TRANLIN PAPER IN VIRGINIA
Proprietary wheat straw pulping process plays key role in funding for greenfield mill

MARKET PULP
Hardwood endures weak prices while softwood remains high as overall demand remains good
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FEATURES

China’s Shandong Tranlin Paper Company finds proprietary “green” technology a powerful lever for gaining financial backing and incentives from governments in both China and the U.S.

24 Safer Conveyor Operation, Lower Costs with CanGlide Polymeric Technology
Innovative polymer cartridges are safer, significantly cut maintenance costs, and provide better belt performance in bulk handling conveyor systems.

26 Measure, Manage, Improve – A Reliability Story
Good reliability is good availability, and the more reliable your assets, the more availability for production.

COLUMNS

14 Market Grade: Pulp — A Tale of Two Markets
Hardwood pulp endures weak prices while softwood remains high as overall demand remains good.

16 Heads-Up: Financial Results Improve, Pulp Capacity Gets Boost
This year continues to record a steady improvement by Europe’s forestry, pulp, paper and board producers, and prospects for 2015 look good.

30 Sustainability Matters: AF&PA Sustainability Awards
AF&PA recently honored five member companies for their commitment to sustainability in presenting its 2014 AF&PA Sustainability Awards.

DEPARTMENTS

4 Editor’s Note

6 Industry News

12 People

13 Calendar

SERVICES

29 Classified Ads

29 Index of Advertisers
This past June some very big and frankly surprising news came out of Governor Terry McAuliffe’s office at the Virginia State Capitol when Gov. McAuliffe announced that Shandong Tranlin Paper Company, based in China, has financing in place to develop a $2 billion, 850-acre site into an industrial complex for the production of pulp, paper, and fertilizer (see feature story on page 18).

Tranlin, as the new company is called, has had many doors held open due to its proposal to use wheat straw as the primary raw material in its manufacturing process — sort of an “all-natural” process that government officials and financial lenders swoon over.

But beyond the “green” appeal, I just don’t get it — from a U.S. paper supply/demand standpoint, to the $2 billion Shandong Tranlin is willing to risk to get this project off the ground five years from now, to the availability of wheat straw in southeastern U.S., and it’s the availability of wheat straw within a viable transportation distance from Richmond that has me the most curious.

So I did some research on wheat straw and the answer is: I still don’t really know. The actual supply on a yearly basis is affected by a number of things such as weather, yield per acre (differs greatly between irrigated and non-irrigated fields), the height from the ground at which the wheat is cut, quality of the crop, etc. Farmers also have the option of using a portion of the straw to till back into their fields for fertilizer.

In the June press release from Gov. McAuliffe was a statement from Todd Haymore, Virginia Secretary of Agriculture and Forestry. “Tranlin represents a tremendous opportunity for Virginia’s corn and small grain producers by creating a lucrative new market for agricultural residuals that are typically left in the field.” Yet in my research on the supply of wheat straw, I kept running across stories about tight supply and strong demand — supplies that have been so tight at times, retail giants like Lowes and Home Depot have had trouble sourcing bales for customers.

An article dated April 7, 2014 on CitizenTimes, a regional website covering Ashevile, North Carolina, is titled, “Wheat straw shortage frustrates WNC retailers.” Here’s an excerpt: “Wet weather and a poor wheat harvest last fall are contributing to a shortage of straw across the Southeast,” Home Depot said. Lowe’s pointed to, “the wet weather and high demand during the spring lawn care season as reasons for the shortage.”

Considering the relatively close proximity North Carolina is to Virginia, coupled with the sourcing power of Home Depot and Lowes, I don’t understand Secretary Haymore’s inference that there’s a lot of wheat straw laying waste in the fields.

According to the FAO (2012 figures), China is the largest wheat producer in the world at 126 million metric tons. The U.S. is third and produces about half as much (62 million metric tons). And, according to people who know much more about harvesting wheat than I do, “a good wheat crop will yield between 1 and 1.2 tons of straw per acre on a dry matter basis.” That doesn’t seem like a large amount of raw material from a big area of earth.

While I’m all for the development of manufacturing processes that are easy on the environment, I’m far from convinced that Tranlin has a more environmentally friendly method of making paper than that of any of the U.S.’s modern-day pulp and paper mills. Pulping wheat straw for papermaking may fill a role in select regions and niche markets, but I don’t agree with the claims that the process is an environmentally favorable alternative to pulping wood.
If you had to choose a kaolin supplier based on one quality, which would you choose?

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Catalyst Paper to Buy Coated Paper Mills in Maine and Wisconsin

Catalyst Paper on Oct. 30 announced that it entered into an Asset Purchase Agreement with NewPage Corporation, NewPage Wisconsin System Inc. and Rumford Paper Company to purchase the Biron paper mill located in Wisconsin and the Rumford pulp and paper mill located in Maine for consideration of US$74.0 million, subject to certain adjustments.

Completion of the deal is subject to customary closing conditions, including the completion of the previously announced acquisition by Verso Paper Corp. of NewPage Holdings Inc., the execution of a transition service agreement, materials and service supply agreements, and certain other ancillary agreements relating to the deal, and certain regulatory approvals.

Catalyst noted that the agreement may be terminated by the sellers and Catalyst in certain circumstances, including upon or at any time following the final uncontested termination of the Verso transaction.

“With this transaction, Catalyst will be better able to serve new and existing customers through operational synergies and a more diversified and higher value suite of products,” said Joe Nemeth, President and CEO of Catalyst.

“Our acquisition of these U.S. pulp and paper mills, once complete, will support our efforts to improve our balance sheet and enhance the Company’s long-term competitiveness,” Nemeth added.

If the deal is completed, the addition of the paper mills is expected to increase Catalyst’s production capacity by approximately 65 percent or 995,000 tonnes per year.

The Biron mill has 355,000 tpy capacity for lightweight coated and ultra-lightweight coated paper. The Rumford mill has 510,000 tpy paper capacity for coated specialty, coated freesheet and coated groundwood paper, and 130,000 tpy of Kraft market pulp capacity to produce both hardwood and softwood pulp.

“Efficiencies are expected to be gained as overhead costs will be distributed over a larger production base. Access to new markets and business opportunities is anticipated,” Catalyst noted.

Kruger Shutting Down No. 1 Paper Machine at Brompton Mill for Indefinite Period

At the time of publication, Kruger had announced plans to stop production on the No. 1 Paper Machine and deinked pulp plant operations at its Brompton Newsprint Mill for an indefinite period, effective November 14.

“This decision, which is intended to rebalance the order book and improve the Mill’s competitive position, will affect some 98 employees and reduce its annual newsprint production by 100,000 tonnes,” the company said in a press release.

The Brompton mill is located in Sherbrooke, Québec, Canada, and has three paper machines that produce high-quality newsprint from thermo-mechanical and recycled pulp.

The paper mill’s capacity is 305,000 tonnes per year. The deinking facility produces 380 tonnes of deinked pulp per day for the mill.

Kruger said that unfavorable market conditions, in particular the continuing drop in demand for newsprint, as the primary reason for its decision to cut capacity.

Smurfit Kappa to Acquire Texas-based Bates Container

Dublin, Ireland-based Smurfit Kappa announced that it has agreed to acquire Bates Container LLC, a non-integrated corrugated packaging manufacturer based in Texas. The deal involves an initial consideration of $150 million with a further estimated deferred payment of $7.5 million.

Bates, a long-established private corrugated manufacturer, employs 320 people.

A substantial amount of the containerboard Bates uses annually (about 135,000 tonnes) will be supplied by Smurfit Kappa Orange County’s (SKOC) containerboard mill in Dallas.

“This acquisition fits perfectly with our integrated model, complementing in a significant way the successful integration of SKOC which was acquired in December 2012 and providing us with substantial scope for further synergies in both businesses,” said Tony Smurfit, Smurfit Kappa Group’s COO. “These synergies will be primarily delivered through additional integration of the containerboard needs of Bates into SKOC’s 350,000 tonnes recycled containerboard mill, with additional savings expected through a range of operational efficiency measures.”

The acquisition is expected to complete in the fourth quarter of 2014 subject to regulatory approval, with funding from existing cash reserves.
Verso to Close Paper Mill in Bucksport, Maine

Verso Paper in October announced plans to close its paper mill in Bucksport, Maine. The closure of the mill is expected to occur in the fourth quarter of 2014.

The mill closure will reduce Verso’s coated groundwood paper production capacity by approximately 350,000 tons and its specialty paper production capacity by about 55,000 tons.

“The Bucksport mill unfortunately has not been profitable for a number of years, in spite of our employees’ dedicated efforts to make it so. Our assessment indicates that it is impossible for the mill to achieve profitability in today’s marketplace,” said Verso President and CEO, Dave Paterson.

“This decision is especially difficult because of the significant impact that the closure of the Bucksport mill will have on many people across the region, especially our long-serving and hard-working employees and their families,” said Verso Senior VP of Manufacturing and Energy, Lyle Fellows.

Verso said that it is working closely with union officials and salaried employees concerning severance benefits and other assistance.

Verso also said that it is working closely with its customers to find the best long-term solutions for their product needs after the closure of the Bucksport mill.

“Our desire in this process is to minimize disruption to our customers’ businesses to the extent possible,” said Mike Weinhold, Senior VP of Sales, Marketing and Product Development.

Verso noted that it is analyzing options for the disposition of mill assets.

BRAZIL

Brazil’s Exports of Pulp and Paper Up in First Nine Months of 2014

The Brazilian Tree Industry (Ibá) has released nine-month figures (January - September 2014) for Brazil’s exports, production and domestic sales of pulp, wood panels and paper.

Pulp exports totaled 7.8 million tons from January through September 2014, a 12.6% increase compared to the same period in 2013, when exports totaled 6.9 million tons. The exported volume of wood panels totaled 419,000 m³ this year, a 32.2% growth year-over-year, when 317,000 m³ were exported. Paper exports totaled 1.4 million tons for the first nine months this year, a 1.9% variation year-over-year.

Exports revenue. For the first nine months of 2014, exports revenues from pulp, wood panels and paper totaled US$5.5 billion, which represents a 1.9% increase year-over-year, when total revenues were US$ 5.4 billion. The industry’s balance of trade from January through September is US$ 4.1 billion, equal to a 4.1% increase on the balance compared to the same period last year. Pulp sales to China, the second largest market for this Brazilian product, totaled US$ 1.2 billion, a 7.5% increase compared to 2013.

Production. Year-to-date pulp production reached 12.0 million tons, a 7.7% growth year-over-year, when 11.2 million tons were produced. Wood panel production was 5.9 million m³, a 2.3% increase compared to the same period last year. For the paper segment, production from January through September totaled 7.8 million tons, a 0.4% variation compared to the same period in 2013.

Domestic Sales. From January through September 2014, pulp sales in the domestic market increased 3.9% compared to the same period in 2013, totaling 1.3 million tons. For paper, sales in the domestic market showed a 0.2% variation year-over-year, totaling 4.2 million tons. Domestic sales of wood panels totaled 5.4 million m³, 0.4% lower year over year.

Green Bay Packaging Acquires Great Lakes Packaging and Midland Container

Green Bay Packaging Inc. has acquired Great Lakes Packaging Corporation and Midland Container Corporation from MidCon Holdings, LLC, an Arbor Investment Company. The acquisition became effective on October 31.

Terms of the deal were not disclosed.

“The acquisition of Great Lakes Packaging and Midland Container, collectively known as MidCon, is an excellent fit for Green Bay Packaging,” said Will Kress, President and CEO of Green Bay Packaging. “MidCon is a perfect fit geographically, strategically and most important from a leadership and cultural approach to their business.”

Kress added, “The acquisition allows us to grow our company, adding two organizations that have an excellent reputation for service and quality, and who run their operations with a similar business philosophy as ours.”
EUROPE

DS Smith Acquires Middleton Paper’s Recycling Division

UK-based corrugated packaging paper maker DS Smith has acquired the Recycling Division of Middleton Paper for an undisclosed sum. Middleton’s Recycling Division currently generates about 9,000 tonnes per year of fiber from a wide range of paper and cardboard grades. The Division was part of Middleton Paper, which remains an independent merchant and converter based in Walsall, West Midlands, England.

Peter McGuinness, Chief Executive of DS Smith, Recycling Division commented, “The Birmingham region is a key industrial and commercial area and the purchase of Middleton Recycling will allow us to target material and grow our presence here. It is a strategic fit for growing our business and extends our coverage in the area.”

As the largest fiber recycler in Europe, DS Smith recovers approximately 5.4 million tonnes of paper and packaging annually for recycling. Recovered packaging (and other fiber grades) provide the raw materials used in production by the Group’s paper making operations.

Mohawk Enter European Sales Agreement with Metapaper

Mohawk announced a new partnership with Metapaper GmbH & Co., based in Stuttgart, Germany, to support sales and marketing for Mohawk’s Continental European operations.

Metapaper is Europe’s first online platform for the paper and printing industries. Under the terms of the deal, Metapaper began supporting all of Mohawk’s Continental European sales, marketing and customer service operations on October 6, 2014.

Metapaper founder, Axel Scheufelen, serves as lead contact for Mohawk’s European operations, marketing, customer support and merchant sales. Scheufelen has over 10 years of experience in the paper business and strong industry ties throughout Europe, Mohawk noted.

Scheufelen and Metapaper’s customer support team will work closely with Joe O’Connor, Senior Vice President, International Sales, Mohawk.

Glatfelter Completes Acquisition of German Electrical Papers Producer, SPO

Glatfelter in October completed the acquisition of Spezialpapierfabrik Oberschmitten GmbH (SPO) for EUR 8.5 million (approximately USD 11 million).

SPO’s plant is located near Frankfurt, Germany. Its primary electrical products and applications include highly technical papers for a wide range of capacitors used in consumer and industrial products; insulation papers for cables and transformers; and materials for industrial power inverters, electromagnetic current filters and electric rail traction.

SPO also produces glassine products, which are used in cosmetics packaging, food packaging, and pharmaceutical dosage bags.

The acquisition of SPO broadens Glatfelter’s existing product lines for the electrical market. This acquisition also complements Glatfelter’s previously announced partnership with Dreamweaver International to develop and manufacture lithium-ion battery separators, which utilize Glatfelter’s capabilities and expertise in making advanced fiber-based engineered materials.

SPO will operate as part of Glatfelter’s Composite Fibers business unit.

“I believe this acquisition will further our Composite Fibers business unit’s strategy of capitalizing on the fast-growing electrical market...”
— Dante Parrini, Chairman and CEO, Glatfelter

Glatfelter financed the acquisition through a combination of cash on hand and borrowings under its existing revolving credit agreement.
JAPAN

Wood Consumption by Japan’s Pulp Industry Up 6% in First Half of 2014

Wood Resources International (WRI) said that pulp production in Japan has picked up in 2014 as compared to 2013, with wood fiber consumption being six percent higher during the first six months of this year as compared to the same period in 2013, according to figures from the Japan Paper Association. The increase in demand was practically the same for softwood fiber as for hardwood fiber, but the overall volume of the total virgin fiber consumption is still split at approximately 68% hardwood and 32% softwood fiber.

To meet the higher wood fiber needs, domestic fiber sourcing from the domestic sawmills has increased by two percent and import volumes have gone up nine percent year-to-date. In the 2Q/14, importation of softwood and hardwood chips was up by as much as 17% and 14%, respectively, as compared to the same quarter last year, WRI said.

Despite the substantial increase in import volumes, average prices for imported hardwood chip prices in Japan declined by about 17 dollars per odmt from 2Q/13 to 2Q/14, WRI noted. Average prices for softwood chips were one dollar higher in the 2Q/14 as compared to the same quarter in 2013, but as much as 13 dollars higher than in the first quarter this year.

The general trend the past four years has been that prices for imported chips have gone up in the local currency due to a weakening Yen against the US dollar, and that prices for domestically sourced chips have fallen slightly. In the 2Q/14, prices for imported softwood chips were on average 65% higher than residual chips from domestic sawmills, while imported hardwood chips were just over 20% higher than locally sourced hardwood chips, WRI explained.

WRI noted that the biggest change in fiber sourcing this year has been a sharp increase in softwood chip imports from the US and record high import volumes of hardwood chips from Vietnam. Other developments include higher volumes imported from South Africa, Brazil and Indonesia, while shipments of hardwood chips from Chile and Australia have continued to decline in 2014. With the recent pick-up in hardwood fiber imports to Japan, the total import volume for this year could very well reach its highest level in six years.

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Valmet to Supply New Tissue Machine to Lee & Man Paper in China

Chinese paper producer Lee & Man Manufacturing Ltd. has decided to purchase an Advantage DCT 200HS tissue line from Valmet. The new line will be installed at Lee & Man’s Chongqing mill in Zhutuo Town, Yongchuan City, China. The value of the order was not disclosed.

The new tissue line is designed for production of high quality tissue products. The new tissue machine will have a width of 5.6 meters and a design speed of 2,000 m/min, and produce 60,000 tons of toilet and facial tissue per year, using virgin wood pulp and bleached bamboo fiber as raw material.

Basic engineering, installation supervision, training, start-up and commissioning are included in the order, as well as an automation package from Metso.

Start-up is planned for late-2015.

Andritz to Supply New Tissue Production Line to Hebei Yihoucheng

Andritz has received an order from Hebei Yihoucheng Commodity in China for a PrimeLineCOMPACT II tissue machine with a steel Yankee.

The machine has a design speed of 1,600 meters/min and a width of 2.85 meters, and the steel Yankee’s diameter is 3.66 meters.

The scope of supply also includes a complete stock preparation plant, automation, and drives.

The machine and equipment will be manufactured at Andritz’s sites in Europe and China.

This machine will be the second tissue line that Andritz has supplied to Hebei Yihoucheng.

Start-up of the new machine is scheduled for the end of 2015.
PACKSmart: The Changing Landscape of Package Distribution

In the upcoming year, two major package carriers plan to make changes to how they calculate ground shipping costs to their customers. Smithers Pira experts make observations on how the changes may effect manufacturers and retailers.

Post holiday shopping season, two major package carriers, UPS & FedEx, plan to make changes to how they calculate ground shipping costs to their customers. Going forward, the charge for ground shipments will be calculated based on size/dimension of a package, not just weight alone. According to experts, this could mean that an oversized box of paper products that once cost less than $10 to ship ground could now cost more than double to ship.

Why are companies moving to this change?
The goal for companies like UPS and FedEx is to reduce their costs (i.e. labor and travel) by discouraging retailers from shipping products in oversized packaging that lead to limited space in delivery vehicles. Also, an increasingly high demand for low-cost shipping services that carriers like UPS and FedEx has also found it difficult to keep up.

How will the change affect manufacturers and retailers?
Product manufacturers and retailers will be forced to re- assess their packaging designs and look for ways to optimize.

The most obvious optimization relates to package volume. Once the changes take place, you will pay a premium for wasted space in the supply chain. Distribution testing can be used to validate that redesigned packages will still withstand the rigors of the supply chain.

A less apparent optimization practice is the modification of the performance requirements. Standard distribution test are used to set a minimum performance required by a package. These testing have an inherent safety factors. As packages are optimized, the safety factors built into these standards may introduce barriers. With expert consultation, the levels can be adjusted giving you the control to manage your risk of damage.

When will the change take place?
Both companies plan to wait until after the hurried holiday shipping season. UPS will change over to dimensional-package pricing beginning December 29th while FedEx will make the change on January 1, 2015.
**PAPER**

- Clampitt Paper announced that Donald Crew, President and Chief Operating Officer, will retire at the end of November. Tom Christian will succeed Crew as President, effective December 1. Christian currently holds the position of Executive Vice President and has been with Clampitt Paper for 36 years.

  During his career in the paper industry, Don Crew has held national sales and marketing management positions with Georgia-Pacific and Union Camp prior to joining Clampitt in 1994. He will continue to serve on Clampitt’s Board of Directors and provide special services for the firm.

- Graphic Packaging Holding Company announced that Chief Financial Officer Daniel Blount has elected to retire on March 1, 2015, after 16 years of service with the company. Stephen Scherger, previously Senior Vice President – Consumer Packaging Division, has been named Senior Vice President – Finance, effective October 1, 2014, as part of the Company’s succession plan. Scherger will be appointed Chief Financial Officer effective January 1, 2015. Blount will remain as Special Advisor until March 1, 2015.

  Graphic Packaging also has appointed Michael Ukropina to the role of Senior Vice President – Consumer Packaging Division. Ukropina joined Graphic Packaging earlier this year and has been actively engaged in the development of the long term strategy.

- Monadnock Paper Mills announced that Brendan Lesch has joined the company as Vice President of Sales and Marketing. Lesch joins Monadnock from FutureMark Paper Company. Prior to this, he served as Vice President of Sales and Marketing for Myllykoski North America. Monadnock also announced that Brian Maloy has joined the company as Manager of Environmental Services. Maloy joins Monadnock from FiberMark North America, where he served as Environmental Health and Safety Manager.

- Rottneros announced that Carl-Johan Jonsson left the company on Nov. 6 and has been replaced by Board member Per Lundeen, who will serve as acting CEO until a permanent replacement is found. Lundeen has been a member of the Board since 2013. He has a Master of Science from Chalmers University of Technology and lengthy experience in management roles, especially in the packaging and paper converting industry.

- Soundview Paper Company announced that George Wurtz retired as President and CEO of the company on September 23. He is succeeded as President by Karl Meyers, who has served as Chief Operating Officer of Soundview’s Away-From-Home Division for the past year. Wurtz will continue to be engaged with Soundview as its Chairman. Meyers and Wurtz were two of the original industry leaders who started Soundview.

- Stora Enso has appointed Johanna Hagelberg as Executive Vice President Sourcing — a new role in Stora Enso’s Group Leadership Team. Hagelberg joined Stora Enso in November 2013 as Senior Vice President, Sourcing of the company’s Printing and Living division.

**HONORS**

- Thomas D. O’Connor, Jr., Chairman and CEO of Mohawk, has been inducted into the Soderstrom Society, the graphic communications industry’s most prestigious honors organization. O’Connor was nominated for the post by the National Association for Printing Leadership (NAPL), and is the first paper industry executive to be inducted in the Society in its 58 year history.
NOVEMBER 5-7, 2014
International Containerboard Conference
RISI
Embassy Suites
Chicago, Illinois, USA
www.risiinfo.com/events

NOVEMBER 25-27, 2014
Confederation of European Paper Industries
European Paper Week
EU Thon Hotel
Brussels, Belgium
www.cepi.org

DECEMBER 9-10, 2014
Folding Carton Boot Camp (workshop)
Paperboard Packaging Council (PPC)
PPC Headquarters
Springfield, Massachusetts, USA
paperbox.org/bootcamp

JANUARY 29-30, 2015
Paper Recycling Conference India
Recycling Today Media Group
Taj Palace Hotel
New Delhi, India
www.RecyclingToday.com

FEBRUARY 2-5, 2015
Paper Week Canada
PAPTAC
Fairmont Queen Elizabeth Hotel
Montreal, Quebec Canada
www.paperweekcanada.ca

FEBRUARY 25-27, 2015
ASPI Spring Meeting
Association of Suppliers to the Paper Industry
La Playa Beach and Golf Resort
Naples, Florida, USA
www.aspinet.org

MARCH 15-17, 2015
Paper2015
AF&PA and NPTA
Trump International Hotel
Chicago, Illinois, USA
www.paper2015.com

APRIL 19-22, 2015
PaperCon
TAPPI
Georgia World Congress Center
Atlanta, Georgia, USA
www.papercon.org

MAY 3-6, 2015
International Pulp Week
Pulp and Paper Products Council
Fairmont Hotel Vancouver
Vancouver, British Columbia, Canada
www.internationalpulpweek.com

MAY 11-14, 2015
Pulp and Paper Reliability and Maintenance Conference
IDCON
The Conference & Event Center
Niagara Falls, New York, USA
www.pprm.net

JUNE 22-25, 2015
International Conference on Nanotechnology for Renewable Materials
TAPPI
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So far 2014 has been a pretty good year for market pulp producers despite weak pricing that has plagued hardwood grades much of the year. However there are signs that even that problem might be turning in the favor of producers as an excess of hardwood supply appears to be coming more in balance with demand. A combination of higher shipments, strong pricing for softwood grades and modest cost increases for most major inputs, particularly recently, have resulted in improved sales and profits for many companies although results vary.

However, when you come down from the 30,000-foot view and dig deeper it’s clear the market continues to have a split personality. If you’re a softwood mill things have been quite good based on solid shipments and record list prices. In contrast, the last few quarters have been quite challenging for hardwood mills despite stronger shipment growth due to a supply glut leading to low operating rates and weak pricing.

Nevertheless, while the market is mixed the overall trend is positive at least according to one important measure. Global market pulp demand continues to expand, rising 3.2% last year over 2012 levels to about 55 million tonnes.

Through July 2014, pulp demand continued to expand — albeit more slowly — up a more modest 1% buoyed by a 4% increase in China but held back by flat demand in the U.S. and a 2% drop in Europe. Softwood demand was flat and operating rates were at 93% year to date. Hardwood pulp shipments rose 2%, but hardwood operating rates were only 88% vs. 90% in 2013.

The major markets for market pulp are Europe (29% of world demand); China (28%); North America (14%). In terms of grade, bleached eucalyptus (BEK) accounts for 35% of shipments; benchmark northern bleached softwood kraft (NBSK), 26%; SBSK, 12% and NBHK, 8%.

**Long Term Challenges**

Of course not everything is coming up roses. Major long term problems continue to challenge key customer segments. For example, major traditional uses for both softwood and hardwood pulp such as printing and writing papers continue to post steady declines in demand in the developed economies. Through the first three quarters of
2014, European demand for graphic papers is down 4% for magazine grades and 5% for newsprint, while fine paper (freesheet) demand is flat. European graphic paper demand fell 3% in the third quarter vs 2013 levels. Similarly, North American printing and writing paper demand for the first nine months of 2014 was off 4% vs prior year levels while shipments were down 5%.

Temporary Uptick or Trend?
The good news is these declines continue to be offset by growth in Asia and most notably in China. And maybe even more importantly, demand by tissue grades — the other large use for market pulp — continues to expand globally and other specialty uses also continue to grow.

Most recently, at the end of the third quarter, the pulp market shifted direction in somewhat of a surprise according to observers. A combination of downtime, a seasonal pickup in demand from markets such as printing and writing mills that were looking to the fall printing season and a surge in shipments of pulp to China led to a 5-day drop in pulp stocks in September 2014. Overall producer inventories fell to 33 days of supply, driven by a plummet in hardwood stocks of 6 days coupled with a 2-day decrease in long fiber inventories.

September shipments surged to 4.1 million tonnes, a big gain over the prior month, and bringing year to date shipments up 1.5% over the first nine months of 2013. Shipments were led by a 2.9% surge in shipments to China and a 3.8% gain to other regions, but offset by flat (up 0.1%) shipments to Western Europe and a 1.1% decline in North America.

The sudden drop in hardwood levels may help underpin efforts to raise hardwood prices, which fell for several months during the summer, for the first time in years. The drop in inventories overall may support NBSK where the list price of $1030 has been under pressure by an increase in discounts and growing volume of pulp at low spot prices.

Hardwood Capacity Hurt Prices
The weakness in hardwood prices has derived from the addition of nearly 3 million tonnes of bleached eucalyptus pulp (BEK) capacity over the last year alone. Offsetting this growth is the removal of nearly 600,000 tons of hardwood capacity via the closure of the Old Town pulp mill in Maine in August and the announced closure of the Ence mill in Spain. Major new capacity includes: 1.5 million tpy at the Eldorado mill in Brazil that came online in late 2012; the Suzano mill in Brazil with a capacity of 1.4 million tpy in December 2013; and the 1.3 million tpy Montes del Plata mill in Uruguay that came online in June 2014. All three mills ship sizeable tonnage into both the U.S. and Western European market.

However, the pressure from this tonnage appeared to begin to ease a bit by late summer. Following on this, BEK producers set Oct. 1 as the date for a price increase, which was the first major effort to raise prices on BEK this year. Hardwood pulp prices have been so low that producers report they are having a hard time operating at current levels.

As noted, pulp prices have been on separate trajectories for some time. Softwood prices, owing to much tighter supply on a global basis, have been steadily rising since late 2012 when the benchmark price for NBSK bottomed out at under $850/tonne. Since then NBSK prices rose steadily through last year and continued to rise before plateauing at a current list price of $1030. In contrast, hardwood prices rose in the first half of 2013 before falling by about $40/tonne from mid-2013 to the end of 2013 and the decline continued as prices drifted down for most of 2014.

One development to note is the price differential between SBK and HBK, which has approached $200/ton, leading industry observers to speculate that it will in effect begin to shift usage to the point that it will ultimately begin to narrow the difference. Historically SBK prices typically ran about $75 to $80/ton more than HBK. At current differentials, mills may consider shifting to more BHK despite the corresponding increase in chemical costs and lower machine efficiency that may result.

Markets in Different Directions
While this mixed picture has been the story for most of 2014 there are indications that the two markets may be headed towards a bit of reconciliation. The hardwood markets appear to be a bit on the upswing while softwood markets, albeit starting at a very high point, are flat to drifting downwards a modest amount. If this were to occur, pulp mills could be in for a nice ride if the global economy expands and supports continued growth in Asia and avoids a major meltdown in the developed economies, most notably in Europe. As is often the case, the highly unpredictable nature of the pulp buying business in China will go a long way to determining which way the prevailing wind blows. And that’s anybody guess.

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Financial Results Improve, Pulp Capacity Gets Boost

This year continues to record a steady improvement by Europe’s forestry, pulp, paper and board producers, and prospects for 2015 look good.

The improvement in Europe’s paper and forest sector during 2014 has been gradual and is mainly due to good housekeeping — a focus on cash flow, reducing costs, stripping out inefficiencies, divestment, adjusting production to demand, and a renewed commitment to virgin fiber pulp.

The three largest (by sales) European players — Stora Enso, SCA and UPM — all recorded better sales and profits in Europe, Latin America and China. Profits were good and ranged between 17% and 21% (compared to 4% - 8% in the third quarter last year) and these figures are posted against modest, or in some countries, zero economic recovery in the region. The ‘new’ Valmet posted a rise in profits over 3rd quarter 2013, mainly in the Pulp and Energy division.

I mentioned in my previous column that the recovery was patchy — fine in northern and Eastern Europe, but dismal in Mediterranean Europe. No one wants to invest in France, Italy, Spain, Portugal and Italy. Soporcel of Portugal is looking at Mozambique where operations will be cheaper. To add fuel to this fire, a private equity analyst told me that, “...there is nothing worth buying in the region at present. He pointed out that, “In Italy, Cartiere Burgo is looking for a buyer but it will be left to fold over, and Fedrigoni went for a listing on the Italian stock market but no one was interested.”

Virgin Fiber Pulp

However, what is really significant is the huge investment in virgin fiber pulp. For starters, Södra, is investing some SEK 4.8 billion in its three pulp mills — Mönsterås, Vårö and Mörrum — the result of which will increase not only operational efficiencies of the mills, but also boost the company’s production capacity of market pulp by about 320,000 tpy, raising its total capacity to 1.6 million tpy.

UPM is in the process of spending EUR 160 million in its Kymi pulp mill in Finland that will increase the mill’s production capacity by 170,000 tonnes per year driving the mill’s total production to 700,000 tpy. Nordic Paper has also made upgrades at its Backhammar mill that have resulted in a bump in pulp capacity by 10,000 air-dried tpy. And South Africa’s Mondi has invested EUR 30 million in Syktyvka pulp mill in Russia that will allow the mill’s capacity to reach 100,000 tpy of softwood market pulp.

In contrast to the aforementioned investments, ENCE’s Huelva pulp mill in Spain will end pulp production due to heavy losses in the last three quarters and convert to renewable energy.
Regardless, the new focus on pulp has puzzled some analysts. It may be that the industry overestimated how much recycled fiber (RCF) would be available. CEPI is looking at the current and future availability of RCF in Europe and early assessments suggest that supplies are declining. The ongoing decline in the production of graphic paper grades has meant there is less of the grade available for recycling. Local authorities, who are strapped for cash, now find it too expensive to operate separated curbside collections, so the ‘one truck fits all’ model is cheaper and simpler. That means there is less good quality RCF available for pulping, hence heightened interest in new or increased virgin fiber pulp capacity.

**China in Europe?**

No one in Europe wants to buy distressed mills, but one option would be to sell to Asian companies. Thailand’s Double A (formerly Advance Agro) has bought into France, while India-related interests have bought into Germany and Chinese engineers have built a mill in Russia. It’s small scale stuff at the moment, but I think the pace of eastern investment going west will increase.

I also believe that China will be the major player in our industry in Europe quite soon. It’s been a major customer for European wastepaper and board exports for years and other regions around the world have proved to be tough areas to get a foot in the door. Brazil for example has high land prices, with water shortages in northeast Brazil and ownership laws. In Africa, Chinese endeavors have been viewed as predatory and some activities have offended the host government. Asia is more than its fair share of paper and board operations owned by Indian, Malaysian and Indonesian conglomerates. So it makes sense for Chinese companies to look for bargains in Europe, and to some extend western Canada and the U.S.

I haven’t a clue at present which mills and companies in Europe might be sold to the Chinese, and it will not be an easy market for them. Tough EU competition laws will ensure that foreign-owned paper and board operators do not reach monopolistic levels. Only time will tell.

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On June 18th, 2014, the Governor’s Office of the state of Virginia announced a plan of historic proportions. Shandong Tranlin Paper Company would invest $2 billion USD and create 2000 jobs in Chesterfield County in the state of Virginia. The USA operations will be called Tranlin, Inc.

Using the FisherSolve™ database and analytic resources, this article profiles Shandong Tranlin to better understand this announcement and the role they are likely to play in North America. We further explore the implications of this event and what it might foretell about developing trends.

Though unfamiliar to most people outside of China, Shandong Tranlin Paper Company is one of the top in Shandong Province but certainly not the biggest paper company in China. The company has developed the reputation for using non-chlorine bleaching to produce a wide variety of “natural” straw-based paper products. They pride themselves on being extremely environmentally friendly. Shandong Tranlin produces natural paper products from a patented wheat straw pulping process. The company also transforms black liquor from the pulping process into various types of organic fertilizers. The natural paper products can be described as ecru in color.

Non-wood fiber represents less than two percent of fiber used by mills making at least 50 TPD of product, according to machine-by-machine data in FisherSolve. The global total is probably slightly higher since very small mills use a disproportionate amount of non-wood fiber. Figure 1 shows how non-wood compares to recycled and virgin wood fiber usage. Eighty-three percent of the world’s non-wood fiber production and usage is in Asia (Figure 2).

The non-wood fiber market is highly fragmented with no single company having more than a 4 percent share.

By Stuart Sharp


China’s Shandong Tranlin Paper Company finds proprietary “green” technology a powerful lever for gaining financial backing and incentives from governments in both China and the U.S.
Tranlin, the company with big investment plans for Virginia, today makes about 2 percent of the industry’s non-wood pulp as shown in Figure 3.

In China, most non-wood production takes place inland. Non-wood fiber is used in every major grade of paper. However, the largest volumes are used in packaging and printing grades. Figure 4 shows that short fiber non-wood is the most common.

Figure 5 shows that the soda cooking process is the most common way to pulp non-wood fiber, followed by kraft.

Lastly, Figure 6 shows that non-wood fiber pulps can compete with wood fiber pulps on a cash cost basis, although the qualities of the two might be different, providing different value.

**TREND # 1: Wheat Straw Pulping**

The Shandong Tranlin Paper Co. announcement is the third Greenfield straw-based pulp mill announced recently in North America. Tranlin and Prairie Pulp and Paper, a second company with straw-based plans, have not yet started the permitting process which typically takes 15-18 months. So construction is not anticipated until late 2015 or early 2016 for these two companies. The third company, Columbia Pulp, has its Initial Intent to Construct Permit approved and site preparation construction has started. The facility is on schedule to begin operations in Q3 2015. The start-up is expected to coincide with the initial harvest of the wheat straw, according to media reports.

**Columbia Pulp.** In December of 2013, John Begley, CEO of Columbia Pulp announced plans to build a wheat and alfalfa straw-based pulp mill in Columbia County, in the state of Washington. The company’s website reports that the plant will use 240,000 tons of straw annually from within a
75 mile radius. The finished product will be roughly 400 tons per day or
140,000 tons per year of wet lap pulp that will be sold to paper mills
who sell to packaging and personal care companies. The facility does not
anticipate doing any finished product converting. The plant will employ 130
people at full scale operations.
Columbia Pulp will also produce approximately 75 tons per day
(26,000 tons per year) of a lignin-carbohydrate by-product. This product
will be burned to help to supply power to the plant. It will also be sold
as a soil amendment additive. A target base of customers has already been
established for the lignin by-product.
Not surprisingly, this part of Eastern Washington grows a significant amount
of wheat, alfalfa, and grass seed. In the past, the straw that remained behind
after harvest was burned. When the straw stubble was tilled back into the
ground, it was found that soil erosion increased. Byron Seney, a local grower
in Eastern Washington, started looking for alternative applications for the
straw and found it: turn it into environmentally friendly pulp.
Columbia Pulp will use a proprietary pulping process developed by
Phoenix Pulp and Polymer of Seattle. Columbia Pulp has obtained the exclusive regional use of the proprietary pulping process (“Plant Would Convert Wheat Straw to Pulp” by Dan Wheat, Capital Press, December 18, 2013).
The quality specifications of the straw pulp are such that the straw pulp is expected to be equal in freeness, stiffness, tensile, and burst to virgin hardwood pulp and recycled pulp. Columbia Pulp has contracted a small Beta site to test the scale-up of the operations. The output from this Beta site facility is currently being sold.
On May 22, it was reported that Columbia Pulp had their Conditional Use Permit and Intent to Construct Permit approved by Columbia County. John Begley said that 73 different permits were required for this facility and that no problems were anticipated.
**Prairie Pulp and Paper.** Before Columbia Pulp made their announce-
ment, Prairie Pulp and Paper (a start-up owned by a private Canadian com-
pany named Prairie Paper Ventures in Winnipeg, Manitoba) announced a plan to construct a mill that would produce paper from 80% wheat straw and 20% recycled fiber. The location of this facility is as yet unknown but is expected to be somewhere in Manitoba.
The most conspicuous spokesperson for this venture is Woody Harrelson
of TV and Movie acting fame. He has been making various presenta-
tions to raise capital for this project. In a 2010 press release, Canadian Government officials said that Canada had invested over C$500,000 to-date in exploring uses for the wheat straw with Prairie Pulp and Paper. Since 2010, the Canadian government has invested an additional C$3.4 million in various research projects as the intended process has been further tested (“Hoping to Raise $5 Million for Woody Harrelson’s Tree-Free Paper Project” by Barry Critchley, Financial Post, December 10, 2013).
Prairie’s ultimate goal is to “build a tree-free paper, off-the-grid, eco-
friendly, chlorine free, mill on the prairies where there are millions of tonnes of leftover wheat straw readily available,” said Christina Marshall, director of Marketing.
Currently manufactured in India under the trademark Step Forward Paper™, Prairie Pulp and Paper is selling the 80% wheat straw based paper in Staples stores and through the Unisource business-to-business distribution chain. The product, which should be classified as copy paper grade, is also reported to be available from Lyreco and Basics, two Canadian-based Office Supply distributors. Unisource’s Manager of Environmental Sustainability, Andrew Gustyn, said
that the Step Forward Paper product is price competitive with 30% recycled paper and cheaper than 100% recycled paper (The least expensive is 100% virgin pulp paper.)

Prairie Pulp and Paper intends to announce its location, timing, and construction of the new facility once the sales volume of Step Forward Paper reaches a level to sustain the operation. The most recent announcement from Prairie is that plans have been delayed until 2015. As of now, the North American operation location is unknown and the permitting process has not started. The announcement appears only to be a matter of time.

Shandong Tranlin Paper Co. The announcement by Shandong Tranlin is also for a Greenfield operation. Unlike Columbia Pulp and Prairie Pulp and Paper, Shandong Tranlin is a well-established company. Per their website, they have capital of 5.5 billion RMB ($886,182,000 USD); 10,000 employees; and 700,000 tons of annual paper production including 75,000 tons of household paper, 400,000 tons of commercial pulp, packaging for some 2.4 billion units of food and medical boxes, and 600,000 tons of organic fertilizer. They also have a stand-alone R&D center. The parent owner is the Quan Lin Group.

The $2 billion investment for the company’s first manufacturing facility in the U.S. has been referred to as an “advantaged” manufacturing facility. It is intended to be located on an 850-acre site in Chesterfield County, Virginia and, according to the press release from the state of Virginia, it is the largest investment by a China-based privately owned company in the U.S.

Tranlin will use proprietary technology to produce tree-free, non-chlorine bleached paper products made from 100% agricultural field waste such as wheat and corn stalks. They will also use proprietary technology to convert the black liquor into organic humus-based fertilizer that will be marketed to specialty and organic farmers throughout the U.S. The combination of using wheat straw, which is harvested in the spring, and corn stalks, which are harvested in the fall, will help Tranlin overcome one of the wheat straw pulp mill’s issues — timely supply of raw materials.

Tranlin’s announced product line is natural pulp, natural paper, natural household paper, and papers that would be sold to food and medical packaging companies. Quoting directly from their website, Tranlin’s published mission statement is “Green, Ecological, Innovative, Beneficial.” Jerry Peng, the Chairman and CEO of Tranlin, Inc., said that he hopes the company will be publically traded in the future.

We should expect Tranlin to follow Shandong’s footsteps with respect to potential suppliers. According to the FisherSolve database, they include some of the world’s best-known as their operation in China is served by equipment from Andritz, Metso, ABB, and PTM Italia S.p.A., to name a few.

**TREND # 2: Foreign Direct Investment in the United States**

According to a report prepared by the U.S. Department of Commerce and the President’s Council of Economic Advisers that was released in October 2013, the total value of foreign direct investment (FDI) in the U.S. was $3.9 trillion. In 2012 alone, the value of FDI was $166 billion and China’s share of that investment has been growing. Before 2010, China FDI in the U.S. was negligible. During the years 2010-2012, the average FDI from China was $1 billion (a mere 0.6% share from the world’s second largest economy). The Shandong Tranlin announcement triples the annual average in just one venture.

Other FDI infusions into the U.S. paper industry include International Grand Investment (IGI)’s announcement earlier this year that they would build 2 new tissue machines at their Woodland Pulp LLC facility located in Maine. IGI is a privately held investment group based in China.

This, along with the Shandong Tranlin investment announcement seems to indicate that as Chinese companies grow and expand, they are finding that it makes more sense to manufacture their finished product closer to the end-use market.

These two events are the most recent examples of what we can expect to see on the FDI front in the paper industry.

**TREND # 3: Intellectual Property-Based Financing**

In March of 2014, it was reported by IAM Magazine and China Paper, a trade publication on financing in China, that Shandong Tranlin received a loan of RMB 7.9 billion ($1.3 billion) based on a portfolio of 34 trademarks and 110 patents. The
lending institution was the China Development Bank. The value of the patents was RMB 6 billion ($1.0 billion). This is among the largest known sums where an intellectual property (IP) portfolio has been used in a loan transaction (Intellectual Asset Management, May/June 2014). Li Hongfa, Chairman of Shandong Tranlin said, “I didn’t believe that intellectual property could play such a big role in the loan transaction and account for such a large proportion of it. The project can now accelerate once the money is in place. Market opportunities do not wait.”

It is not clear exactly what project Mr. Li Hongfa is referring to. What is clear, however, is that the patents of the Shandong-Tranlin Paper Co. have value. Shandong Tranlin, again quoting from their website, describes itself as “One of the first experimental enterprises of a national recycling economy.” They have received an award from the Chinese government as “The First Group of National Cycling Economy Pilot Enterprise.”

On June 15, 2014, there was a special published report titled “China’s policies and instruments for developing the circular economy.” It was authored by Dajian Zhu, the Director of the Institute of Governance for Sustainable Development. The intent of the “circular economy” policy is to address the increasingly serious resources challenges and environmental threats faced by China. It is not a simple environmental management policy but a green economy measure and a new development tool that is planned to allow China to leapfrog to a sustainable economic model.

It is intended to reward companies that embrace the idea of closed-loop solid waste material flows in all stages of production, distribution, consumption, and treatment of waste. The second area of the law is Resource Productivity improvement. This is to allow companies to control consumption of water, land, energy, and materials, as well as the discharge of main pollutants. This will encourage the transition of corporations to a more sustainable “green” business.

The policy report indicates that this Circular Economy program is active in China today. As the government tends to control the economy and the banks, i.e. lending institutions, it is very possible to influence the outcome of lending practices. If Tranlin is successful in the U.S., we should expect to see more of the same.

As the value of IP increases, Chinese corporations will conduct more R&D in order to be able to generate patents.

SUMMARY

We are aware of three “non-woody” pulping facilities that have been announced — all have a “closed-loop” disposition. One of them is very active in the construction process while two of them have not yet started to file for permits. The two that have not yet started, plan to produce paper in various grades and one will produce pulp. There will be multiple profit streams from the mills as they sell the transformed black liquor either as fertilizer or as a soil amendment. At the same time, incoming raw material will be relatively inexpensive to obtain.

We are aware that FDI from China is on the rise as China’s cash-rich companies, along with policy support from the Chinese government, invest in the U.S. in order to reduce the trade debt. We should expect to see a continuation of this trend provided Chinese companies are successful in their U.S. operations.

If Tranlin can receive a loan for projects and expansion to the tune of $1.3 billion coupled with the Circular Economy encouragements of the Chinese lending institutions, AND Tranlin is successful in Virginia, we can expect to see an increase in R&D and Chinese patents in conjunction with a strong emphasis on ecology, resource reduction, and reutilization of energy and other resources leading to closed-loop manufacturing practices in the future from the pulp and paper industry of China.

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Safer Conveyor Operation, Lower Costs with CanGlide Polymeric Technology

Innovative polymer cartridges are safer, significantly cut maintenance costs, and provide better belt performance in bulk handling conveyor systems.

By Bernel DeGrace

The principal component of a conveyor is the endless, motor-driven belt which is used to transport goods and material in hundreds of industrial applications including the pulp and paper industry. Trough conveyors are an integral part of most manufacturing and mining industries and are designed for the material properties, distance to be transported, conveyor speed, etc. For example, in the iron ore and other extractive industries, conveyors move bulk materials for distances of up to 25 kilometers and more. Conveyors are used extensively in sawmill and pulp and paper sectors, transporting wood chips, lime, hog fuel (biomass), and other material components of the manufacturing process.

While conveyors have been around for well over a hundred years, the concept of replacing the rollers (idlers) which support the conveyor belt, with a polymeric pad or cartridge over which the belt slides, came into existence less than fifteen years ago. Conceived and developed by Jean-Marc Boudreau, a founding partner with Ian Oliver in Bathurst, New Brunswick-based CanGlide, Inc., the Slidler™ and return Slidler™, is a response to conveyor users having to deal with the high maintenance costs and production down-time resulting from seized bearings of the supporting conveyor rollers — commonly referred to as idlers.

IDLER MAINTENANCE ISSUES

Earlier idlers were hand-greased to provide lubrication for the internal bearings; and the running life of the idler depended on the scheduling and effectiveness of the lubrication. Subsequent idlers, such as many of those in operation today, have enclosed, pre-greased bearings which make it impractical to pre-determine the condition of the sealed idlers. In turn these idlers can unexpectedly seize due to wear and corrosion, resulting in belt misalignment and/or belt damage. It is not unusual to see conveyors operating...
with a number of seized idlers. The resulting maintenance and production downtime costs can be extensive; while increased energy consumption also becomes a factor.

NO MOVING PARTS
CanGlide’s Slidler has no moving parts and does not have the issues associated with idlers. The engineered product utilizes low coefficient of friction polymer pads, or cartridges, affixed by a patented fastening system to a supporting frame. The innovative grooved surface design provides uniform belt support and allows the belt to glide across the cartridges, reducing the belt wear and stresses associated with seized idlers.

The residual service life of Slidler cartridges can be visually monitored, allowing scheduling of any required cartridge change well in advance of future conveyor outages. Cartridges are durable, lightweight and can be changed, without tools, in a matter of minutes.

SAFETY
There have been serious injuries and even fatalities in the past resulting from personnel coming into contact with moving conveyor components. Particularly dangerous is the merge, or pinch-point, of the rotating idler and conveyor belt. Regulatory bodies in some jurisdictions are increasingly concerned about this and stricter enforcement of a requirement to erect protective guards or cages at idler stations can be expected.

Importantly, the Slidler has no rotating elements which can contribute to severe hand and arm injuries, and there is increased interest in the reduced risk of injury, provided by the Slidler, to operating personnel. CanGlide is in ongoing discussions with provincial employee safety regulatory bodies to present the Slidler design concept and assess the lessened risk of pinch-point injuries and the requirement for conveyor belt safety cages. There are already applications in Quebec and New Brunswick where specific conveyors with Slidler installations, have been exempted from the requirement of safety guards.

Apart from the diminished risk of injury, the Slidler also reduces the possibility of airborne dust ignition from heat generated by seized bearings in sawmills and other process-generated dusty environments.

REDUCED COST OF OPERATION
Since its development and market introduction in Atlantic Canada and Quebec, the Slidler has proven to increase belt runability and provide significantly reduced maintenance in over nine hundred installations in the pulp & paper, sawmill, iron ore, salt and potash mining, aggregate, peat moss - and other bulk material handling applications.

Compared with traditional bearing idlers, the replacement costs including maintenance and downtime are considerably reduced. The Slidler lasts longer, with installations in a number of Pulp & Paper, Mining and Peat Moss operations having more than doubled operating life compared to previously installed idlers. The marginally higher initial cost of a Slidler installation is recovered early in its life cycle.

Bernel DeGrace is a marketing consultant and has held marketing and general management positions with North American and European suppliers to the pulp and paper industry. For further information about CanGlide, send email to: info@canglide.com
MEASURE, MANAGE, IMPROVE –

A Reliability Story

Good reliability is good availability, and the more reliable your assets, the more availability for production.

By John Yolton

There is a lot of press concerning ‘reliability’ in the pulp & paper industry these days. In fact one is led to believe that reliability itself is a newly developed strategy. It is not. Variations of reliability focused actions have been around for decades.

The product of good reliability is good availability. The more reliable your assets, the more availability for production, providing you with much more flexibility in your operations.

Reliability is not just about your maintenance practices, it is about every stakeholder’s contribution to the condition of the existing assets and how they perform. As such, operations plays a large role in asset efficiency optimization, namely as the front line, 24/7, asset condition monitors.

This is the new development in reliability of equipment in the pulp & paper industry.

BEARING FAILURES

Historically, the Number 1 asset component with the most failures is bearings. Every rotating piece of equipment is provided with bearings, so it is no wonder the focus for improved reliability falls upon this critical component.

Historically the number one cause of bearing failure is lubrication, e.g., too little, too much or too much contamination (see Figure 1).

Likewise, historically, the Number 1 methodology used to identify bearings in the process of failing is condition monitoring, aka predictive maintenance (PdM) — specifically vibration monitoring.

Many paper mills today are data-driven with data coming from all kinds of sources, e.g., DCS’, MES, QCS, EAM/CMMS, ERP, Condition Monitoring, Operator Rounds, and so on. In many cases we are faced with data overload from too much big data. The proliferation of the web, smartphones, tablets and cloud has only increased the amount of data available for analysis.

So the question arises, can you have asset efficiency optimization, aka reliability, without big data analysis.

Following are some real world pulp and paper examples.

Printing & Writing Paper Machine

In 1953, a Pusey and Jones paper machine began the ‘operate and maintain’ phase of its life cycle. The machine was
designed to produce heavy weight offset. Much of the original machine has been upgraded, except for its dryer sections, which are still in original configuration.

One might expect that over the course of 61 years the bearings on this machine might have exceeded their ‘life cycle’ and replaced. Yet, that has not been the case. Sure, there have been failures, but isolated and random and few.

You might ask how a 60+ year old paper machine could still be running with its original bearings after all these years of production. How could this workhorse continue to provide reliable operation?

One, this machine is (still) equipped with one of the best circulating lubricating oil systems designed in its day, providing adequate, clean, cool oil to each of the bearings in its dryer sections, including felt rolls. So the bearings are well lubricated, eliminating the Number 1 cause of bearing failure.

Two, for decades, due to the drive steam turbine’s critical speed matching the top end of optimal production machine speed, bearing load has not increased due to ever increasing machine speeds so common on other paper machines, eliminating overload as a factor for failure.

Three, back in the day, the typical paper machine crew consisted of Machine Tender, Backtender, Winder Operator and several ‘hands’ (assistants) all of whom were on the floor and ever mindful of sound, sight, feel, heat/cold (sensory perception) of the assets they were operating. Discrepancies were routinely noted and reported. Sort of an early ‘basic care’ program.

While times have changed and more production and maintenance is done with less people due to the addition of technology, the processes remain nearly the same. Well-designed assets, operated within design parameters, monitored and maintained with care will provide a longer life cycle than assets exceeding their design limitations and lacking condition monitoring and proper maintenance.

Bearings properly installed and cared for can last a long, long time. What are the reliability practices at work? Design for reliability, proper lubrication and operator attention.

Market Pulp Mill

A medium sized 540,000 tonne per year market pulp mill, after undergoing a major expansion rebuild was suffering too much downtime due to failures of assets. Recognizing a need to optimize asset efficiencies to improve availability, management sought outside assistance via benchmarking to known best practices. This ‘needs analysis’ provided a roadmap to improvement defining specific issues to address and correct.

Investment in technology, process changes and additional personnel was required. A reliability focused crew was created. Operators became involved in the care of the assets for which they had responsibility through the process of condition monitoring. Condition monitoring technology was updated and expanded and the enterprise asset management program was updated.

This mill experienced a period from January 2012 through September 2013 (21 months) without an unplanned shutdown due to failure of its ‘critical’ rotating equipment, winning a prestigious award for Best ODR Program of the Year in 2013, out of 75 global applicants from all industries. This mill’s management recognizes that involving operators is a ‘game changer’ and cultural change breakthrough.

In average, this mill collects some 250,000 condition monitoring data points per day, all of which have to be considered in the analysis process. Talk about big data. The reliability team uses a commercially available, site-specific configurable application to process these data real time and provide immediate recommendations for action.

A subsequent ‘needs analysis’ comparing previous compliance to best practice to present indicated the mill had advanced from ‘below average’ previously to ‘first quartile’

“The product of good reliability is good availability. The more reliable your assets, the more availability for production, providing you with much more flexibility in your operations.”

Figure 1. Causes of Bearing Failure.
among global pulp and paper mill reliability performance today.

**Linerboard/Corrugating Medium Mill**

A single line pulp and paper mill producing 1000 tonnes per day of corrugating medium experienced too many failures of critical operating assets. Seeking assistance to mitigate these losses they contracted with local SKF services to complement the existing maintenance resources.

The scope of the contract included:

- Predictive maintenance (PdM) program using vibration monitoring
- Assist with root cause analysis (RCA), primarily of bearing failures
- Workshop assessments and improvement actions
- Precision maintenance training

Progressive improvement in uptime resulting from detection and replacement of failing bearings and other assets resulted as shown in Figure 2.

In the meantime the mill has begun implementation of basic care for its operators in order to complement the condition monitoring provided from outside contractors.

**Tissue Mill**

A two-machine, six converting lines, towel and tissue plant sought continuous improvement in its quest for asset efficiency optimization.

Opting to use the same benchmarking exercise, comparing its own existing practices to published best practices they found ‘tactical’ deficiencies preventing them from advancing on their strategic goals.

Contracting with local SKF resources, the plant developed a plan for improvement of asset reliability comprised of reducing their unplanned downtime due to maintenance with an initial goal of 225 hours per year (see Figure 3).

This plant is now in the process of implementing a ‘basic care’ program for its operators adding another data set to the condition monitoring of the operating assets. With proper analysis this presents opportunities for downtime improvement and maintenance cost reduction.

**CONCLUSION**

Reliability is a priority in the pulp and paper industry. The journey to improved reliability starts with an analysis of your current situation compared to industry best practices for asset efficiency optimization. From this a plan for improvement can be determined. Key Performance Indicators (KPIs), both leading and lagging, will measure the progress and allow adjustments when necessary.

Without data, sustainable improvement is difficult.

As the adage states: *Measure, then Manage, then Improve.*

1 AIMAN (Italian Association of Maintenance Engineers) and IRI (International Research Institute) in conjunction with SKF.
2 “It’s hard work, day-to-day, to look at your data and to analyze it, instead of developing new equipment to give us even more data and confuse us even more, we should have people investigating the data, understanding the losses…” Thorsten Becherer, Director, hygiene manufacturing excellence, Svenska Cellulosa Aktiebolaget, Sweden.
3 SKF’s Client Needs Analysis.
4 SKF’s @ptitude Decision Support.

John Yolton is a 50-year veteran of the global pulp and paper industry. Following a long career with a number of paper companies and later, solution suppliers to the industry, Yolton is now Global Business Manager – Asset Reliability Consulting for SKF. He can be reached at: john.yolton@skf.com.
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<th>PAGE</th>
<th>WEBSITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldon Company</td>
<td>11</td>
<td><a href="http://www.aldonco.com">www.aldonco.com</a></td>
</tr>
<tr>
<td>Buckman</td>
<td>17</td>
<td><a href="http://www.buckman.com">www.buckman.com</a></td>
</tr>
<tr>
<td>Edwin X. Graf</td>
<td>29</td>
<td><a href="mailto:headbox@aol.com">headbox@aol.com</a></td>
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<tr>
<td>GF Piping</td>
<td>9</td>
<td><a href="http://www.gfpiping.com">www.gfpiping.com</a></td>
</tr>
<tr>
<td>International Pulp Week</td>
<td>32</td>
<td><a href="http://www.internationalpulpweek.com">www.internationalpulpweek.com</a></td>
</tr>
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<td>Papermachine Service Industries</td>
<td>29</td>
<td><a href="http://www.papermachine.com">www.papermachine.com</a></td>
</tr>
<tr>
<td>Souhegan Wood Products</td>
<td>13</td>
<td><a href="http://www.souheganwood.com">www.souheganwood.com</a></td>
</tr>
<tr>
<td>Splice Solutions Inc.</td>
<td>29</td>
<td><a href="http://www.splicesolutions.com">www.splicesolutions.com</a></td>
</tr>
<tr>
<td>Thiele Kaolin Company</td>
<td>5</td>
<td><a href="http://www.thielekaolin.com">www.thielekaolin.com</a></td>
</tr>
</tbody>
</table>

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I certify that all information furnished is true and complete.
John F. O’Brien, Jr., Managing Editor
AF&PA recently honored five member companies for their commitment to sustainability in presenting our 2014 AF&PA Sustainability Awards. The awards support our Better Practices, Better Planet 2020 initiative and are designed to recognize exemplary sustainability successes in the paper and wood products manufacturing industry.

AF&PA sustainability award applicants are considered in two primary categories. Projects that support the sustainability goals within Better Practices, Better Planet 2020 qualify for recognition in the “Leadership in Sustainability” category, which has five subcategories that correspond to the goals: Paper Recovery for Recycling, Energy Efficiency/Greenhouse Gas Reduction, Sustainable Forest Management, Safety, and Water. The “Innovation in Sustainability” award is reserved for projects that merit recognition for their contribution to sustainable business practices, not one of the goals specifically.

RockTenn received a Leadership in Sustainability Award for Sustainable Forest Management for its Internal Fiber Supply Chain Certification program. They achieved their sustainability goal to achieve fiber chain-of-custody certification to credible third-party forestry certifications at all their North American wholly owned manufacturing facilities by 2020 early, in 2013. The company initiated a dual purpose effort to bring all their non-certified facilities to the same certifications and to combine all their existing certifications into one enterprise-wide multisite certificate.

Evergreen Packaging was also awarded a Leadership in Sustainability Award for Sustainable Forest Management for its Internal Fiber Supply Chain Certification program. They achieved their sustainability goal to achieve fiber chain-of-custody certification to credible third-party forestry certifications at all their North American wholly owned manufacturing facilities by 2020 early, in 2013. The company initiated a dual purpose effort to bring all their non-certified facilities to the same certifications and to combine all their existing certifications into one enterprise-wide multisite certificate.

Expera Specialty Solutions was recognized with the Leadership in Sustainability Award for Safety for the Care Enough to Act program in Expera’s Nicolet Mill. This innovative recycling program, participating entities learn about recycling and receive funding for their organizations, and the mill receives clean, high-quality recyclable paper. The program has recovered 2,900 tons of paper and contributed $500,000 to over 120 participating groups.

NewPage’s second award was the Leadership in Sustainability Award for Water for the NewPage Escanaba Mill Water Reduction Initiative. The Escanaba, Mich. mill carried out a comprehensive program of repairs and optimization, resulting in measurable water reductions throughout mill area operations. The reduced water use led to reduced costs required for the heating, pumping, and treatment of water and supports ongoing resource conservation efforts at the mill.

Domtar received the Leadership in Sustainability Award for Energy Efficiency and Greenhouse Gas (GHG) Reductions for their Barge Unloading and Conveyor Project. This one-mile-long conveyor belt from the banks of the Ohio River straight into their Hawesville, Ky. Mill enabled Domtar to directly deliver wood chips to the mill, eliminating 54,000 wood chip delivery truck trips and drastically reducing truck traffic and related congestion and pollution.

Domtar was also awarded this year’s Innovation in Sustainability Award for their BioChoice Lignin — a glowing example of our industry’s potential to produce new value streams out of existing resources. Domtar leveraged their Plymouth, N.C. mill’s existing infrastructure to start a lignin separation plant — the first of its kind in North America in over 25 years. Lignin is the natural glue that holds wood fibers together. While it is most commonly used as a carbon-neutral source of fuel, modern technology allows it to be made into a wide range of sustainable products, including coating, natural binders, plastics and resins.

These winning programs showcase the proactive approaches our members are taking to improve upon their business practices and contribute to achieving the Better Practices, Better Planet 2020 sustainability goals by 2020. AF&PA’s 2014 Sustainability Report showed that the industry has already made significant, measurable progress toward achieving the goals.

For more information about AF&PA’s Sustainability Awards program and Better Practices, Better Planet 2020 initiative, visit www.afandpa.org/sustainability.
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