

by Clarissa Morawski

*"AbitibiBowater has discontinued purchasing paper from most southern Ontario municipalities that have single-stream recycling facilities."*



Contamination from single-stream recycling programs causes rejection at mills, shipments to China

# Newsprint on the Orient Express

**M**any recycling programs today operate with a system that's causing absurd side effects, including that some major newspapers are choosing virgin fibre over newsprint made from less white and bright recycled paper.

The problem is high contamination rates in fibre material recovered via single-stream recycling programs, leading to rejection from local mills and shipment to overseas markets where labor is cheap. (In single-stream recycling systems, residents commingle paper and other fibre materials with containers made from glass, plastic and metal in a single cart or bin, rather than keeping the fibre and container streams separate, i.e., "dual" or "two-stream" recycling.)

Southern Ontario illustrates the mess. Each year Ontario municipalities collect just under 500,000 tonnes of printed paper for recycling. Newsprint, magazines, catalogues, phone books and household paper comprise more than half the total weight of all blue box recyclables collected. The volumes are significant, and are worth over \$40 million in the marketplace. For years the recycled fibres were used by Ontario or Quebec paper mills to substitute for virgin material. The concept of reading the daily paper, recycling it, and getting some of the same (recovered) paper back in the next newspaper made great sense.

However, today, the vast majority of Greater Toronto Area (GTA) discarded newspaper, magazines and other printed papers are transported by rail more than 3,000 kilometres to Vancouver, and shipped in containers a further 10,000 kms to China or India. Some material is even shipped much longer distances to Asia via the Panama Canal after being trucked to New Jersey ports.

What changed?

Strong demand for old newspapers in nothing new; in the past Canadian-based companies were able to compete for the supply. Today, however, the quality of material offered to the recyclers is dramatically different than it used to be. In the last five years a fundamental shift has occurred in the way recyclables are collected and processed in many jurisdictions, and this has impacted quality.

For municipalities struggling to divert more waste with less money, single-stream collection is an attractive alternative. Municipalities have been persuaded that this easier way to recycle (wherein residents sort less) increases recyclables collection and therefore diversion (from disposal).

But the current price tag of recycling does not consider increased costs at the end of the cycle; these are borne by the recyclers of paper, cardboard, glass, plastic and metal. The recycling industry, and particularly the paper mills, report poor quality from single-stream collection programs and new costs for equipment repair and maintenance. They must also pay for additional landfilling of contaminants and material replacement. (See *article on markets*, page 46.)

Their impressions are not just conjecture. A 2004 study from J. Poyry and Skumatz Economic Research Associates confirmed that while single-stream collection is indeed about \$15 (range of \$10-\$20) per ton cheaper than separate (dual-stream) collection, processing the material costs about \$10 more per ton and recyclers have to pay a further \$8 (\$5-\$13) per ton to deal with the dirty material. In the end, single-stream systems cost about \$3 (\$0-\$8) per ton more than their two-stream counterparts.

## *“Off-shore labor can clean up the recovered paper for a price with which Canadian companies simply cannot compete.”*

Perhaps because many municipalities focus on the collection numbers, today there are more than 160 single-stream materials recovery facilities in the United States — more than double what existed five years ago. In Canada, most new processing facilities or retrofitted facilities are designed to accept single-stream material feedstock, despite the fact that the sale of the recycled materials depends on volatile Asian markets. More than half of curbside collection in Ontario and Quebec is done using single stream.

Of course, when the economy is in good shape processed paper sells for high prices to those Asian markets, but when the market is disrupted, low-quality material is tough to sell. Such dependence on foreign demand is risky for municipalities that require a sustainable market for

their recycling program. Beyond basic economic market conditions, other factors could impact demand from Asia, specifically, a country's domestic capacity, increasing labor costs, fuel costs and new environmental requirements that may be added in the receiving country.

### **Lessons from 2008**

Understanding the risk associated with foreign markets is important. In October 2008 the global economic crash drastically slowed the movement of secondary commodities, including recovered paper. Many processors with lower quality material scrambled to send their material anywhere it would be accepted. Many processors in West Coast cities that rely predominantly on Asian recycling markets sent their material to landfill until



Aerial view of AbitibiBowater's Thorold paper mill. (See sidebar, page 13.)

## COVER STORY

the market began to right itself again. The economics of recycling were completely flipped; in some cases what is normally be a revenue stream became a cost for disposal or temporary handling and storage.

The events of 2008 created an entirely new marketplace — one that tested the new “commingled” collection system. During the downturn, recyclers were able to discriminate among suppliers, allowing them to choose high-quality feedstock over suppliers whose quality had never achieved the processors’ standards in the first place.

Shortly after the economic collapse, Roy Hathaway — head of waste regulation and business waste for the U.K.’s Department for Environment, Food and Rural Affairs — explained that the quality of material would play an increasingly pivotal role in trade, with the market set to face short-term financial constraints.

“It’s going to be the low-quality end of the

spectrum which is going to be squeezed out by an economic downturn,” said Hathaway.

A downturn as severe as the one in 2008 is unlikely to occur again soon; however, diversified and sustainable recycling markets are important nonetheless. Without domestic markets, off-shore demand could soon “own” the market and eventually reduce the prices offered for recovered paper.

### All about quality

Since 2003, as the popularity of single-stream collection has grown, AbitibiBowater’s Thorold mill (which manufactures newsprint from 100 per cent recovered paper) reports that the contamination rate climbed from about 3.5 percent to a whopping 15 percent in 2010 (*see graph on next page*). This is consistent with reports from Quebec-based Kruger that contamination as high as 20 per cent. American mills report

similar findings, with the prohibitive rate (non-paper material) doubling and outthrows (unwanted fibre like cardboard, boxboard and kraft paper) increasing by as much as 500 per cent.

Processors at recycling plants will only sort material as far as necessary in order to sell it. With a strong demand and cheap labor, Asian paper mills can further sort their incoming paper to meet the specs for production. For Canadian paper mills, poor quality waste paper no longer allows competitive manufacture of newsprint. AbitibiBowater has discontinued purchasing paper from most southern Ontario municipalities with single-stream recycling facilities, including the municipal regions of Toronto, York and Peel. Collectively, these programs account for approximately half of the recyclables collected province-wide.

Landfilling the contaminants impacts

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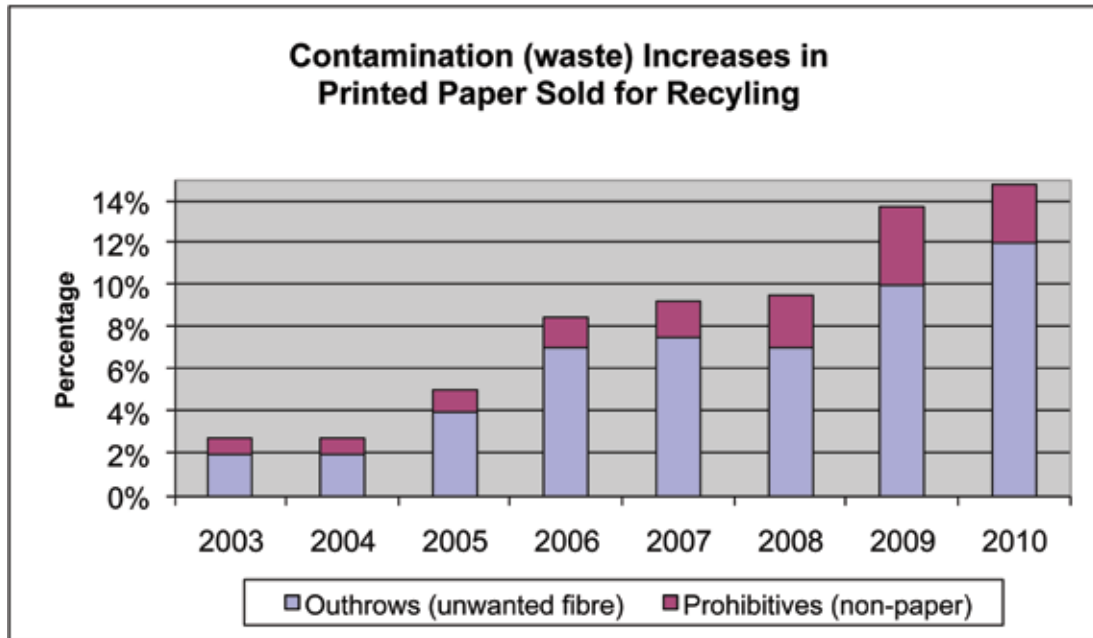
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## COVER STORY

Abitibi's bottom line, adding \$2-\$3 million/year in costs, not including increased equipment maintenance, repair and replacement.

While the mill's pulper is able to reject most of the contaminants, some brown paper packaging ends up being recycled, making the final product darker or "dirtier" than the virgin competition. Recycled paper is actually stronger and more opaque than virgin, but the difference in "whiteness" has compelled some newspapers to go back to purchasing 100 percent virgin paper (entirely from trees) because it is a little whiter, brighter and costs about the same.

Most Ontario-based daily newspapers use either 100 per cent virgin paper or a small percent recycled-content. One would think most readers would prefer to read a paper made from recycled fibre and not virgin tree pulp. Even the "sustainability mandate" of

the *Globe and Mail* states that it "encourage their suppliers to supply high-quality post-consumer recovered fibre." (See *Globe and Mail*, October 2, 2010.) The newspaper supports improvements to recycling systems nationwide, adding that "about 35 percent of all paper products that enter a single-stream recycling program ends-up in landfill largely due to contamination."

This story is compelling in that Canadians want to support the struggling manufacturing sector. But what can be done? Off-shore labor can clean up the recovered paper for a price with which Canadian companies simply cannot compete.

### Solutions

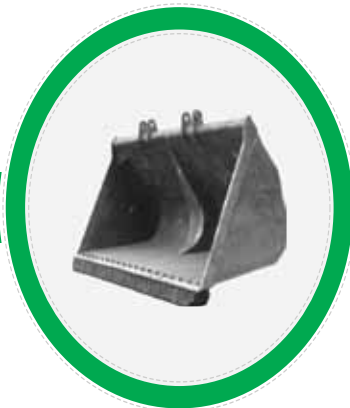
The best way to support local recyclers is to supply them with a quality that can be used. However cash-strapped municipalities and

their recycling plants are unwilling to slow down their sorting process because that makes it more expensive.

Newspaper publishers catering to the Ontario marketplace could try to procure more recycled-content paper and decrease the amount of virgin materials used to make their product. Demand for recycled-content in newspapers could be most effectively delivered if advertisers insisted on it. These companies may be the very same ones that are stewards in the current Blue Box Program Plan that currently helps finance curbside recycling (via a law that forces all packaging and printed paper producers to help cover the costs). Greener procurement of advertisements would indirectly support local recycling, lower costs and reduce risks to the same program to which they contribute over \$90 million annually.

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Diversifying recycling markets and doing a better job at sorting recovered paper will deliver a higher quality recycled product and reduce the financial vulnerability of the program. Newspaper publishers along with municipalities

would be wise to rethink what they buy and how they handle their recovered paper, and how fibre is collected in curbside programs. They should consider the downside of purchasing virgin paper and selling recovered paper to off-shore

markets only for short-term financial gain. 

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## "Green" Newsprint

### AbitibiBowater's Thorold paper mill

In late January I visited AbitibiBowater's ("AbiBow") newspaper mill in Thorold, Ontario. Standing in front of the security entrance, an icy winter wind blew in from the Welland canal that runs alongside the plant. The original mill, now just a crumbling brick wall, was built in 1913 by the *Chicago Tribune* for less than \$200,000. When you enter the mill you realize that as far as North American paper mills go, this is one of the newest, and there's a three-decade-old green story behind it.

Thirty years ago (1981) AbiBow introduced paper de-inking and began using 25 per cent old newsprint (ONP). Five years later, modern flotation deinking was introduced, eliminating sulphite pulp and thermo-mechanical pulp; this greatly reduced emissions. The chemical division shut down and the company ramped up recycled content to 50 per cent. Nearly ten years ago, the mill transitioned to 100 per cent recovered paper and gained the status of being Canada's largest newsprint recycler. With two paper machines running to production capacity (~420,000 tonnes per year), and about 320 full time employees, the facility recycled most of the recovered newsprint from Ontario homes and businesses, and began importing more paper from neighboring US states.

AbiBow's 100 per cent recycled fibre status is responsible for an annual net reduction of over 500,000 tonnes of greenhouse

gases per year (like pulling 125,000 cars off the road). It has also reduced the landfill burden and the need for virgin fibre from trees. The company's industrial ecology program draws methane gas from the neighboring landfill (Walker Industries). A project in the development stage uses excess heat from the generators to dry biosolids produced by the recycling operation. Dry biosolids from the plant have the potential for value-added end-markets like animal bedding.

Modern effluent treatment has virtually eliminated dirty water discharges, and freshwater consumption is down by 20 per cent over four years. Increasing from 25 per cent to 100 per cent recycling has meant a whopping reduction in energy demand of 150 per cent per tonne produced. The facility contributes almost \$200 million in economic activity including taxes (payroll, ONP purchases, supplies, etc.).

But all this good news cannot undo the damage that single-stream collection systems are creating. Faced with dismal quality ONP for recycling, AbiBow's costs have increased for bleaching, landfilling rejects, and increased material replacement. In April 2010 the mill had to idle one of its two paper machines due to lack of demand. Despite the environmental superiority of 100 per cent recycled-content, publishers are concerned that the product it is not a white as virgin paper (for advertisers).

— Clarissa Morawski

