

Customer needs are driving Canada's industry as never before

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Recovery and prospects for the Canadian pulp and paper industry

That there is still a living, breathing Canadian pulp and paper industry after the debacle of 1989–94 is a tribute to something. Guts? Determination? Pure luck? Probably all three, plus a large helping of a new-found pragmatism.

In that period, Canada's forest products companies faced:

- Terrible market conditions
- Tough environmental battles
- Poor cash flow.

The most positive thing to come out of the recession—described as the worst period in the industry's history—is a major change in attitude. As Lise Lachapelle, president and CEO of the Canadian Pulp and Paper Association (CPPA), described it in a speech last September to the Canadian Club of Montreal: "Customer needs and preferences are driving this industry like never before, from forest management practices to pulping processes to manufacturing value-added paper products."

Economically important

It is little realized outside the country—and often, even within it—how enormously important the forest products industry is to Canada's economic well-being. Between 1989 and 1994, the industry's sales averaged 12.2% of Canada's manufacturing shipments. No other industry sector matches that.

Each of the ten provinces and two territories has forest operations and sawmills, but the highest concentrations are in British Columbia, Ontario, and Quebec, which lead in the pulp and paper sector as well. Only Prince Edward Island and the territories have no pulp and paper mills.

Aspen harvesting in western Canada. No longer considered a weed tree, aspen is finding increased application in a wide range of pulps, including BCTMP. (Photo: Tony Rotherham RPF)



Direct employment is about 242,500. Add about 727,500 indirect supply and service jobs, and the forest products industry provides nearly a million jobs—7.3% of the total workforce.

The industry pays its way, too. Payments such as income taxes and stumpage fees to federal, provincial, and municipal governments, as well as those related to employment, totaled over CAD 40 billion over the five years.

The financial picture

Table I tells the story from 1989 to 1994. The table is based on an annual survey by the accounting firm of Price Waterhouse on behalf of CPPA's member companies.

In 1989, things were going smoothly. Industry sales were CAD 38.5 billion, and net earnings were CAD 2.4 billion. The pulp and paper sector was making money, and only lumber showed some weakness.

Canadian Industry

In 1990, the picture started to change. Sales dropped to CAD 36 billion. Overall, earnings dropped to only CAD 20 million. While pulp was still a good earner, newsprint and other grades started to sag. Lumber and panels were feeling the pinch as well.

By 1991, all sectors lost ground. Sales were CAD 31 billion, and the industry lost CAD 2.5 billion.

Then in 1992, there was a slight improvement. Lumber and panel prices climbed and showed up nicely on the balance sheets. Still, pulp and paper struggled, due to a combination of fluctuating prices and overcapacity, particularly for newsprint. Industry sales rose slightly to CAD 33.3 billion. The overall net loss was about CAD 1.4 billion—CAD 1.2 billion better than the previous year, if any loss can be called better.

Disaster struck the pulp sector in 1993 when it lost a record CAD 1.1 billion; worldwide overcapacity crushed prices. Paper continued to suffer, although by the end of the year, newsprint was reporting a smaller loss than the year before. Lumber and panels were still the bright spots.

The turnaround started in 1994. Total sales increased by CAD 6.8 billion to CAD 44.3 billion. As a result, the industry earned CAD 2.5 billion compared with losses of CAD 200 million in 1993 and CAD 1.4 billion in 1992. Pulp and paper, while still reporting net losses, made a real comeback.

The portents are that 1995, 1996, and perhaps 1997 will see pulp and paper back in the black. Lumber seesawed during 1995, and the prices of recovered paper dropped from a spring high.

What happened?

Canada's problems were basically the same as everyone else's, namely overcapacity, poor prices, and weak demand for its products; rising prices for fiber; and unexpected costs to fix environmental problems. Added to that were volatile currency exchange rates (see sidebar).

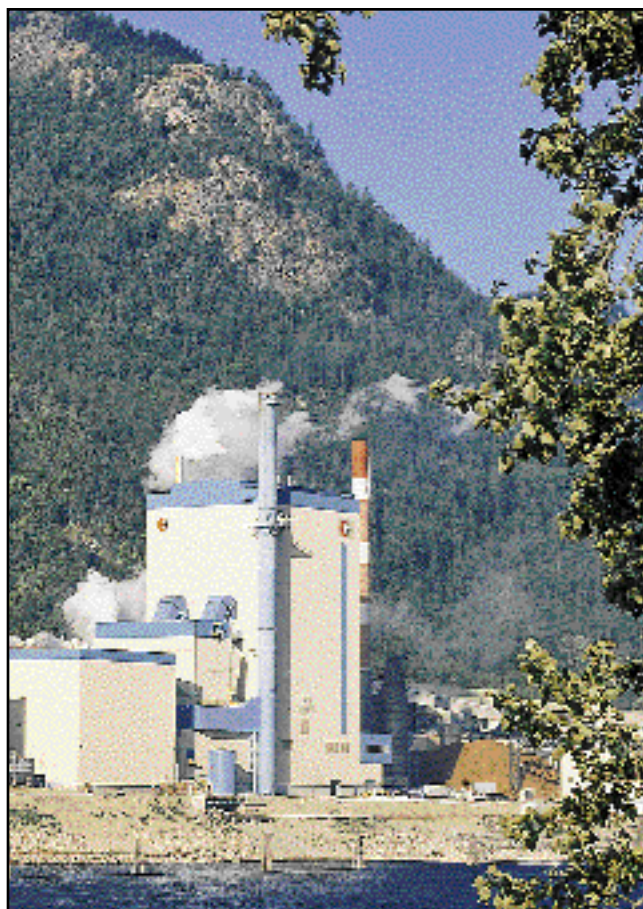
According to Jayson Myers, chief economist of the Canadian Manufacturers' Association, Canadian industry at large faced a real cost squeeze between 1989 and 1995. Payroll taxes and labor benefits jumped 80%, wages rose 24%, and equipment costs were up 16%. Selling prices averaged only an 8% increase.

There was one positive international move: the signing of 1989's Canada/United States Free Trade Agreement (FTA), which subsequently became the North American Free Trade Agreement (NAFTA) when it was expanded to include Mexico in 1993.

"The original FTA had the most effect as far as Canada was concerned," says Brian McClay, senior vice president, trade and government affairs at CPPA. The elimination of tariffs on paper products between the two countries encouraged Canadian producers to be more aggressive in marketing their products in the United States.

McClay says that, in particular, producers of tissue and high-quality boxboard have found secure markets because of the access afforded by the FTA. They had previously been seen

Celgar Pulp Co., Castlegar, BC, reached full production levels of fully and semibleached market pulp in 1994 after a US\$ 700 million modernization. (Photo: Kvaerner Pulping Inc.)



as suppliers only to local Canadian markets. Similarly, Canadian printing and writing paper manufacturers benefited from tariff reductions.

The environment

Money wasn't the industry's only problem during the recession. Society nudged it too, with effects that will continue to be felt by the entire industry—from fiber supply to processes to marketing—for years to come.

The international environmentalist agenda forced the industry to take close stock of its ways of doing business. The demand for environmentally friendly processes and products put some of Canada's biggest forest products companies front and center on the world stage.

The media had a field day, because there was something to talk about other than the recession. MacMillan Bloedel became a household name as it fought accusations of stripping British Columbia's temperate rain forest. Chlorine bleaching and paper recovery were topics of lively debate. The United States' recycled-content paper legislation caused consternation in Canada's newsprint sector.

Lise Lachapelle was appointed president and CEO of the CPPA in September 1994. CPPA member companies represent 90% of Canada's pulp and paper production capacity. Sales for the Canadian forest products industry as a whole in 1994 totaled CAD 44 billion. (Photo: CPPA)



On top of these relatively local issues came the 1992 Earth Summit in Rio de Janeiro and the worldwide agreement to "do something" about greenhouse gases and their contribution to global climate change. Canada was the first country to sign the Rio protocols on topics ranging from carbon balance to biodiversity.

All of these things came down to the mill level, where scientists and engineers were expected to fix the problems (which they did). Among their successes was substituting chlorine dioxide for chlorine in bleaching sequences to such an extent that, by the end of 1995, over 60% of Canadian bleached chemical pulp was free of elemental chlorine, up 20% over 1994.

While board and tissue makers have used secondary fibers in their furnishes for years, other paper sectors now use them in their products as a matter of routine. From one mill making recycled-content newsprint in 1989, there are now 60 recycling and deinking operations in the country, and there will be more. Current consumption of recovered paper is about 4 million metric tons/year, much of it imported from the United States.

The federal government devised the Environmental Choice Program, a labeling scheme for ecologically friendly products. Some paper companies received approval to use what is called the Eco-logo based on the level of recycled fiber in their products.

The environmental lobby's concerns included water and the industry's handling of it before, during, and after its use in the process.

Alberta-based Millar-Western has set the pace by building two mills that are as close to being closed-cycle as is currently possible, one at Whitecourt, AB, and the other at Meadow Lake, SK. Uniforet has reopened a bleached chemithermomechanical pulp (BCTMP) mill in Port Cartier, PQ, using closed-cycle principles in its effluent treatment. Other companies are assessing the zero-effluent concept, and water-use reduction is an industrywide goal.

All Canadian mills will have secondary water treatment facilities by the end of 1995.

R&D starting to recover

Research and development was one of the first areas to be hit when money became tight in the early 1990s. In-house research budgets were cut. Scientists, engineers, and support staff were laid off at the Pointe Claire, PQ, and Vancouver, BC, laboratories of the industry's principal scientific organization, The Pulp and Paper Research Institute of Canada (Paprican).

Still, many programs pressed on, including those at pulp and paper centers in universities such as McGill in Montreal, the University of Toronto, and the University of British Columbia. Indeed, two new centers were established at Lakehead University, Thunder Bay, ON, and McMaster University, Hamilton, ON.

Research and development could not be abandoned, because Paprican, provincial research organizations like it, and the universities were needed to help the industry meet the environmental challenges. New pulping and bleaching technologies were needed, and the academicians had to solve some fundamental chemical problems. Recycling introduced its own set of hurdles that had to be cleared.

Rebuilding the research base

One way that Canada has addressed the R&D problem is through a partnership approach involving universities, industry and its suppliers, and government. The partnerships are called Networks of Centers of Excellence (NCE), launched in 1991. The NCE's aim is to facilitate commercializing the work that is done in the laboratory.

Because mechanical pulp is such an important element in Canada's product mix, it became the focus of industry R&D attention through the Mechanical and Chemimechanical Pulp NCE, which is working in six areas: mechanical pulping, bleaching, yellowing inhibition, pulp processing, recycling, and process control.

NCE industry partners include companies such as Tembec, Avenor, Abitibi-Price, and Millar-Western, which provide in-

I. Canada's forest products industry at a glance, 1989–1994, million CAD. (Source: CPPA/Price Waterhouse)

	1994	1993	1992	1991	1990	1989
Sales	44,329	37,573	33,281	31,945	35,766	38,514
% of Cdn. Mfg. shipments	12.7	12.2	11.7	11.6	12.2	13.7
Payments to govts.	8,734	6,611	5,629	5,345	6,608	7,542
Net earnings (loss)						
Pulp	(50)	(1,144)	(271)	(564)	807	1,783
Newsprint/unc. mech. printings	(183)	(524)	(929)	(612)	(307)	203
Other paper/board	(139)	(323)	(240)	(109)	(33)	186
Lumber	2,078	1,813	199	(578)	(580)	(110)
Panels	314	187	105	(117)	(152)	14
Other operations	75	19	(87)	(84)	502	341
Net earnings (loss) from operations	2,095	28	(1,223)	(2,064)	237	2,417
Unusual items	378	(205)	(161)	(471)	(217)	(39)
Net earnings (loss)	2,473	(177)	(1,384)	(2,535)	20	2,378
Cash flow from operations	5,529	2,050	565	(686)	2,293	4,935
Return on capital employed, %						
Pulp	1.8	(8.6)	(0.7)	(4.5)	10.9	27.3
Newsprint/unc. mech. printings	0.7	(0.1)	(6.3)	(2.8)	(0.3)	4.7
Other paper/board	(0.1)	(3.3)	(2.5)	(1.1)	0.2	5.0
Lumber	32.0	35.2	6.8	(7.5)	(7.1)	0.8
Panels	37.5	42.0	18.2	(11.0)	(14.9)	6.3
Total	8.0	3.6	(0.8)	(4.1)	1.9	7.9
Capital expenditure	3,036	2,656	2,564	3,170	4,650	6,430
Total debt	16,808	16,566	17,430	16,455	13,521	9,779
Capital employed	43,437	39,237	38,810	38,660	38,062	34,703
Debt/equity ratio	0.70	0.82	0.94	0.88	0.67	0.48
Direct employment	242,500	239,000	241,500	249,300	280,200	304,100
Log harvest, Mm ³	176.6	178.8	165.8	158.2	169.2	182.6

mill testing and development facilities. Supplier partners include JWI, Hydro Quebec, DuPont Canada, Dorset Chemicals, Andritz Sprout-Bauer, and Optest Inc.

Not only is the Network getting satisfactory technical and commercial results, it is also training a new generation of scientists and research engineers for the industry.

It would be unfair to give the impression that no company research was occurring. Companies such as Abitibi-Price,

Domtar, and MacMillan Bloedel are very active, as is Avenor, which recently opened a new research center in Ottawa, ON. Forestry research is the domain of industry-supported organizations Forintek and Feric and other companies that do forest-based research.

While the NCE is a national program, a similar approach is taken by some provinces. For example, the Alberta Research Council (ARC) has a Pulp and Paper Technologies group. It

On the north shore of the Gulf of St. Lawrence, Uniforet's mill at Port Cartier, PQ, is capable of producing 175,000 metric tons/year of BCTMP. A second line will add 50,000 tons by late 1996. (Photo: Uniforet Inc.)



does work for and with its three industry partners based in the province, namely Slave Lake Pulp, Alberta Newsprint, and Millar-Western.

Three years ago, the partners set up the Mechanical Pulp Consortium to improve their CTMP operation's environmental performance. Since then, projects have included clarifier operations, an expert system for the control of activated sludge systems, and alternative uses for biological sludge. Refiner control is the Consortium's latest program.

The ARC is also investigating enzyme treatment of chips, pitch reduction, and the use of alternative fibers such as straw. In the latter case, it has developed a mechanical pulping process said to produce pulp with quality similar to that of aspen BCTMP. It is also working on polymer/wood fiber blends to produce a high-strength pulp.

Closer to customers

One of the forces behind Canada's mills becoming more attuned to customer needs was global competition. Other manufacturers, especially in Europe, make market pulps, newsprint, and printing and writing papers for export. In the late 1980s, they were starting to make inroads into Canada's traditional marketing ground, the North American market.

ISO 9000

"Quality" became the industry's marketing mantra. Quality management certification became a mandatory label to put on the industry's products. ISO 9000 certification has been achieved

by most of the country's pulp and paper sector as well as many independent sawmill and forestry operations.

For example:

- MacMillan Bloedel, Canada's largest forest products company with 1994 sales at CAD 3.9 billion, started the ISO 9000 process in its paper business division, MB Paper, in 1992 because of pressure from its European customers.

With about 85% of its business outside Canada, MB Paper has two operations, Alberni Specialties and the Powell River mill, both in British Columbia. Alberni was so enthusiastic about the process that it achieved ISO 9001 accreditation; it claims to be the first paper mill in North America to achieve that level. Powell River also has a sawmill and a kraft mill in the equation; it was expected to attain ISO 9001 certification by the end of 1995.

- Domtar Inc. is another company that took quality and customer satisfaction seriously. Its packaging plants, for example, are or will be in the next two years fully certified. The Calgary, AB, operation has stepped up from ISO 9003-87 in 1993 to ISO 9001-87 in 1994 and reached ISO 9001-94 in 1995.

Quality forestry

Canada is leading the charge to ensure high-quality management in the forests. Presently, the industry is putting its full support behind a Sustainable Forestry Certification (SFC) program being developed by the Canadian Standards Association.

The philosophy behind SFC, expected to become official in mid-1996, is similar to that for ISO 9000, and it fits neatly with the ISO 14000 Environmental Quality Management scheme, which is the next step for the international organization.

Changing its shape

The industry is adjusting itself to the new realities differently from its path in the past. Rather than building expensive greenfield mills, it is pushing the acquisition of existing operations. There are two main factors at play here that fit with the industry's new pragmatism: the acquisition often secures fiber supplies and it expands the acquirer's product range.

Between 1989 and 1995, virtually all of Canada's major companies—Abitibi-Price, MacMillan Bloedel, Tembec, Stone, Donohue, Eddy, Fletcher Challenge, and Cascades—have been buying, selling, restructuring. In the same period, new company names—Alliance, Avenor, Tripap, Pine Falls, Rainy River,

Malette, and Uniforet—have appeared on the scene as the result of buyouts, spinoffs, or restarts. This shifting pattern is expected to continue.

Capital spent differently

As in the United States, Canada's capital spending patterns have changed. In a speech at a CPPA conference in Whistler, BC, in May 1995, Douglas W.G. Whitehead put it succinctly: "The age of CAD 300 million projects is dead."

Whitehead is president and CEO of Canadian Operations, Fletcher Challenge Canada Ltd. He went on to say, "Capital investments in the future will be in the incremental CAD 20 million to 50 million range—but expect to see a steady stream of them."

Canadian spending over the last five years is summarized in Table I. Air and water pollution control, and changes to mill processes to effect that control, have required large amounts of capital; it is estimated that the costs between 1989 and 1996 will reach CAD 6 billion.

On the positive side, there has been a steady drop in chlorine use from about 600,000 metric tons/year in 1989 to about 100,000 metric tons/year in 1994.

There has been a concomitant drop in adsorbable organic halogen (AOX) discharges from about 4.7 kilograms per air-dried (a.d.) metric tons/year to about 1.3 kilograms per a.d. metric tons/year over the same period.

Because of much higher earnings, 1994 was the first year in the past six that cash flow exceeded capital expenditures. In 1990, cash flow was about CAD 2.3 billion, and in 1991 it crashed to a negative CAD 686 million. In 1994, the CAD 5.5 billion positive cash flow was a bright spot, and 1995 is expected to produce unprecedented amounts of cash.

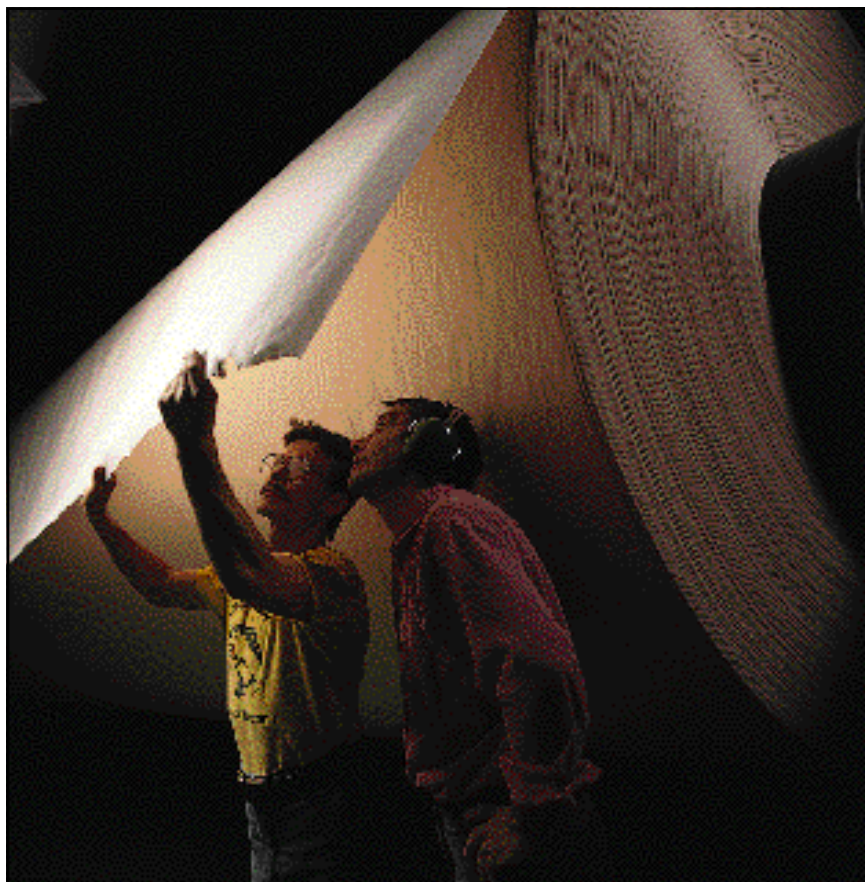
Total pulp and paper spending declined from CAD 4.7 billion in 1989 to CAD 1.6 billion in 1994. The completion of mill expansions, conversions, and environmental projects was the main reason for this.

On the other hand, solid wood expenditures hit a five-year high in 1994 through the expansion of medium-density fiberboard, oriented strandboard, and particleboard capacity, which included greenfield building.

An area showing signs of genuinely new capacity growth in the pulp and paper sector is BCTMP. High-yield pulping is a natural extension of the need to make the most of each and every chip and, as noted earlier, is the subject of intense research scrutiny.

Unlike other sectors, mechanical pulping has seen greenfield building. Between 1990 and 1994, four CTMP mills were

Fletcher Challenge represents the new wave in Canadian papermaking as it seeks new grades to meet customers' needs. (Photo: FCCL)



built: Donohue-Matane, Matane, PQ; Louisiana-Pacific Corp., Chetwynd, BC; Slave Lake Pulp Corp., Slave Lake, AB; and Millar-Western Pulp Ltd., Meadow Lake, SK. In addition, Tembec started a second BCTMP line at its Temiscaming, PQ, mill in 1991.

Perhaps it was a sign of the times, but the Donohue-Matane operation was shut down shortly after being built in 1991 due to lack of demand for its product. However, it and the mill at Port Cartier, PQ, formerly owned by Cascades and now by Uniforet, came back into operation in 1995.

Uniforet plans to install another line for startup in 1996, which it plans to further expand in 1997. There is also speculation that Spruce Falls will convert its TMP lines to BCTMP, and Avenor is also said to be considering CTMP for its Dryden, ON, mill.

In summary, over the next two years, the total Canadian BCTMP capacity is expected to grow by 515,000 metric tons, or 9.6% a year.

Current issues

Despite all of the effort that was expended over the past five years, Canada's industry still faces issues that can only be resolved in a collaborative way. That collaboration is through the CPPA, which speaks for the industry on matters of com-

mon concern to its member companies. These companies, collectively, represent about 90% of the country's production capacity.

The CPPA does under one roof what TAPPI and the American Forest & Paper Association do under two. Its different sections perform activities, such as collecting and analyzing statistics and providing staff to give national and international support for the industry's position on a wide range of issues.

The CPPA's single largest group in terms of membership is the Technical Section which, like TAPPI, serves the interests of industry scientists and engineers from across Canada and around the world.

Some of the issues that the CPPA is addressing—through a variety of means ranging from full-scale task forces to small subcommittees—include matters as broad as global climate change and environmental management, or as finely tuned as accounting for refunds of the CAD 900 million U.S. countervailing duty on Canadian softwood lumber that was imposed between March 1992 and December 1994.

Issues affecting human resources, occupational health, transportation, and international trade are matters that the CPPA monitors and attends to on a daily basis.

Through its office in Brussels, Belgium, the CPPA has established a presence for the industry at large in the European Union (EU). It has handled items such as defusing attacks on the industry's environmental record and presenting its views on any EU activities that are seen as barriers to free trade.

As the end of the millennium approaches, the Canadian forest products industry will continue to retain its considerable influence on the Canadian economy and way of life.

- In itself, the industry will secure new markets as it becomes more confident in its new way of doing business, which meets its global list of clients' needs rather than what it *thinks* they need. It will find ways of meeting its fiber supply needs through the adoption of new pulping and papermaking technologies.
- While newsprint and market pulp will continue to be staples in its production diet, the industry will move from commodity grades and become a source of new value-added grades of pulp and paper.
- Capital will be spent on amalgamations and takeovers which, in turn, will trigger additional spending for refurbishment. Capacity will increase incrementally through greater operating efficiencies.
- On the labor front, company management will have more flexibility in terms of assigning work to maintenance employees and contracting out major projects and major maintenance.

Overall, one of the best things to emerge from all of the recent pressures has been a reminder to those who run Canada's industry: they and the people who work in the forests and mills are all part of the same process—and they need each other. ■

Williamson is the Canadian news correspondent for Tappi Journal's "International Notebook." He is a freelance technical writer/editor specializing in the pulp and paper industry. He is based in Hudson, PQ, Canada.

Exchange rates: Loony times for Canadian paper exporters

As an exporter, Canada is influenced by the state of its dollar in relation to that of the United States. In 1990, it was US\$ 0.857, and in 1991, it hit its highest rate against the U.S. dollar since 1978 at US\$ 0.873. Each one-cent change in the exchange rate adds or subtracts about CAD 450 million to the industry's gross annual sales.

Had it not been for the fact that for 1992, 1993, and 1994 the Canadian dollar progressively declined by 5.2, 6.3, and 5.6%, respectively, against the U.S. dollar, the industry's sales would have been CAD 5.2 billion lower over the term.

The 1995 exchange picture is unclear, partly because of uncertainty caused by Quebec's referendum on separating from Canada. (This article was written before the outcome of the referendum, held in October 1995, was known.)

During 1995, Canada's dollar—called the "Loony" because of the image of the loon on one side of the CAD 1 coin—was about US\$ 0.702 in mid-January and reached US\$ 0.753 in mid-October. Despite the referendum jitters, some pundits were predicting that the Loony could reach US\$ 0.76 by the end of the year and US\$ 0.77 during 1996.