of raw materials and finished products, making potential investments very expensive and potentially non-viable for economic reasons;
- Perceived political risks, driven by recent renationalisation trends in other industries as well as bad publicity from “forest wars”.

While some of the inconsistencies in interpretation and application of Russian legislation will certainly continue to be problematic for years to come, the current Government views the sector as high-priority and resolving some of the on-going conflicts is high on the agenda. How successful this process will be remains to be seen. In the past, many prime forest sites have been allocated to non-strategic investors without a commitment to sustainable forestry. This may change along with alterations to the Forest Code, but to what extent remains to be seen.

Transport infrastructure (railways, roads, waterways) is one of the most important factors when considering practically any investment in the sector as this impacts both supplies of raw materials and shipping of finished products. As discussed previously, the key challenge at the upstream end (forestry) lies in the severe lack of paved and (to a lesser extent) unpaved roads in key logging areas. The ideal solution would be a government-funded programme of paved road construction – not only might this increase the total cut but it would also motivate operators to cut trees in those areas where the Government wishes them to cut, thereby offering a chance to get better control over undocumented logging. And indeed the proposed new Forest Code does include some stipulations for investing in infrastructure, although it remains to be seen how this will be implemented. In the absence of a coordinated government programme, road-building will largely be done by the companies themselves, often in a limited and inadequate fashion.

It should be noted that there are millions of hectares of Russian forest, particularly in the coldest areas of Asian Russia, where it will never make sense to build roads because the density of both population and trees is too low to be economically viable. Indeed in Siberia and the Far East, it is unrealistic that forestry will ever extend significantly further north than the southern fringes where it already is. However there is still considerable room to increase cutting within the currently active geographies.

On the downstream end, the key infrastructural requirement is more trains and rail cars. As the Russian

economy has grown, rail cars have come into increasingly short supply. Many major pulp and paper producers rely at least partially on an ‘internal fleet’ of company-owned rail cars, then leasing state-owned rail cars as they are able for only a portion of their outbound shipments.

It should be noted that logging is a highly seasonal business. The busiest season is winter, when Russia’s unpaved tracks ice over and are at their easiest and most reliable to use. However activity may be severely curtailed if the winter is either too warm (i.e. with an exceptionally late freeze or early thaw) or alternatively if it is exceptionally cold, as logging is practically impossible at temperatures below -40 ° C. Summer is the second-best time for logging provided it is dry. There is also a brief period in spring shortly after the thaw when many rivers are high enough to float logs to the plants via waterways; otherwise spring and autumn are quite limited.

While the most heated battles in the Forest Wars may be in the past, the possibility for continuing ownership struggles does exist, given the oligarchic structure of Russian industry. Once an acquisition has been made, the parent company should take steps to acquire all additional outstanding shares in order to safeguard against the potential threat of an aggressive outside investor.

Anyone considering a significant, high-profile investment in any Russian industry should also ensure that their strategic plans and approach have the active endorsement of senior government authorities.

Further, care should be taken to cultivate good relationships with local government officials to help maintain the continuing success of operations.

Companies looking at acquiring local logging enterprises also need to understand the security of the company's leases and the processes for their renewal and for obtaining annual logging permits. Forest management processes including reforestation should also be examined carefully, particularly in light of the proposed changes to the Forest Code. In addition, investors should also pay close attention to the durability of any tax optimisation structures that the local logging enterprise has been using.

While low wages have been a key enticement in Russia since the collapse of the Soviet Union, that advantage is diminishing. Wages "bottomed out" after the 1998 Russian economic crisis when the rouble lost ca 75% of its value on the foreign exchange markets. At that time, a large portion of the Russian work force earned under \$1,000 per year, if their companies could pay them at all. Since then, however, rouble devaluation combined with soaring oil prices have sparked a transformation of the Russian economy, with real wages and living standards rising quickly at least in those parts of the country and in those industries where economic renewal is taking place. The steadily strengthening rouble further increases the impact in dollar or Euro terms. The net result is that average wages in the pulp and paper industry are as

much as 6-7 times higher now than in 1999, and are increasing at ca 10-15% per year.

Anyone considering investment in this sector should carefully consider what cost forecasts they will build into their investment business case. Given that Russia's average productivity per worker in the industry lags substantially behind that of workers in competing countries such as Finland, Japan and Canada, accepting large, inefficient, under-employed workforces may no longer make good business sense. Companies that do take on large workforces should look to use existing personnel more effectively and expand production rather than attempting to significantly reduce the headcount.

Some industry players estimate that greenfield mills cost 30% more than in other countries, given the cumulative effects of high infrastructure and construction costs, various duties on capital goods and the high cost of capital. Again, this situation may be improving as the Government implements needed changes to the tariff structure, including recent removals of import tariffs on some types of machinery and as capital markets open up.

Further, investors looking to acquire a Russian business need to be particularly careful in performing their due diligence on the operations. While transparency and corporate governance are improving, many companies are still very weak in these areas and may not be able to present reliable information to a potential investor. Also financial reporting in many Russian companies is still barely recognisable to global investors. Once a company has been acquired, ensuring that business processes such as procurement and sales are transparent, and financial reporting and control systems are robust, can significantly mitigate the risk of corruption.



11 The Rewards of Doing Business in Russia



Despite the many risks, the Russian forest products sector has much to offer global players, including a vast resource base, relatively cheap labour and a generally favourable investment climate.

Domestic demand is growing strongly in most sectors of the industry reflecting Russia's overall increasing economic stability. Strong foreign demand is also likely to continue to grow, particularly from neighbouring China, whose vast and increasingly prosperous population is driving dramatic increases in demand.

Russia's GDP is growing strongly, and even given a predicted slow-down, will continue to grow faster than the global average for the foreseeable future. Inflation, while still a factor, has slowed and the rouble exchange rate has stabilised. Russia is already the world's 14th largest economy measured at market exchange rates, and the 10th measured at PPP, according to the World Bank World Development Indicators database. Per capita income is on the upswing as prosperity improves. What does this mean in concrete terms for the forest, paper and packaging industries?

Demand for wood products is increasing and is set to increase further, particularly as residential construction and repair and maintenance work grows and increased demand for furniture emerges, and that of better quality.

Demand for paper and pulp is also increasing. Growing businesses demand more and better office papers, more affluent consumers increase their use of tissue products, and a flourishing print and publications sector with many new titles is driving demand for better quality printing grades. Some of this demand, particularly for better qualities, is currently being met by imports, but local suppliers would certainly find a strong market for many grades.

Demand for packaging of all types, but especially paper and plastic packaging, is also trending upwards with the development of a consumer culture and the advent of better organised retailing.

While Russia's forestry legislation is currently contradictory and difficult to interpret, the new Forest Code may alleviate some of the primary challenges, such as the current cost disadvantage borne by companies practicing sustainable forest management. Federal and local governments are actively seeking foreign investment, especially in districts without substantial oil and gas resources (which includes most of the districts with economically attractive forest resources). Tariff structures that promoted the export of raw timber rather than processed wood are also being overhauled.

Corruption, while still present, is less of a problem than many perceive it to be. According to Transparency International and the World Economic Forum, the perception of Russia's corruption is substantially higher than actual levels of corruption such as irregular payments in public contracts, the business cost

of corruption, and the prevalence of illegal political donations. Furthermore, Mr Putin has stressed in a number of speeches that cracking down on corruption is one of the Government's top priorities.

Generally speaking, the logging industry in Russia is highly fragmented, undercapitalised, overly labour-intensive, and low paid (wages are typically considerably lower than in paper plants), with a high incidence of undocumented logging and a poor health and safety record. There is considerable room for improvement in the equipment, staffing and operating methods of many of these companies. Stumpage costs are extremely low, and while these may rise, they will likely remain highly competitive with equivalent qualities of timber in other territories.

In some cases, improvements are already being driven by both the leading Russian producers, such as Ilim Pulp and Western investors such as Mondi, UPM and Stora Enso. These companies are investing significant capital and other resources in their Russian forestry operations, in new logging equipment, in IT, in health & safety and in general forest management practices. Ilim Pulp's fleet of modern tree harvesters is one of the largest in the world. However, in the case of logging companies that remain independently owned, such changes are generally much slower in coming. Those that do operate in the grey market are often able to price their product lower than those who operate to the letter of the law. The key potential advantage that Western investors, along with the major domestic players who have modernised their forestry operations, have over grey market operators lies

in capital investment, for example in the ability to employ modern harvester machines that perform the work of around 50 men with chain saws.

Implementing new technologies and harvesting techniques, such as cut-to-length harvesting and bio-mass technology, can also provide rapid improvement in the efficiency of a local operation and at the same time, encroach less on the sustainability of the forests. Investors may want to focus on partnering with local operators, a strategy already being used by some major players, as these companies may already have, or be better positioned to obtain, the long-term leases which are critical to ensuring security of supply.

Most foreign players investing in logging are doing so in order to provide a cost-effective stream of supply to their downstream operations, either within Russia or in neighbouring countries. Locating these operations (particularly wood products or pulp and paper plants) near the Russian timber source already makes sound business sense. Given the Russian Government's focus on increasing higher value-added segments of the industry, this route may also be the most likely to encourage cooperation from local authorities.

The pulp and paper sectors are already the focus of substantial interest from foreign investors. Most proposed projects involve the construction of major new pulp mills, however none of these reported plans are yet confirmed. Indeed, the pulp market offers enticing opportunities, given strong domestic and foreign market demand and newly favourable tariff rates. Starting from January 2006, no tariff is levied on sulphate pulp exports, so supplying the developed and developing paper industries of Russia's European and Asian neighbours is an attractive prospect.

Paper and paperboard also have significant investment potential. At present energy costs are held well below global rates, and although WTO pressure may change that in

time, many locations in Russia can still benefit from abundant hydro-electric power resources, reducing dependence on petroleum. As in the wood products sector, the average age of equipment is quite old - replacing or updating machinery can lead to sizeable increases in production and efficiency. Overall, fibre costs are likely to remain favourable.


Paper and non-paper packaging are also growing markets within Russia, and investments have already started to flow in these areas. Paper and flexible plastic packaging, in particular, offer good opportunities for savvy companies to supply burgeoning consumer demand.

While many Western investors have expressed frustrations with getting their operations up and running, the fact they have persevered bears testimony to their confidence in Russia as an investment location.

Some foreign investors have come and gone. Russia is not an easy market to penetrate successfully - however, there are success stories. Mondi and International Paper are two of the biggest investors in Russia - both have succeeded in ramping up production at their local facilities, becoming major players in the domestic market. Stora Enso and UPM have been proceeding somewhat more cautiously, but have also found success in sourcing wood in Russia and developing local wood processing facilities. SCA is a major player in the tissue market and active in other sectors as well. Packaging giants such as Rexam, Amcor and Alcan have also made significant commitments to the Russian market. In fact, overall it is notable how many Western companies have entered the market in the past two years.

Many Western companies who have been operating successfully in Russia stress the importance of being good corporate citizens. This means, amongst other matters, setting an example of sustainability, both in terms of environmental issues and also in being actively involved in supporting local communities.

12 Concluding Thoughts



Multinational forest, paper and packaging companies would do well to consider doing business in Russia.

Although companies will need to monitor legislative developments such as the new Forest Code closely, the environment should become increasingly favourable as the Government looks to expand the domestic industry, particularly in value-added areas. The abundant natural resources and growing domestic markets provide opportunities that are not readily available elsewhere.

Care should be taken in evaluating local partners with respect to transparency, corporate governance, and forest management. Locations should also be carefully vetted, both in terms of infrastructure, be it existing or planned, as well as local authorities' attitude towards forestry. Companies also need to take into account inflation, exchange rates and rising wage costs when calculating their investment scenarios.

Foreign companies will be expected to lead the way in terms of environmental protection, the use of resources and community participation and can anticipate the need for continuing capital inflows to upgrade outdated facilities – however, these investments should ensure them a long-term role in a growing market.

PricewaterhouseCoopers Global Forest, Paper & Packaging practice is comprised of a network of industry professionals located in over 30 countries around the world.

PricewaterhouseCoopers in Russia is the largest consultancy and audit practice in the country with around 1,000 professionals. It offers deep industry specialisation across a broad range of services.

Other publications and articles

CEO Perspectives - Viewpoints of CEOs in Forest, Paper & Packaging Companies Worldwide

The publication summarises the thoughts of 17 CEOs in the forest, paper & paper-based packaging sectors around the globe on key issues facing the industry. The thoughts of the CEOs, from North America, South America, Europe, Russia, China, India and South Africa, are drawn from face-to-face and telephone interviews.

Global Forest, Paper & Packaging Survey 2006

Comprises an analysis of the financial results of the PwC Top 100 – the 100 largest forest, paper and paper-based packaging companies in the world, ranked by sales revenue. Also includes an overview of the 19th Annual PricewaterhouseCoopers Global Forest and Paper Conference held in May 2006 in Vancouver, Canada.

China Risks & Rewards – Paper & Packaging Industry

Presents an overview of the impact of China on the paper and packaging sectors including an in-depth look at some key issues of particular importance to companies operating – or looking to invest - in the Chinese marketplace.

Responding to a Changing Environment – Applying Emissions Trading Strategy to Industrial Companies

Looks at the issue of how the European Union Emissions Trading Scheme (EU-ETS) impacts on energy intensive companies, including those involved in pulp and paper production. The EU-ETS presents substantial risk and potentially creates significant opportunities for these companies.

Global Investment Trends – A Call for Action in North America

Looks at the declining competitiveness of the North American Industry, as well as opportunities for enhancing the competitiveness of the industry in that region.

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Key contacts

Global Leader
Robert Barnden
Phone: +46 (8) 5553 3016

Global Director
Clive Suckling
Phone: +44 (20) 7213 4887

ARGENTINA
Mariano Tomatis
Phone: +54 (11) 4850 4716

FRANCE
Edouard Sattler
Phone: +33 1 5657 8418

NEW ZEALAND
David Randell
Phone: +64 (9) 355 8042

SWEDEN
Robert Barnden
Phone: +46 (8) 5553 3016

AUSTRALIA
Andrew McPherson
Phone: +61 (2) 6271 9350

GERMANY
Burkhard Klein
Phone: +49 (211) 981 7430

NORWAY
Erling Elsrud
Phone: +47 95 260 005

SWITZERLAND
Frank Scharnagl
Phone: +41 (0) 58792 2600

AUSTRIA
Ian Murdoch
Phone: +43 (1) 5018 81420

INDIA
Ashwani Puri
Phone: +91 (11) 4125 0513

POLAND
Antoni Tyminski
Phone: +48 (061) 850 5103

UK
Clive Suckling
Phone: +44 (20) 7213 4887

BRAZIL
Carlos Mendonca
Phone: +55 (11) 3674 3343

INDONESIA
Jusuf Wibisana
Phone: +62 (21) 52 12901

PORTUGAL
António Correia
Phone: +351 225 433 114

US
Marc Silverman
Phone: +1 (203) 539 5604

CANADA
Bruce McIntyre
Phone: +1 (604) 806 7595

IRELAND
Neil Murphy
Phone: +353 (1) 704 8556

RUSSIA
Alexei Ivanov
Phone: +7 (812) 326 6969

URUGUAY
Daniel Garcia
Phone: +598 (2) 916 0463

CHILE
Ricardo Arrano
Phone: +56 (2) 940 0000

ITALY
Maria Teresa Bernelli
Phone: +39 (461) 237 004

SINGAPORE
Teck Soon Chew
Phone: +65 6236 3328

VENEZUELA
Victor Nieto
Phone: +58 (281) 418 7935

CHINA
Kenny CH Yeung
Phone: +86 (20) 3819 2033

MALAYSIA
Ramesh Rajaratnam
Phone: +60 (3) 2693 1077

SLOVAKIA
Maria Fruhwaldova
Phone: +421 2 5935 0400

COLOMBIA
Gustavo Dreispiel
Phone: +57 (1) 635 4802

MEXICO
Javier Monroy
Phone: +52 (55) 5263 6000

SOUTH AFRICA
Heinz Zastrau
Phone: +27 (11) 797 4431

FINLAND
Johan Weckman
Phone: +358 (0) 9 228 01353

NETHERLANDS
Frans Vestergaard
Phone: +31 (10) 4076 458

SPAIN
Mar Gallardo
Phone: +34 (91) 568 4456

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