WHO PAYS WHAT

An Analysis of
Beverage Container
Recovery and Costs *in Canada*

2006 | 2007

Spring 2008

Produced by CM Consulting

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A Primer

Across Canada, beverage container recovery continues to emerge as a challenging and highly political issue for industry and governments. As the recycling sector has evolved so too has a range of recovery initiatives, each emphasizing their own strategic value. In assessing these initiatives it's remarkable how varied the data is despite the common aspects of these programs – factors such as recycling performance, net costs, collection infrastructure, operating agencies, and the breakdown of who ultimately bears the costs of recovery.

Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada aims to report, clarify and offer some essential insight into the field of beverage container recovery programs. By offering current data, discerning analysis and identifying a number of trends in beverage container recovery, the report provides a comprehensive examination of container reuse and recycling programs in Canada today.

Developed by CM Consulting, *Who Pays What* features the most recent recovery and cost data concerning beverage container recovery programs - information that is thoroughly researched and clearly organized. Already, this report is embraced as an essential resource for professionals in the beverage industry and recycling field. It is a valuable tool and dependable reference guide that can ease the decision-making process. Judging from the welcome demand for this sort of detailed information, this edition of *Who Pays What 2006-2007* represents the third of what should now be considered a bi-annual publication.

The principal of CM Consulting, Clarissa Morawski, is a waste minimization policy professional dedicated to the varied issues that comprise beverage container recovery. Morawski's expert understanding of the industry is further evidenced by the 20 articles she has contributed to a variety of trade publications. She is also a noted speaker at environmental and recycling conferences throughout North America.

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Changes, Challenges and Opportunities

With the year 2008 comes the promise of many changes involving beverage container management in Canada.

Manitoba and Prince Edward Island are introducing new regulations while in Alberta and Quebec, regulatory amendments will build on current programs. Funding programs for milk jug and carton recycling are up and running in eight provinces. Meanwhile, Ontario enters year two of its liquor container deposit return initiative. Accompanying these changes are many challenges.

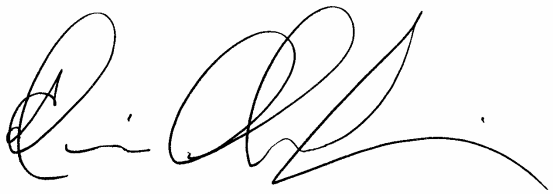
Canada's high[1] handling fees will surely result in overall increases to program costs, given that collection usually accounts for at least 75% of operational costs. While recycling markets are strong for traditional beverage materials, newer container materials like pouches, poly cups, aseptic boxes, polystyrene and paperboard cups are difficult to market and may require long transportation distances to recyclers in the US or off-shore. Captured beverage containers collected through residential recycling programs tend to have lower yield rates due to contamination, and subsequently generate fewer revenues and may be down-cycled[2].

Overall, capture rates are declining. This is symptomatic of the diminishing value of deposits which have not kept pace with inflation. In jurisdictions with residential recycling for beverage containers, lack of progress is due primarily to the inherent difficulties of multi-residential recycling and recycling of away-from-home or "on-the-go" beverage consumption. In response, governments and industry are working on program improvements, such as increasing deposit levels. In non-deposit jurisdictions, introducing away-from-home recycling programs and expanding promotional efforts are underway. What's more, as $100 per barrel crude becomes the new norm, the collection system is saddled with additional financial pressure.

Yet with challenges come opportunities. Small-scale, affordable compaction technology can have a dramatic impact on shipping and labour costs. As awareness grows around the associated benefits of reducing greenhouse gases, the level of interest in recycling is greater than ever. Comprehensive data is readily available, which means those involved can better understand the full life cycle implications on carbon dioxide emissions, as well as other pollutants. In a country where over 10 billion beverage containers are sold each year, the data on climate change mitigation from recycling aluminum PET, steel and glass clearly shows that recycling beverage containers is a priority.

It's a compelling time in the field of beverage container recycling. As industry and governments confront the many challenges that it poses, they must also take decisive action and adopt approaches that are strategically effective, financially sensible, and adaptable enough to accommodate changes as solutions evolve and successes emerge. I trust this report will help to inform some of those strategies and provide the insights necessary to position those directly involved with the issue, as leaders in the field for years to come.

Respectfully yours,



Clarissa Morawski
Principal, CM Consulting

[1] On average, Canada's handling fees are the highest in the world. Many countries have no handling fees, while other countries or US states charge between 1-3-cents per unit handled.

[2] Downcycling is the recycling of a material into a material of lesser quality, often into a product that cannot be recycled at the end of its life. Examples include tetrapak boxes recycled into tissue, and plastic PET bottles recycled into carpeting. Downcycling is also referred to as "open loop recycling".

Special Thanks

The gathering of accurate and detailed information, analysis, and peer review could not have been achieved without the generous assistance of certain individuals whose work supports beverage container recycling in Canada.

A very special thank you to the following individuals:

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Abbreviations and Acronyms

AB ..... Alberta
ABCRC ..... Alberta Beverage Container Recycling Corporation
ABCC..... Alberta Beer Container Corporation
ADC..... Alberta Dairy Council
ABDA..... Alberta Bottle Depot Association
BC ..... British Columbia
BCMB ..... Beverage Container Management Board
BDL ..... Brewers Distributors Limited
CRF ..... Container Recycling Fee
EEQ..... Eco Entreprises Quebec
EHC..... Environmental Handling Charge
GJ..... Gigajoules
HDPE ..... High Density Polyethylene
IC&I ..... Industrial Commercial and Institutional
IWMC ..... Integrated Waste Management Corporation
LDB ..... Liquor Distribution Branch (BC)
MB ..... Manitoba
MPSC ..... Manitoba Recycling Corporation
MMSB..... Multi-Materials Recycling Board
MTCO2e..... Metric Tonnes of Carbon Dioxide Equivalent
NB..... New Brunswick
NF..... Newfoundland and Labrador
NS..... Nova Scotia
ON..... Ontario
PEI..... Prince Edward Island
PET..... Polyethylene Tetrephthalate
PS..... Polystyrene
PVC ..... Polyvinyl Chloride
QC..... Quebec
RRFB ..... Resource Recovery Fund Board
RQ ..... Recyc-Quebec
SD ..... Soft Drink
SO ..... Stewardship Ontario
SK ..... Saskatchewan
TBS..... The Beer Store (A.K.A Brewers Retail Inc.)
US ..... United States

Table of Contents

- **British Columbia's** Liquor Distribution Branch (LDB) transferred its stewardship obligation to Encorp Pacific (Canada) in early 2007. Encorp Pacific is the not-for-profit stewardship corporation with beverage container management as its core business.

- **British Columbia's** Dairy Council launched the *Used Milk Container Recycling Program* in October 2006, which offers an additional collection infrastructure for empty milk containers through 116 existing beverage depots. Costs associated with depot collection and program advertising are covered by the dairy industry. Encorp Pacific is the agency contracted by the dairy industry to manage their program.

- In **Alberta** in November 2007 an all-party committee of the provincial government was tasked with reviewing various elements of the existing beverage container regulation. The review included public consultation and research which resulted in 12 specific recommendations to the Minister. The recommendations included (but are not limited to):

    - The Beverage Container Management Board (BCMB) should review and set deposit rates every two years;
    - Deposit levels should be raised to a minimum of 10-cents for containers under or equal to 1 litre and a minimum of 20-cents for containers over 1 litre;
    - Management of unredeemed deposit revenue should be transferred to the BCMB; and
    - Milk containers should be included in the deposit return system, and the current levy [on milk] should be removed.

- **Manitoba**'s WRAP program, which includes charging a 2-cent levy to all non-refillable, non-beer containers to finance 80% of the municipal recycling system will be terminated before 2009, to be replaced with a multi-material brandowner-funded program. The program will be similar to the programs currently operating in Ontario and Quebec, but brandowners will be required to off-set 80% of the municipal net costs versus 50%.

- In February 2007, the new **Ontario** Deposit Return Program (ODRP) was launched for all wine, spirit and imported beer containers. Deposits of 10-cents and 20-cents are currently charged on all liquor beverages and can be returned with empty beer containers to The Beer Store retail outlets; partner stores; and empty bottle dealers in more remote locations.

- **Quebec**'s Committee on Transportation and the Environment of the National Assembly held public hearings and consultation on residual material management in Québec, including increasing the recovery of empty beverage containers. In early June, the committee recommended a preference for one system - that of the Collect Selective program (curbside), only when this system is able to improve collection of containers generated away-from-home and in multi-residential units. Therefore, in the short term, status quo in Quebec remains.

- Late in 2007, **Prince Edward Island** repealed the law prohibiting non-refillable beer and soft-drinks on the island. The law was introduced in 1973 for beer and later expanded to include soft drinks in 1984.

- On April 15, 2008, **Prince Edward Island's** Minister of Environment, Energy and Forestry announced details about the new beverage container recovery program to commence on May 3st, 2008. This province-wide program for all non refillable beverage containers will harmonize program elements with its Atlantic counter-parts. Encorp PEI will act as the system administrator, and Label Construction and Sanitation will be system operator. This new half-back program will compensate 10 island-wide depots with a 3.6-cent handling fee. About half of the half-back revenue will be used to fund environmental work carried out by the Department of Environment, Energy and Forestry. The remaining half-back revenue will off-set system costs.

1.1 Cross-Canada Beverage Container Collection Agents

In Canada, while each provincial program is unique, generally there is an agency or agencies responsible for operating the program. These agencies facilitate operations, reporting, and financing of the collection service. These operating agencies can be:

- an industry group representing beverage brand owners and first importers;
- a provincial crown agency;
- the provincial government directly;
- a contracted third party organization; or
- municipalities.

For the most part, the Canadian beer industry collectively manages the recovery of all their refillable containers and in some provinces non-refillable domestic containers as well.

In British Columbia and New Brunswick, provincially owned and operated liquor commission/boards are responsible for administering the program for wine, spirit and imported beer containers. However, in British Columbia, the Liquor Distribution Branch (LDB) transferred its existing beverage container product stewardship responsibilities to industry. This transfer will be reflected in the 2007 calender year data. (and therefore not included in this report)

In British Columbia, Alberta, and New Brunswick, incorporated not-for-profit organizations were set-up to act on behalf of brand owners and first importers of non-alcoholic beverages to collectively administer the program for containers.

In Saskatchewan, SARCAN (a not-for-profit organization) is contracted by the provincial government to undertake the responsibility of fulfilling the collection requirements under the program for all containers, except refillable beer.

In Ontario and more recently Quebec, municipalities operate the Blue Box program as a requirement of provincial regulation. Brand owners and first importers of products with packaging, and published printed materials are responsible for financing 50% of the net blue box program costs annually. An incorporated not-for-profit organization representing affected industry act on their behalf to meet their regulatory obligation.

In Manitoba, an incorporated not-for-profit organization was established with industry representation to ensure that municipal authorities receive 80% funding of their curbside-recycling program for "designated materials", which include all beverage containers, except beer. Manitoba has a new stewardship regulation which is expected to be promulgated early in 2008. By early 2009 (one-year after promulgation) a new program will be in place. This program will be similar to that of Ontario and Quebec's municipal recycling shared funding model which will require levies to be paid by stewards to support 80% of the net cost of municipal recycling programs.

In Quebec soft drink and beer industries operate their own program for empty carbonated and beer containers. Wine, spirits, water, juice and new age containers are collected through a municipally-operated curbside recycling system that is partially funded by brandowners of packaging and printed material.

In Nova Scotia and Newfoundland provincial crown agents manage the program for all non-refillable containers.

In Prince Edward Island the provincial government will oversee and manage the new (as of May 1, 2008) program for all non-refillable beverage containers. Operations will be contracted out to the private sector.

The following tables provide an overview of the collection system and the agencies responsible to operating the program, by province and beverage type.

Table 1.1 **CROSS-CANADA USED BEVERAGE CONTAINER COLLECTION MANAGING AGENTS**

(Updated March 2008)

PROVINCE	British Columbia			Alberta			Saskatchewan		Manitoba	
Collection system	DEPOT & RETAIL	DEPOT & RETAIL	CURBSIDE & DEPOT	DEPOT	DEPOT	MUNICIPAL DROP-OFF	DEPOT & RETAIL	DEPOT	RETAIL & Designated Licensees	CURBSIDE
Beverage Container Type	Domestic Beer	Non-Alcohol, Wine, Spirits & imported Beer	Milk	Domestic Beer	Non-Alcohol, Wine, Spirits & imported beer	Milk	Domestic Beer	Non-Alcohol, Wine, Spirit, Beer & Milk (voluntary)	Beer	Non-Alcohol, Wine, Spirits & Milk
RESPONSIBILITY										
Beverage Industry (third party agent)	*Brewers Distributors Ltd.*	Encorp Pacific (Canada)	Encorp Pacific (Canada)	*Brewers Distributors Ltd.*	Alberta Beverage Container Recycling Corporation		*Brewers Distributors Ltd.*		*Brewers Distributors Ltd.*	
Provincial Government (Crown corp)										
Municipal Government			*Municipalities*			*Municipalities*				*Municipalities*
Not-for-Profit NGO						Alberta Dairy Council		SARCAN		Manitoba Product Stewardship Corporation

Notes:

- Where municipalities are responsible for container collection, only residentially generated material is available to be collected. Away from home consumption and consumption in the commercial sector rely on voluntary recycling efforts by commercial generators and managers of public space waste generation.
- *Italics* indicate that cost data are not available.

CROSS-CANADA USED BEVERAGE CONTAINER COLLECTION MANAGING AGENTS

(Updated March 2008)

PROVINCE	Ontario		Quebec			Nova Scotia		
Collection system	RETAIL	CURBSIDE	RETAIL	RETAIL	CURBSIDE	DEPOT	DEPOT	CURBSIDE
Beverage Container Type	Alcohol	Non-Alcohol & Milk	Beer	Carbonated Beverages	New-Age, Water, Juice, Wine, Spirits & Milk	Refillable Beer	Non-Alcohol, Wine, Spirits & Beer	Milk
RESPONSIBILITY								
Beverage Industry (third party agent)	*The Beer Store*		*Beer Industry*	*Carbonated Beverages Companies*		*Beer Industry*		
Provincial Government (Crown corp)	Liquor Control Board of Ontario (LCBO)						Resource Recovery Fund Board	
Municipal Government		Municipalities			*Municipalities*			*Municipalities*
Not-for-Profit NGO		Stewardship Ontario			Eco-Entreprises Quebec			Atlantic Dairy Council

Note:

- Where municipalities are responsible for container collection, only residentially generated material is available to be collected. Away from home consumption and consumption in the commercial sector rely on voluntary recycling efforts by commercial generators and managers of public space waste generation.
- *Italics* indicate that cost data are not available.

CROSS-CANADA USED BEVERAGE CONTAINER COLLECTION MANAGING AGENTS

(Updated March 2008)

PROVINCE	**New Brunswick**			**Newfoundland**		**PEI** (as of May 1, 2008)			
Collection system	**DEPOT**	**DEPOT**	**DEPOT**	**DEPOT**	**DEPOT**	**RETAIL & DEPOT**	**RETAIL & DEPOT**	**DEPOT**	**CURBSIDE**
Beverage Container Type	**Refillable Beer**	**Wine, Spirits & Beer**	**Non-Alcohol**	**Refillable Beer**	**Non-Alcohol Wine, Spirits & Beer**	**Refillable Beer**	**Refillable Carbonated Beverages**	**Non-Alcohol Wine, Spirits & Beer**	**Milk**
RESPONSIBILITY									
Beverage Industry (third party agent)	***Beer Industry***	***Rayan Industries***	***Encorp Atlantic***	***Beer Industry***		***Beer Industry***	***Carbonated Beverages Companies***		
Provincial Government (Crown corp.)		**NB Liquor**			**Multi-Materials Stewardship Board**			**Ministry of Environment, Energy and Forestry**	***Island Waste Management Corporation***
Municipal Government									
Not-for-Profit NGO									

Note:

- Where municipalities are responsible for container collection, only residentially generated material is available to be collected. Away from home consumption and consumption in the commercial sector rely on voluntary recycling efforts by commercial generators and managers of public space waste generation.
- *Italics* indicate that cost data are not available.

1.2

Collection Rates
Refillable Bottles

Monitoring the recovery rates of refillable beer bottles is centralized through the Brewers Association of Canada and reported annually.

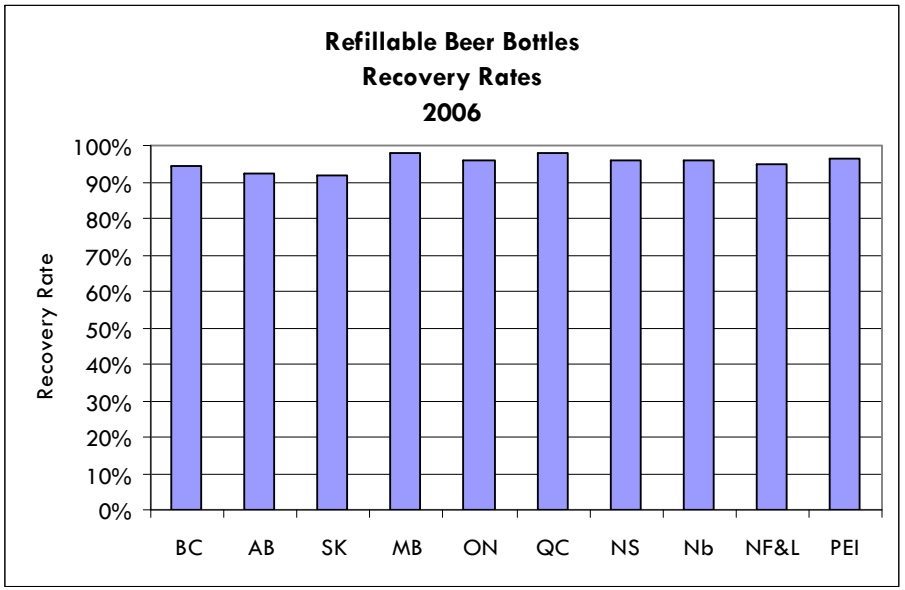
Other forms of refillable bottles exist and are entirely managed by industry. These include: Large refillable water bottles; soft drink bottles in Prince Edward Island; and several small brands of alcohol and non-alcohol across the country. These recovery rates are not reported or available to the public.

The table below summarizes the recovery rates for refillable beer bottles collected through Brewer-run provincial systems. The data presented is for operating year 2006.

Table 1.2.a

	British Columbia	Alberta	Saskat-chewan	Manitoba	Ontario	Quebec	Nova Scotia	New Brunswick	Newfound-land	Prince Edward Island
Refillable Beer Bottles	94%	92%	92%	98%	96%	98%	96%	96%	95%	96%

Figure 1.2.a



Collection Rates
Non-refillable containers

Monitoring the collection or recycling rate for beverage containers in Canada is done annually on a province-by-province basis. In all deposit return jurisdictions recovery rates are based on units returned divided by the units sold in that year. Measuring beverage container collection in jurisdictions that collect multi-materials requires additional calculations and applications of several assumptions. (See notes on following page).

The table below summarizes the recovery rates for the various categories of non-refillable containers collected through the provincial systems. The data presented is for operating the year 2006-2007. (Operating years vary from January 1, 06 – December 31, 06; April 1, 06 -- March 31, 07; May 1, 06 – April 30, 07).

Table 1.2b

Beverage Container Recovery Rates

	British Columbia	Alberta	Saskatchewan	Manitoba	Quebec (soft-drink & beer)	Quebec (other beverages)	Ontario	New Brunswick	Nova Scotia	Newfound-land & Labrador
Aluminum cans	84%	79%	93%	53%	68%	-	49%	74%	82%	70%
Glass	85%	85%	90%	n/a	77%	62%	n/a	76%	81%	70%
PET	-	-	84%	51%	76%	34%	40%	75%	76%	71%
Other Plastics	72%	64%	87%	n/a	-	-	n/a	-	37%	-
Bi-Metal	49%	58%	78%	n/a	-	25%	67%	-	-	42%
Gable/Tetra	54%	53%	56%	n/a	-	52%	15%	-	64%	67%
Other[1]	42%	-	-	n/a	-	-	n/a	55%	-	-
TOTAL Non-refillables	**78%**	**74%**	**86%**	**n/a**	**70%**	**n/a**	**n/a**	**72%**	**76%**	**68%**

[1] The "other" category is used for reporting purposes by managing agencies to address a very small portion of the container stream that do not fall within the definition of traditional beverage containers. More specifically, in British Columbia, "other" accounts for less than 0.6% of total sales, and includes multi-laminate packages. In New Brunswick, "other" accounts for 12% of sales and comprises of other plastics, multi-laminates, gable top, and bi-metal.

Notes on the calculation of recovery rates for MANITOBA, ONTARIO & QUEBEC

- **Manitoba** does not publish recovery rates for multi-residential collected material. For the purpose of this report, calculating recovery rates for aluminum and PET beverage containers required **three assumptions**:

  1) 97% of aluminum recovery and 85% of PET recovery are beverage containers. Source: waste audits from Stewardship Ontario – London, Essex-Windsor, Toronto, Durham, Ottawa; and Sudbury for 2005.

  2) The away-from-home portion of aluminum cans is 20% and PET bottles is 63%; Source: *BEAR report - Understanding Beverage Container Recovery: A Value Chain Assessment Prepared for the Multi-Stakeholder Recovery Project*, Jan 2002.

  3) Assumed an away-from-home collection rate of 30% for aluminum and PET containers.
  Source: Based on conversations with waste management companies servicing the private sector. (2008)

- **Ontario** only publishes recovery rates for aluminum cans and PET bottles collected in the residential sector. For the purposes of this report, calculating total recovery rates for aluminum and PET beverage containers required **two assumptions**:

  1) *The away-from-home portion of aluminum cans is 20% and PET bottles is 63%; Source: *BEAR report - Understanding Beverage Container Recovery: A Value Chain Assessment Prepared for the Multi-Stakeholder Recovery Project*, Jan 2002.

  2) Assumed an 'away-from-home collection rate of 30% for aluminum and PET containers.

- The rate for gable/tetra and steel is pulled directly from Stewardship Ontario data and represents residential generation only. IC&I and away-from-home generation data is not available for this analysis.

- Recovery rates for glass beverage containers are not available for this analysis because IC&I and away-from-home generation data for the wide array of beverage types served in glass containers does not currently exist.

- **Quebec** recently published recovery rates for all non-deposit beverage containers collected in the residential sector. Source: *Mise en Marche et Recuperation des Contenants de Boisson au Quebec,* Recyc-Quebec, Jan 2008. With the data provided in the Quebec report, and the away-from-home market share by beverage type provided above*, calculating total recovery rates for all non-deposit containers requires **one basic assumption**:

- 1) Assumed an 'away-from-home' recovery rate of 30%.

SEE SENSITIVITY ANALYSIS ON ASSUMPTIONS IN APPENDIX B.

The following charts provide a material summary of collection rates across Canada. In some cases a collection rate will not appear for the province because the data is not available, or it is included in the "other" category, and not available as its own category.

Figure 1.2b

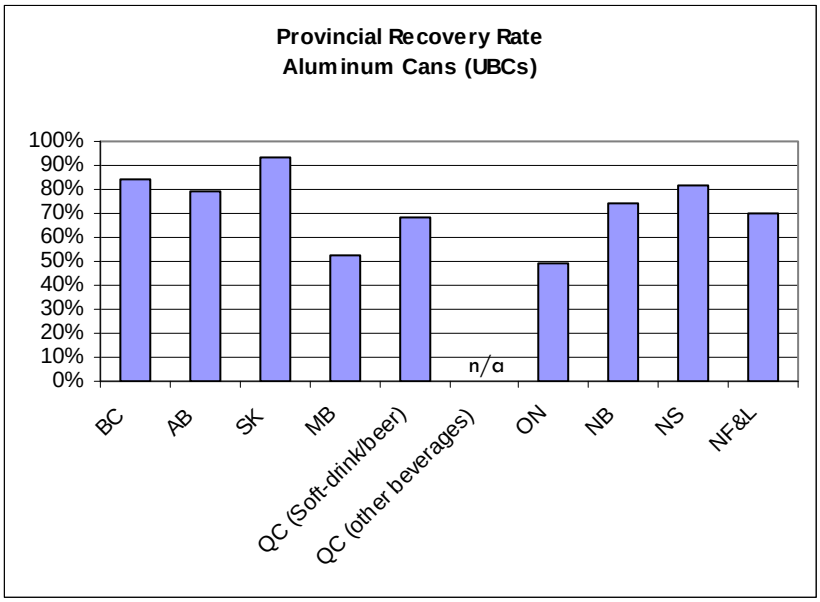


Figure 1.2c

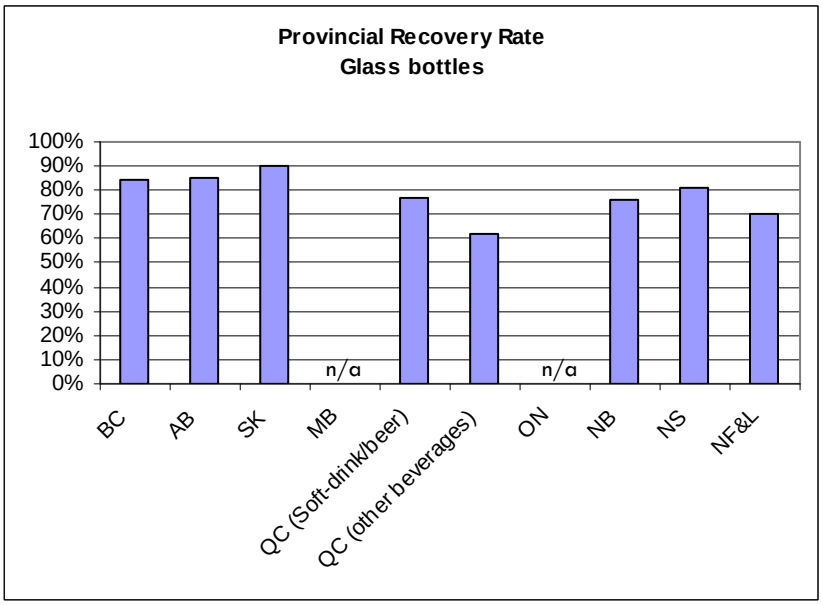


Figure 1.2d

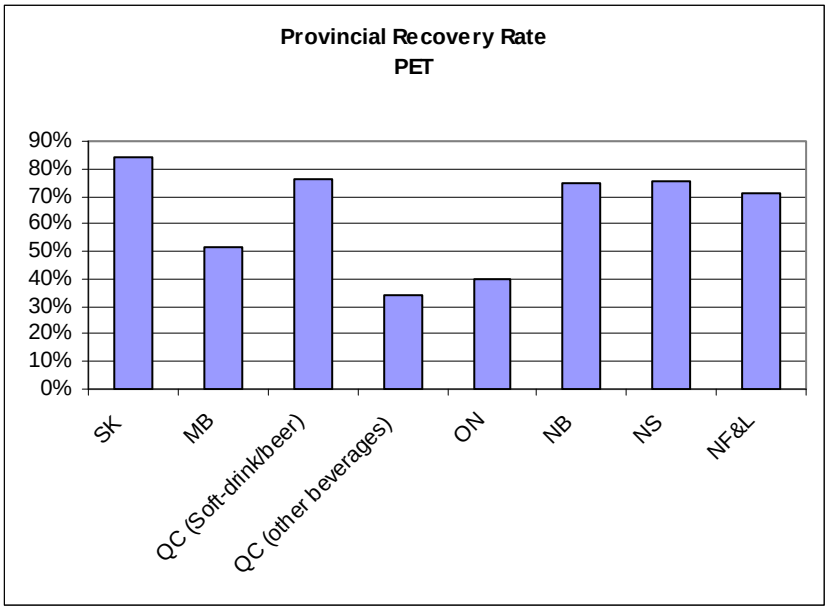


Figure 1.2e

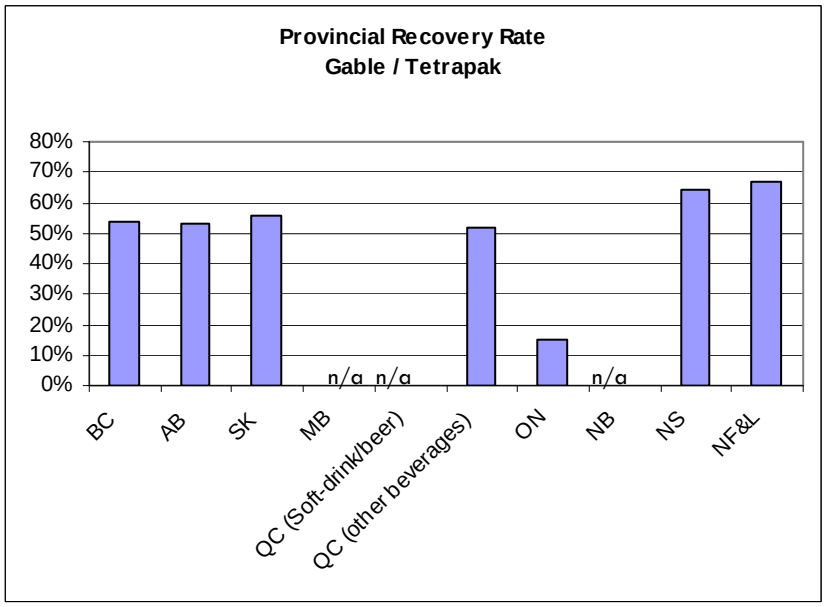


Figure 1.2f

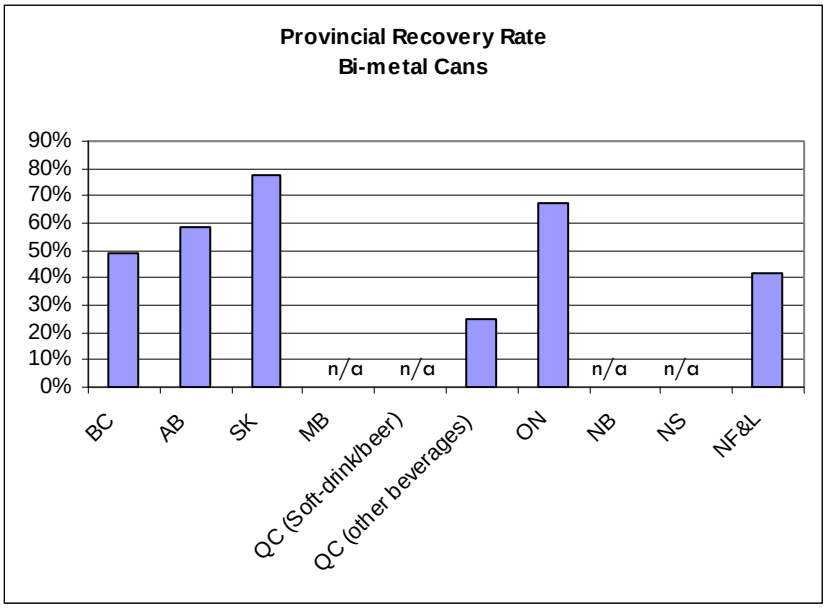


Figure 1.2g

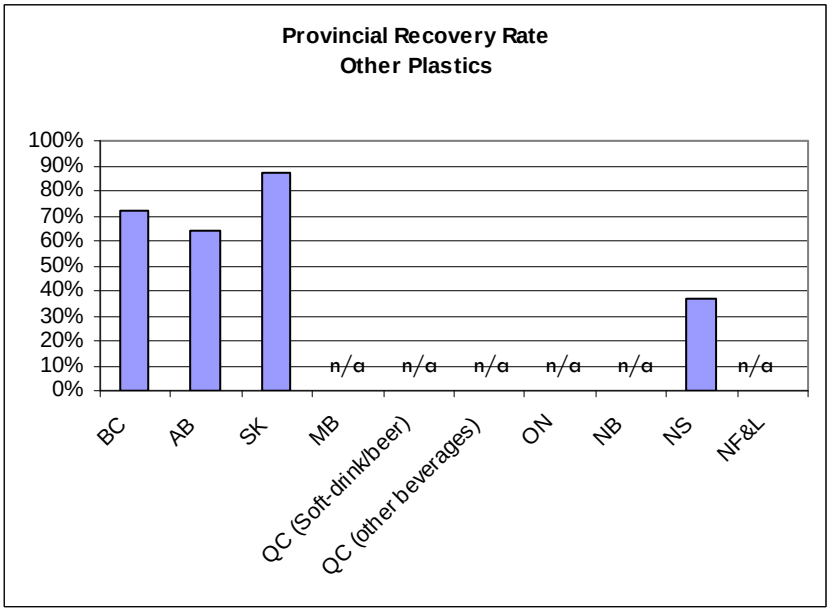
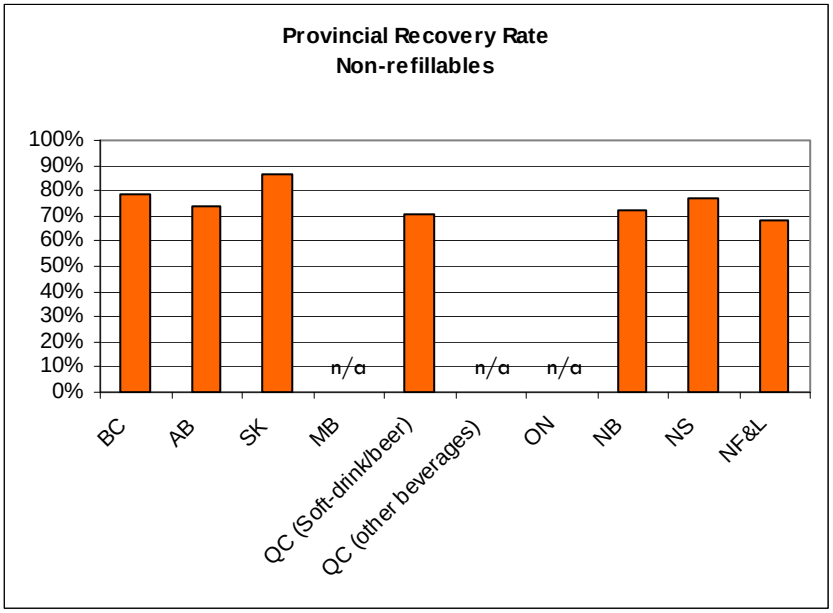


Figure 1.2h


Provincial Recovery Rate
Non-refillables
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
n/a
n/a
n/a
BC
AB
SK
MB
QC (Soft-drink/beer)
QC (other beverages)
ON
NB
NS
NF&L

Collection Rates
Milk Containers

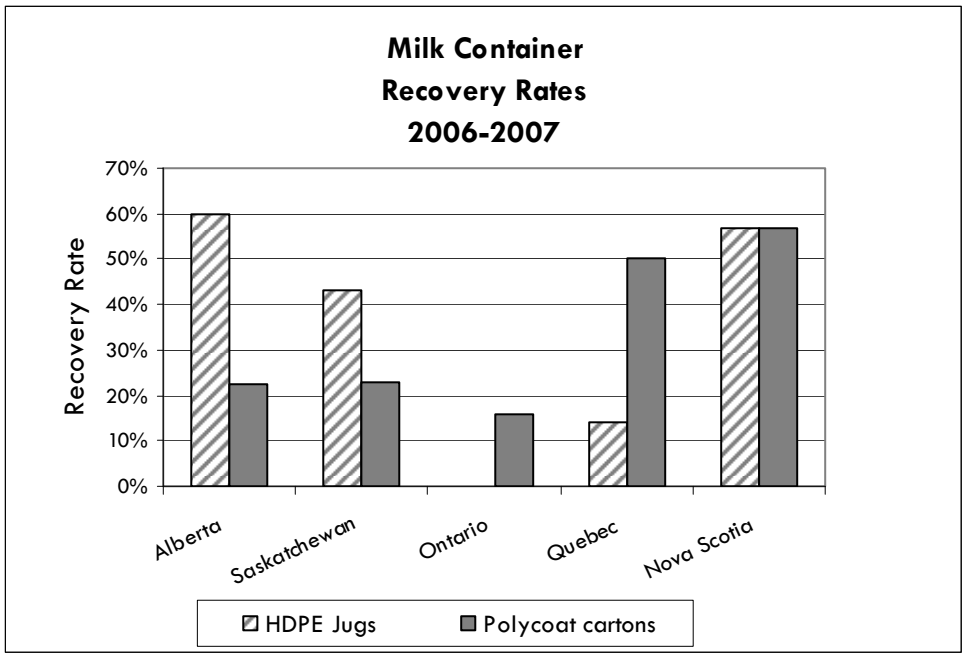
Monitoring the recovery rates of milk container packaging varies by province and may be based on waste audit data; actual sales and unit recovery; or it may be an extrapolation of the recovery rate of whole material group (i.e. polycoat containers), where multi-material collection takes place. (See data sources in Appendix A)

It should be noted that milk jugs made from HDPE make-up a greater share of the marketplace in western Canada. Jugs in Ontario are under a deposit return program through Beckers stores, where the data is proprietary. There are very few jugs in Quebec and the Atlantic provinces.

Table 1.2c

	British Columbia	Alberta	Saskat-chewan	Manitoba	Ontario	Quebec	Nova Scotia	New Brunswick	Newfound-land	Prince Edward Island
HDPE Jugs	n/a	60%	43%	n/a	n/a	14%	57%	n/a	n/a	n/a
Polycoat cartons	n/a	23%	23%	n/a	16%	50%	57%	n/a	n/a	n/a

Figure 1.2i



1.3

Program Summaries – by Province

British Columbia

Program Scope and Targets

Beverage Container Stewardship Program

The province-wide program began in 1970 and expanded to include all beverage containers, excluding milk and milk substitute products in 1997. All beverage containers are included under the regulation, which means any liquid that is a ready-to-serve drink but does not include milk, milk substitutes, rice milk, Soya milk, flavoured milk, infant formulas, meal replacements or dietary supplements.

This regulation was repealed in 2004, and most of its provisions are now in Schedule 1 of the Recycling Regulation, which requires that existing stewardship agencies submit revised stewardship plans consistent with the regulation within two years of its enactment (October 2006).

The regulation establishes a minimum goal of 75% recovery rate and requires that redeemed containers be either refilled or recycled.

Milk packaging is collected voluntarily through municipal curbside recycling programs and depots. There are no recovery targets for milk containers.

Supporting Regulatory Framework

The province-wide program began in 1970 with the *Litter Act*, which made British Columbia the first jurisdiction in North America to establish a mandatory deposit-refund system for soft drink and beer containers as a litter control initiative. The province enacted the Beverage Container Stewardship Program Regulation (1997), which replaced the outdated Litter Act.

The program was further expanded to include all beverage containers, excluding milk and milk substitute products with the *Beverage Container Stewardship Program Regulation* in 1997.

Enacted in October of 2004, the *Recycling Regulation was* written to consolidate all stewardship regulations including the Beverage Container Regulation.

Summary of Initiative

The *Beverage Container Recovery Program* was expanded on October 1, 1998 and targets for brandowners or first importers (stewards) of non-refillable beverages (excluding milk products), which are sold in the province of British Columbia. Prior to the expansion, only soft drink containers were regulated under a deposit return program. The expansion added bottled water, juice, new age, and alcohol containers.

With the enactment of the recycling Regulation in 2004, stewards were required to submit stewardship plans, which described the development and operation of the beverage container

program. The plans also describe how the program provides consumers with an efficient and convenient system for collecting and recycling beverage containers.

All beverage containers carry a deposit based on their size.

Currently there are two "stewards" in British Columbia representing beverage manufacturers.

Encorp Pacific (Canada) represents brand owners of non-alcohol, wine, spirit, some cider, coolers and beer manufacturers. Encorp return centres include 170 independent depots and thousands of retail outlets. Encorp manages about 64% of recovered beverage containers province-wide.

Brewers Distributors Ltd. Is the second steward representing brand owners of domestic coolers, beer and cider. Brewers Distributors Ltd. Provides for retail returns at all Liquor Distribution Branch retail outlets, Cold Beer and Wine stores, agency stores and unlimited returns at 28 depots. Brewers Distributors Ltd. Manages about 36% of recovered beverage containers province-wide.

Collection Mechanism

Beverage containers are redeemed at depots, retail outlets and Liquor Distribution Branch (LDB) stores. Independent transporters collect the containers and take them to about 12 processing sites across the province.

Processors receive bags of mixed containers and prepare them for the appropriate recycling market by sorting, crushing and/or baling the glass, aluminum, plastic and other materials.

In the case of all domestic beer, cider and coolers, the Brewers Distributors Limited collects these containers from LDB stores, licensees, cold beer and wine stores, agency stores and about 28 depots. In general, other bottle depots will also accept empty domestic beer containers, but will discount the refund as a handling fee. Empty containers are back-hauled to the various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Milk containers are accepted without a refund at 116 bottle depots.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

The *Beverage Container Recovery Program* in British Columbia is funded through revenues generated from the sale of material, revenues from unredeemed deposits, and a Container Recycling Fee (CRF) paid at the point of purchase by consumers, and contract fees provided by LDB (until 2007).

Container Recycling Fees are charged based on the net cost of recovering specific container types, net of unredeemed deposit and material revenue. Fees are re-evaluated every year, and are rounded up to the nearest penny. For example, if the net system cost to recover an aluminum can is $0.0095, the Container Recycling Fee will be $0.01 per can.

The Container Recycling Fee varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed

deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. In 2008, the fees range from no fee to $0.05 per unit depending on the size and material used for the container. Some containers, like drink pouches, do not carry a fee because their recovery rates are low enough that the unredeemed revenue covers their collection cost, thereby not requiring a CRF.

Since the implementation of the Container Recycling Fee (CRF) , the beverage industry bears no direct costs associated with the operation of the *Beverage Container Recycling Program*. These costs have been transferred to the product consumer/user.

In 2006 Encorp Pacific was the contractor for the BC Liquor Distribution Branch (LDB) to collect wine, spirits and imported beer bottles from depots and LDB stores. These contract fees contribute to operating revenue, which provides economies of scale to the system.

As of 2007, Encorp assumed the stewardship responsibility on behalf of the Liquor Distribution Branch and CRFs have been applied to the purchase price of all liquor containers, except domestic beer.

Brewers have internalized the financing of the collection system for beer cans and domestic beer bottles. Financing information is therefore proprietary.

Alberta

Program Scope and Targets

Alberta Beverage Container Recycling Program

The province-wide program began in 1972 and expanded to include all beverages in 1989 and TetraPaks and gabletop containers in 1997. On May 1, 2001 the exemption for domestic beer containers was lifted from the Beverage Container Recycling Regulation. Domestic beer containers were added to the program on Nov 15, 2001. The inclusion of domestic beer in the regulation did result in any real changes to the system, except that domestic beer producers would be treated the same as other beverage producers in terms of program compliance; reporting and legislated aspects like handling fees.

There are no recovery targets set out in the regulation; however the government has encouraged a target of 85%.

Milk Container Recycling Program

The *Plastic Milk Jug Recycling Program* was launched on July 1, 1999 for milk jugs and expanded to include milk cartons or polycoat containers on Jan 1, 2002. The program is an industry stewardship initiative, through which Alberta's dairy industry supports the voluntary collection and recycling of milk jugs and cartons. A new memorandum of understanding was signed between the Ministry and the dairy industry in 2007 for one year, which includes targets of 62% and 55% for HDPE jugs and carton respectively, with an "ultimate" goal of 75%.

The Standing Committee on Resources and Environment recommended inclusion of all milk containers within the existing deposit return program. This will only come into affect if the Minister approves the recommendation and amends the existing regulation.

Supporting Regulatory Framework

The program is regulated under the *Environmental Protection and Enhancement Act* and the *Beverage Container Recycling Regulation*. The Regulation, which was set to expire in October 2006, has been extended to October 2007. Alberta Environment is undertaking a review of the Regulation, the final report of which will go to the Legislature for approval prior to the Regulation being renewed in October 2007.

The Beverage Container Management Board (BCMB) took over regulatory authority for the program in 1997, supported by the *Beverage Container Management Board Administrative By-Law*, the *Beverage Container Management Board Fee By-Law*, and the *Beverage Container Management Board Administrative Compliance By-Law*.

Summary of Initiative

The province requires beverage producers/brand owners to operate a common collection system to recover containers from the bottle depots and retail locations for beer.

The Beverage Container Management Board administers the *Beverage Container Recycling Regulation*.

The Alberta Beverage Container Recycling Corporation (ABCRC) is the agent representing producers/brand owners of non-beer beverages sold in Alberta. It is responsible for ensuring that containers are collected, transported, processed and recycled as per the requirements of the regulation.

Alberta Gaming and Liquor Commission (AGLC) represent the producers of alcohol. AGLC uses ABCRC to manage its wine and spirit containers and Alberta Beer Container Corporation (ABCC) to manage its beer containers. ABCC is responsible for ensuring that all beer containers are collected, transported, processed and recycled as per the requirements of the regulation. ABCC subcontracts the imported beer portion of their containers – one-way glass – to ABCRC.

Collection Mechanism

Consumers may return empty containers to privately owned and operated registered bottle depots (214 province-wide) and collect their refund. There are also 78 liquor stores, known as "Class D Beer Depots" that accept beer containers and offer consumers a refund.

Bottle depots collect and sort the containers for the Alberta Beverage Container Recycling Corporation (ABCRC) (representing non-beer beverage distributors) and the Alberta Beer Container Corporation (ABCC) representing brewers.

ABCRC and Brewers' Distributor Ltd. (the contract agent of ABCC), transport and process containers to two processing facilities in the province where the materials are prepared for recycling end-markets.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

In 2006, the *Alberta Beverage Container Recycling Program* was funded through revenues generated from the sale of material, revenues from unredeemed deposits, and a Container Recycling Fee (CRF) paid at the point of purchase by consumers.

The CRF varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. In 2006, the fees range from zero to $0.04 per unit depending on the size and material used for the container. Some containers, like aluminum cans do not carry a fee because high material revenue and unredeemed cover the collection costs. Gabletop, drink boxes, and bag-in-the-box over 1L also do not carry a fee because the unredeemed deposit revenue is high enough to carry the costs of collecting these materials.

Since the implementation of the Container Recycling Fee (CRF) , the beverage industry bears no direct costs associated with the operation of the *Beverage Container Recycling Program*. These costs have been transferred to the product consumer/user.

Milk Jugs and Carton recovery by municipal authorities are financed partially by the dairy industry. More specifically, a guaranteed market value of $400 per tonne for jugs and $225 per tonne for cartons is provided by the industry directly to municipalities, plus a $40 per tonne transportation subsidy for some municipalities.

Saskatchewan

Program Scope and Targets

Beverage Container Collection and Recycling Program

The province-wide program was established in 1988 and expanded to include TetraPaks and gabletop containers in 1999. All beverage containers are included under the regulation. This means any liquid that is a ready-to-serve drink but does not include milk, milk substitutes, flavoured milk, infant formulas, meal replacements or dietary supplements.

There are provincial targets for containers covered under the program, except milk containers, which has a target of 75%.

Unified Dairy Recycling System

The Unified Dairy Recycling System (UDRS) is a program whereby the dairy industry in Saskatchewan contracts with SARCAN Recycling to provide a voluntary collection and recycling system for plastic milk jugs and paper milk cartons via beverage container depots. The original province-wide program was launched in 1999 and upgraded to the current program in Feb 2001. There are no official targets set out in the program.

Supporting Regulatory Framework

The program is legislated under the *Litter Control Act,* 1978 and the *Designated Container Regulations,* 1990.

Summary of Initiative

The Saskatchewan Association of Rehabilitation Centres' Recycling Division, known as SARCAN, administers the program.

SARCAN operates under contract to Saskatchewan Environment, the provincial environment ministry

This Ministry designates containers that can be collected for recycling and establishes the value of the deposit and Environmental Handling Charge that consumers pay when purchasing a beverage.

The retailer passes the collected revenue through to the distributor and then to the Department of Finance.

When returning the empty non-refillable container to one of SARCAN's 71 depots, the consumer is refunded the full deposit.

The Environmental Handling Charge is not refunded to the consumer, but used by the provincial government to offset SARCAN's contract cost and contribute to general revenues.

Collection Mechanism

Containers are returned to 71 province-wide depots in the 62 communities. Depots sort and flatten the containers, which are picked up by SARCAN trucks, taken to SARCAN processing facilities and sent to recycling end-markets.

Beer containers are returned to Saskatchewan Liquor and Gaming Commission (SLGC) stores, hotels, and four depots. All SARCAN depots and all SLGC stores will discount the refund as a handling fee. Brewers Distributors Ltd. Collect these empty beer containers, back-haul them to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

The program is funded through revenue generated from the sale of empty beverage containers and a provincial grant awarded to SARCAN. SARCAN is also paid a handling fee for all milk container collected through its depots.

In 2006-07 the contract was worth $10.1M. The provincial government raises revenue through the Environmental Handling Charge, which ranges from $0.03 to $0.07 per unit sold. Excess funds generated by the provincial government are put into general revenues.

The financial responsibility is borne by the consumer through the Environmental Handling Charges. Also, consumers who choose not to return their containers contribute revenue through the unredeemed deposit.

The beverage industry bears no financial responsibility for operating the program.

SARCAN along with 21 other Contracted Recycling Services is contracted to collect and process milk containers and are paid $225 per tonne for the polycoat and $500 per tonne for the plastic jugs. The dairy industry fund these costs plus management and advertising through a levy they have on all large sizes milk containers. Specifically, 1 and 2-litre containers have a 1-cent per container fee while larger than 2 litre has a 2-cent per container fee. Average annual budget is about $450,000, with half going to salvage subsidy and management and the other half going into advertising.

Manitoba

Program Scope and Targets

Waste Reduction and Prevention Program

The province-wide program was established in 1995 to encourage and help finance the expansion of convenient and efficient residential recycling services across Manitoba. All beverage containers (except beer) are covered under this program. Collection of beverage containers generated away-from-home, and in the industrial, commercial and institutional (ICI) sector are not included in this program.

This program will terminate by the end of 2008, to be replaced with a multi-material recycling program funded with brandowner levies for all packaging and printed paper. The new program is expected to be in place by early 2009.

Refillable and non-refillable beer containers are collected through a separate deposit refund program administered and operated by the beer industry.

There are no provincial targets for containers covered under these programs.

Supporting Regulatory Framework

The program is legislated under the *Environment Act*, the *Waste Reduction and Prevention Act*, 1990, and the *Multi-Material Stewardship (Interim Measures) Regulation*, 1990.

Summary of Initiative

The Manitoba Product Stewardship Corporation (MPSC) is an independent, non-profit organization representing the interests of all sectors of Manitoba, including consumers, industry, municipalities and governments.

MPSC is a statutory corporation that operates at arm's length from the provincial government, and is currently funded by the 2-cent levy on all non-refillable beverage containers (excluding dairy) sold in Manitoba.

Under the Waste Reduction and Prevention Act, MPSC is mandated to establish and administer a waste reduction and prevention program for designated materials for Manitoba. Utilizing revenue from the 2-cent beverage levy, MPSC funds 80% of municipal curbside and depot programs for designated materials, which include all non-deposit beverage containers. MPSC also funds many school recycling programs.

A new stewardship regulation will be in place very soon, (estimated to be in Q2 of 2008) which will require that all printed paper and packaging stewards pay fees to support municipal curbside recycling (similar to Ontario's stewardship program). The new program should be in place by early 2009.

Refillable and non-refillable beer containers are collected through a voluntary deposit return program administered by the beer industry.

Collection Mechanism

Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recycling services. Generally, containers are collected, transported to material recovery facilities, sorted, baled and shipped to their respective end-markets for recycling. Not all beverage containers are collected through all municipal programs. For the most part, PET, glass, aluminum and steel containers are collected in most programs, whereas aseptic, gabletop, HDPE and other less common containers are collected in fewer programs.

Refillable and non-refillable beer containers are collected via beer vendors, Manitoba Liquor Commission and rural agency stores. Brewers Distributors Ltd. Collect these empty beer containers, back-haul them to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

The multi-material municipal recycling program, which also collects beverage containers from the residential sector, is funded by consumers and municipalities. More specifically, consumers pay a 2-cent levy on all non-refillable, non-beer containers, which is used to finance 80% of municipal recycling programs. Municipalities pay the additional 20%.

The provincial government has written a new stewardship regulation due out in early 2008, which will require that all printed paper and packaging stewards pay fees to support municipal curbside recycling (like Ontario and Quebec). These funds will contribute to 80% of municipal recycling net costs.

Ontario

Program Scope and Targets

Municipal Blue Box Program

The province-wide, regulated residential curbside recycling program has been in place since 1994, under the *3Rs Regulations 101/94*, with the first city program implemented in l987. The program is designed for multi-materials, which include all beverage containers (except beer). Most food and beverage containers, like those made from glass, PET, aluminum and steel are mandated to be included in the program. Other containers like aseptic, gabletop and HDPE bottles may be voluntarily added to the program. Wine and spirit containers were recently placed on deposit, but may be voluntarily added to municipal blue boxes.

The *Blue Box Program Plan*, as approved by the Minister of Environment provides "recovery rate projections" by material. These projections are not targets, rather a "forecast" undertaken by the industries responsible for designing the program. They are:

Gabletop: 15%; Aseptic: 20%; PET bottles: 45%; HDPE bottles: 40%; Steel (food and beverage): 60%; Aluminum cans: 50%; Food and beverage glass: 55%; Liquor Control Board of Ontario glass bottles: 75%

In 2004, the Minister of Environment announced a 60% province-wide residential waste diversion target, however, to date there are no mandated recovery targets.

Beverage containers generated away-from-home and in the ICI sector are not included in this program. There is an ICI regulation (*3Rs regulation 102/94 & 103/94)* that mandates recycling for most commercial sectors and some basic recyclables (excludes multi-laminate containers) that has been in place since 1994. The Ministry has recently been enforcing the regulation.

Regulations also call for 40% of sales of soft-drinks to be refillables, dropping to 30% if a 60% recovery rate for non-refillables is being met. However, the refillable market share for soft-drinks is less than 2%, and the government is considering repealing the refillable quota. As such, the government has not enforced the requirements since its implementation.

Refillable and non-refillable beer containers are collected through a separate program administered and operated by Brewers Retail Inc. (The Beer Store).

In February 2007, a new deposit return program for all wine, sprits and imported beer came into force. The Liquor Control Board of Ontario is responsible for the program and has contracted collection, processing and marketing responsibilities to The Beer Store.

Plastic milk jugs with over 2 litres are required to carry a deposit and are redeemable by consumers. Few retailers maintain a deposit return program for these large milk jugs (other than Beckers), as most milk in Ontario is sold through plastic pouches and gabletop cartons.

Supporting Regulatory Framework

Beverage specific regulations are legislated under the *Environmental Protection Act*, 1990. These are: *Refillable Containers for Carbonated Soft Drink,* 1985; *Containers (Regulation 340),*

1986; *Disposable Paper Containers for Milk* (Regulation 345) 1990; and, *Disposable Containers for Milk (Regulation 344),* 1990

In addition, the municipal recycling regulations are legislated under the Environmental Protection Act, 1990. Specifically: *Recycling and Composting of Municipal Waste* (Regulation 101/94), 1994, and *Industrial, Commercial and Institutional Source Separation Programs* (Regulation 103/94), 1994.

The *Waste Diversion Act (Bill 90),* 2002 is recent legislation under which the Blue Box and other stewardship programs are regulated. Specifically: *Blue Box Waste (Regulation 273*), 2002. The *Blue Box Program Plan,* 2003 is not a regulation, but a Minister-approved program plan under the *Waste Diversion Act.*

Summary of Initiative

Municipal authorities operate multi-material curbside programs in place for recovering beverage containers and other packaging and printed paper materials. Municipalities with over 5000 people are mandated to offer curbside collection services for at least aluminum, steel, PET and glass containers. Municipalities may also voluntarily offer recycling services for aseptic, gabletop, HDPE and other container types. About 98% of the Ontario population have access to curbside or depot recycling services.

In February 2003, Ontario brandowners and first importers, known as "stewards" of Blue Box materials, were mandated to finance 50% of the program net costs.

The Waste Diversion Ontario (WDO) was established in 2002 "to develop, implement and operate waste diversion programs" for a wide range of materials that include Blue Box Waste. WDO oversees the implementation of the new Blue Box financing program and collects annual cost and recovery data from municipal authorities. Municipal authorities are responsible for all program operations.

Stewardship Ontario (SO) is the not-for-profit agent representing affected industry. SO collects fees from its members and pays out monies to municipalities.

As of February 2007, wine, spirit and LCBO-only imported beer were added to the existing deposit return program for beer. The program operations are undertaken by The Beer Store on contract to the LCBO (a crown entity).

Refillable and non-refillable beer containers are collected through a voluntary deposit return-to-retail program administered by The Beer Store. The Beer Store is Ontario's primary distribution and sales channel for beer products in Ontario. All brewers whose beer products are sold through The Beer Store fund the system.

More than 86% of the population live within 5 km of a beer container redemption point, of which there are 441 Beer Stores, 120 retail partner stores, 82 northern agency stores, and about 150 empty bottle dealers (small independent depots contracted in more remote locations where beer retailers are not available).

Collection Mechanism

Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recycling services. Generally, containers are collected, transported to material recovery facilities, sorted, baled and shipped to their respective end-markets for recycling. PET, glass, aluminum and steel containers are regulated to be collected in all programs, whereas aseptic, gabletop, HDPE and other less common containers are not regulated and collected in fewer programs.

Wine, spirit and beer containers and associated packaging are collected through 441 Beer Stores, 120 retail partners (private retailers who act as agents of The Beer Store in smaller Ontario communities), 82 northern agency stores, and 15- empty bottle dealers. The Beer Store trucks collect these empty beer containers, back-haul them to various distribution centres where recyclables are sent to a processing facility for sorting, baling and sending to market. Refillable bottles are sent back to the brewers for washing and refill.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

The multi-material municipal recycling program, which also collects beverage containers, is funded by municipalities and stewards. Stewards of packaging, paper and printed paper are brandowners or first importers and publishers.

In 2006, stewards contributed $51.7 million to municipalities, plus an additional $5.8 million for other required costs like: external program elements, program delivery, administration & GST.

Each year, Waste Diversion Ontario conducts a tonnage and financial data call with municipalities to determine the total net program costs. From this data, along with material generation estimates, Stewardship Ontario determines “fair” levies to charge stewards based on the type of material sold into the Ontario marketplace. New levy schedules are released annually. Stewards pay levies in quarterly increments.

Quebec

Program Scope and Targets

Agreement Relating to the Deposits, Recovery and Recycling of Non-Refillable Soft drink Containers and Beer Containers

The province-wide program has been in place since 1984. All non-refillable soft drink and beer containers are managed through a deposit return program.

The target is 80% recovery of soft drink and beer containers. Failure to meet the recovery target results in a per container penalty fee. In 2006-07 the total penalty payment from the soft drink and beer industry was almost $6.9M.

Late in 2003, through an amendment to the Environment and Quality Act, the Province created a legal obligation for stewards of packaging and printed materials to fund municipalities up to 50% of the net cost for curbside recycling, which will include all beverage containers (except soft-drinks and beer on deposit) and their associated packaging materials (cases, etc.). Currently, non-deposit bearing materials can be collected through municipal curbside programs.

The 1998-2008 *Residual Materials Management Policy* sets a goal of 60% for metal, plastic and glass materials from municipalities; 95% for metal and glass, and 70% for plastics from the ICI sector. Before 2008, these policy goals are not mandated.

Supporting Regulatory Framework

The programs are regulated under the *Environmental Quality Act*.

Recyc-Quebec took over regulatory authority for the program in 1990, supported by *An Act Respecting the Société Québécoise de Récupération et de Recyclage*.

In addition, beer and soft-drink industries are legislated under *An Act Respecting the Sale and Distribution of Beer and Soft Drinks in Non-Returnable Containers (R.S.Q., c. V-5.001)* 1996 and *Beer and Soft Drinks Distributors' Permits Regulation (v-5.001, r.1)*.

The program details are set-out in an industry-government agreement, which expires on December 31, 2008. The agreement is called: *Non-legislative Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Soft Drink Containers*.
The agreement has been extended indefinitely until the Minister makes a decision on how the proceed follow recommendations from an all-party review committee.

In December 2002 an amendment to the *Environment and Quality Act* was made, which created a legal obligation for stewards to financially compensate municipalities.

In November 2004, the government of Québec adopted the *Regulation Respecting Compensation for Municipal Services Provided to Recover and Reclaim Residual Materials* (Q-2, r. 2.3), which institutes a new municipal compensation regime of 50% of the net program costs as of March 1st. 2005. This obligates all beverage producers (including milk) to fund curbside recycling. Soft-drink and beer containers are exempt from this program.

Summary of Initiative

The program is overseen by Recyc-Quebec, a crown agency responsible for monitoring performance, increasing or decreasing the deposit levels and education and promotion. Recyc-Quebec also administers the program for non-refillable beer containers.

Boisson Gazeuses Environment (BGE) administers the program on behalf of the soft drink industry. Boissons Gazeuses Environment took over this role from Recyc-Quebec on December 1, 1999.

Refillable beer containers are collected voluntarily by the beer industry using the same collection infrastructure.

The program is based on a return-to-retail collection system, with over 40,000 licensed grocers, service stations, pharmacies etc. acting as redemption points for containers.

All other beverage containers, including those used for wine, spirits, water, new-age drinks, juices and milk are collected through municipal curbside collection programs available throughout most of Quebec. As of March 2005, the municipal program costs were shared 50/50 between municipalities and brandowners (stewards).

Collection Mechanism

Soft drink and beer containers are returned to over 40,000 grocers, service stations, pharmacies, etc. Upon return, consumers are provided with a full refund.

Distributors are required to collect redeemed containers from the vendors. About 40% of soft drink containers are collected using the same trucks that deliver full goods (reverse logistics). The remaining 60% of soft drinks and 100% of non-refillable beer containers are collected using third party dedicated transport. These containers are then consolidated at distribution warehouses for shipment to accredited recyclers. Distributors keep the revenue associated with the recycling exchange. Refillable beer bottles are sent back to the brewers for washing and refill.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

Return Incentives paid to retailers (2-cents per unit) fund the retail collection portion of the program. Funding for Return Incentives, transportation, processing, marketing, administration, education and promotion is generated through the unredeemed deposits and the revenue from the sale of material.

The program is assumed be self-financed[1]. Currently the soft drink industry pays a small fee to Boissons Gazeuses Environment (BGE) to support administration (~ 0.15-cents or $0.0015 per unit sold). Distributors pay (through contracting) directly for transportation and processing, which are offset by material revenue (sale of cans, plastic and glass). This information is proprietary; therefore actual system costs are unavailable. However, program cost and revenue estimates have been determined to provide a fairly good approximation of the expenses and revenue for the system. These are identified in Appendix C.

[1] Based on analysis from Recyc-Quebec, see appendix C for financial breakdown.

Nova Scotia

Program Scope and Targets

Nova Scotia Deposit-Refund System

The province-wide program has been in place since April 1996. Most beverage containers are included, as the regulation defines "beverage" as any liquid that is a ready to serve drink, but does not include milk, milk products, soya milk or concentrates. RRFB policy further clarifies that infant formulas, rice milk as well as certain dietary and meal replacement beverages that meet specific policy criteria are not subject to a deposit.

There are no provincial targets for containers recovered under the program; however a 2006 amendment to the Environment Act has legislated a new disposal target of 300 kilograms per person per year by 2015. This means diverting an additional 177 kilograms of waste per capita (based on 2006-07 data) which would see Nova Scotians achieve an overall diversion rate of approximately 60 percent.

Nova Scotia Milk Packaging Stewardship Agreement

Launched in February 2000, this is a voluntary arrangement between Nova Scotia Environment (formerly Environment and Labour), the Nova Scotia Solid Waste Management Regions and the Atlantic Dairy Council. The program funds the recovery of all milk packaging through province-wide municipal curbside (blue bag) programs. The agreement identifies the following fiscal year-end (March 31) recovery targets: 27% by 1999, 32% by 2000, 39% by 2001, 43% by 2002, 45% by 2003 and 47% by 2004.

Supporting Regulatory Framework

The program is legislated under the Solid Waste-Resource Management Regulations made under Section 102 of the Environment Act (1994-95 and as amended from time to time).

The Resource Recovery Fund Board (RRFB) was created under these same regulations to assume administrative authority for the program.

Summary of Initiative

Resource Recovery Fund Board, Inc. was incorporated in 1996 to administer major components of the Nova Scotia Solid Waste-Resource Management Strategy (1995). The Board, operating as RRFB Nova Scotia, was tasked with five mandates – one of which was to develop and operate a deposit-refund system for beverage containers.

The program model is the half-back system which contributes to covering program costs and other diversion initiatives as required under regulation and as directed by the Minister of Environment.

Distributors of deposit-applicable beverage products must register with RRFB in order to legally sell these products in or into Nova Scotia. They must also report and remit applicable deposit amounts monthly on units sold directly to RRFB.

From the distributor's sale of product down the chain to the retailer's sale of product to the consumer, it is a cost recovery exercise. Retailers are required by regulation to show the deposit amount charged on the sales receipt and display a notice identifying the location of the nearest depot where a beverage container can be redeemed for a refund.

RRFB Nova Scotia established a province-wide Enviro-Depot™ network to accept redeemable beverage containers from consumers.

Collection Mechanism

There are currently 83 individually owned and operated Enviro-Depot™ locations in Nova Scotia. Each owner/operator must sign a standard form agreement with RRFB Nova Scotia to become an Enviro-Depot™.
Consumers may bring their empty redeemable beverage containers directly to any Enviro-Depot™ for a five or ten cent refund (depending on container type and size). The depot sorts containers by type and colour, storing them in bulk bags or tubs. RRFB arranges collection of full bags and tubs from the depots and transports them to the nearest of three Regional Processing Centres (RPCs). Plastic and aluminum are baled at the RPC and marketed by RRFB while ownership of glass is relinquished to the RPC which is responsible for marketing this commodity.

Note: All Enviro-Depot™ locations are required to also accept leftover paint and any other material designated by RRFB from time to time. Some individual operators also accept cardboard, newsprint, metals and auto/marine batteries but at their own discretion.

Enviro-Depot™ operators have a separate arrangement with the breweries to accept refillable domestic beer bottles from consumers which are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

Deposit-Refund System

The Nova Scotia program is a half-back system where half of the ten or twenty cent deposit is refunded to the consumer. The remaining half of the deposit plus revenues generated from the marketing of these container materials is used to pay for program costs which includes the handling fee (per container) paid to Enviro-Depot™ operators.

Due to the fact that not all beverage containers sold in the province end up being returned for a refund, a portion of these excess funds (unredeemed deposits) are mandated to be distributed to municipalities to help offset the cost of their waste diversion initiatives.

Nova Scotia Milk Packaging Stewardship Agreement

The Atlantic Dairy Council currently contributes $380 per tonne to municipalities to offset their costs of recovering and recycling milk packaging. This equates to an industry cost of less than 1 cent per milk container sold in Nova Scotia.

New Brunswick

Program Scope and Targets

New Brunswick Beverage Container Recovery Program

The province-wide program was established in 1992. The regulation covers all ready-to-drink non-refillable beverage containers up to a size of five litres. Milk and milk products, and un-pasteurized cider are exempt.

The regulation does not specify any targets, though the Department of Environment has an unofficial target of 80% recovery for designated containers.

Supporting Regulatory Framework

The program is legislated under the *Beverage Containers Act*, 1991 and the *General Regulation – Beverage Containers Act*, 1992.

Summary of Initiative

The Department of Environment oversees the program. Distributors are required to recover their containers. The Department of Environment registers distributors of containers sold in the province.

Encorp Atlantic is responsible for managing non-alcoholic container recovery on behalf of non-alcohol brand owners.

New Brunswick Liquor Commission is responsible for the recovery of liquor containers (wine, beer, spirits and coolers), and contracts transportation and processing of their containers to Rayan Investments.

Collection takes place through about province-wide 80 bottle depots.

Collection Mechanism

There are approximately 80 individually owned and operated depots in the province. All depots must be licensed with the New Brunswick Department of Environment. Consumers bring used beverage containers directly to these depots, where they are sorted.

Encorp Atlantic organizes the collection of all non-alcohol containers from the depots, sends materials for processing, and markets them. Rayan Investments organizes collection of all alcohol containers from the depots, sends materials for processing, and markets them.

Refillable beer bottles are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

New Brunswick operates a half-back system where half the deposit is not refunded.

50% of this half-back revenue, plus the revenue generated from the unredeemed deposits and the sale of containers, is used to pay for the program, which includes the handling fee per unit to redemption centres.

The remaining 50% of the half-back revenue goes into the province's Environmental Trust Fund and is used for beautification, conservation, etc.

The Department of Environment manages the fund.

Newfoundland and Labrador

Program Scope and Targets

Provincial Beverage Recycling Program
The province-wide program has been in place since 1997. The regulation covers all ready-to-drink beverage containers (excluding milk, infant formulas, refillable bottles and containers more than five litres).

The regulation does not specify targets, however the Department of Environment has set targets of: 50% after year one, 60% after year two, 70% after year three 80% after year four.

Supporting Regulatory Framework

The program is regulated under the *Environment Protection Act*, 2002 and the *Waste Management Regulation, 2003*.

Summary of Initiative

The program, which began in 1997, requires that deposits be paid on all regulated beverage containers.

Consumers pay either 8-cents on non-alcohol containers or 20-cents on alcohol containers and receive 5-cents or 10-cents back when they are returned to one of 39 Green Depots, satellite and mobile units.

The Multi-Materials Stewardship Board is a statutory corporation established pursuant to The Environmental Protection Act. This Board manages the Used Beverage Container Deposit Refund System, the Used Tire Recycling Program, the Residential Backyard Composting Program, and the Newfoundland and Labrador Waste Management Trust Fund in the Province of Newfoundland and Labrador and is mandated to support and promote the protection, enhancement and wise use of the environment through waste management programs.

Collection Mechanism

Consumers bring containers to 39 Green Depots within the province. The Multi-Materials Stewardship Board arranges for collection from the depots to one of three processing plants in Newfoundland and Labrador, where material is processed and shipped to end-markets.

Refillable beer bottles collected by retailers are sorted and sent back to the brewers for washing and refill. MMSB is not responsible for the management or administration of refillables.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

The program is funded through revenue generated from the sale of empty beverage containers and unredeemed deposits. The program also uses part of the revenue generated from the non-refunded portion of the deposit to offset costs. In Newfoundland & Labrador, the system is similar to a half-back program in principle, but it provides 5-cents for non-alcohol containers returned based on an 8-cent deposit, and 10-cents for alcohol containers returned based on a 20-cent deposit.. Excess revenue is placed in the province's "Waste Management Trust Fund".

Prince Edward Island

Program Scope and Targets

Prince Edward Island Beverage Container Recycling Program

The province-wide program has been in place since May 3, 2008. The program covers all ready-to-drink beverage containers except those used for dairy products, milk substitutes or nutritional supplements.

Prior to the introduction of this program, there was a provincial mandate that all carbonated-soft drink and beer were packaged in refillable containers (effectively banning one-way containers for these beverages) dating back to 1973 for beer and 1984 for soft drinks.

In 1992, the program placed a half-back deposit on all non-refillable wine, spirit and cooler containers.

Late in 2007, the government repealed the law prohibiting non-refillable beer and soft-drinks on the island. On April 15, 2008 the Minister of Environment, Energy and Forestry announced the expanded program designed to manage all the new one-way containers which would replace refillables.

There are no official targets for these materials in the regulation.

Supporting Regulatory Framework

The program was regulated under the *Environmental Protection Act*, 1988 and the *Litter Control Regulations*, 1992. As of May 3rd, 2008 a new deposit return program is mandated under the *Beverage Containers Act, 2008 (Bill 14)*.

Summary of Initiative

As of May 3, 2008 non-refillable soft drink and beer container are legally sold on the island., and subject to a deposit. The program is a half-back system similar to the other Atlantic provinces.

There are 10 province-wide depots that will serve as collection centres. Liquor stores no longer take-back liquor containers on deposit.

In addition, the Island Waste Management Corporation (IWMC) operates and maintains the Waste Watch Program; a 3-stream source separation based waste management system that is Island-wide. Through the Waste Watch program, all non-beverage containers and containers used for milk are collected and recycled.

All island residents have access to the Waste Watch recycling program, which is funded through a per household change.

Collection Mechanism

As of May 1st, 2008 non-refillable beverage containers subject to deposits can be returned to 10 province-wide depots for a half-refund.

Containers used for milk and other exempted beverages are collected through the Island's Waste Watch curbside recycling program available to all island residents.

Program Financing

Prince Edward Island operates a half-back system on all non-refillable beverages, where half of the deposit is not refunded. Unredeemed deposits and half-back revenue off-set program costs. Excess funds are placed in the Environmental Trust Fund for Island-specific initiatives.

1.4

Program Summaries – by Program Element

Program Scope and Targets

British Columbia
Beverage Container Stewardship Program

The province-wide program began in 1970 and expanded to include all beverage containers, excluding milk and milk substitute products in 1997. All beverage containers are included under the regulation, which means any liquid that is a ready-to-serve drink but does not include milk, milk substitutes, rice milk, Soya milk, flavoured milk, infant formulas, meal replacements or dietary supplements.

This regulation was repealed in 2004, and most of its provisions are now in Schedule 1 of the Recycling Regulation, which requires that existing stewardship agencies submit revised stewardship plans consistent with the regulation within two years of its enactment (October 2006).

The regulation establishes a minimum goal of 75% recovery rate and requires that redeemed containers be either refilled or recycled.

Milk packaging is collected voluntarily through municipal curbside recycling programs and depots. There are no recovery targets for milk containers.

Alberta
Alberta Beverage Container Recycling Program

The province-wide program began in 1972 and expanded to include all beverages in 1989 and TetraPaks and gabletop containers in 1997. On May 1, 2001 the exemption for domestic beer containers was lifted from the Beverage Container Recycling Regulation. Domestic beer containers were added to the program on Nov 15, 2001. The inclusion of domestic beer in the regulation did result in any real changes to the system, except that domestic beer producers would be treated the same as other beverage producers in terms of program compliance; reporting and legislated aspects like handling fees.

There are no recovery targets set out in the regulation; however the government has encouraged a target of 85%.

Milk Container Recycling Program

The *Plastic Milk Jug Recycling Program* was launched on July 1, 1999 for milk jugs and expanded to include milk cartons or polycoat containers on Jan 1, 2002. The program is an industry stewardship initiative, through which Alberta's dairy industry supports the voluntary collection and recycling of milk jugs and cartons. A new memorandum of understanding was signed between the Ministry and the dairy industry in 2007 for one year, which includes targets of 62% and 55% for HDPE jugs and carton respectively, with an "ultimate" goal of 75%.

The Standing Committee on Resources and Environment recommended inclusion of all milk containers within the existing deposit return program. This will only come into affect if the Minister approves the recommendation and amends the existing regulation.

Saskatchewan
Beverage Container Collection and Recycling Program

The province-wide program was established in 1988 and expanded to include TetraPaks and gabletop containers in 1999. All beverage containers are included under the regulation. This means any liquid that is a ready-to-serve drink but does not include milk, milk substitutes, flavoured milk, infant formulas, meal replacements or dietary supplements.

There are no provincial targets for containers covered under the program, except for milk containers which have a collection target of 75%.

Unified Dairy Recycling System

The Unified Dairy Recycling System (UDRS) is a program whereby the dairy industry in Saskatchewan contracts with SARCAN Recycling to provide a voluntary collection and recycling system for plastic milk jugs and paper milk cartons via beverage container depots. The original province-wide program was launched in 1999 and upgraded to the current program in Feb 2001. There are no official targets set out in the program.

Manitoba

Waste Reduction and Prevention Program

The province-wide program was established in 1995 to encourage and help finance the expansion of convenient and efficient residential recycling services across Manitoba. All beverage containers (except beer) are covered under this program. Collection of beverage containers generated away-from-home, and in the industrial, commercial and institutional (ICI) sector are not included in this program.

This program will terminate by the end of 2008, to be replaced with a multi-material recycling program funded with brandowner levies for all packaging and printed paper. The new program is expected to be in place by early 2009.

Refillable and non-refillable beer containers are collected through a separate deposit refund program administered and operated by the beer industry.

There are no provincial targets for containers covered under these programs.

Ontario

Municipal Blue Box Program

The province-wide, regulated residential curbside recycling program has been in place since 1994, under the *3Rs Regulations 101/94*, with the first city program implemented in 1987. The program is designed for multi-materials, which include all beverage containers (except beer). Most food and beverage containers, like those made from glass, PET, aluminum and steel are mandated to be included in the program. Other containers like aseptic, gabletop and HDPE bottles may be voluntarily added to the program. Wine and spirit containers were recently placed on deposit, but may be voluntarily added to municipal blue boxes.

The *Blue Box Program Plan*, as approved by the Minister of Environment provides "recovery rate projections" by material. These projections are not targets, rather a "forecast" undertaken by the industries responsible for designing the program. They are:

Gabletop: 15%; Aseptic: 20%; PET bottles: 45%; HDPE bottles: 40%; Steel (food and beverage): 60%; Aluminum cans: 50%; Food and beverage glass: 55%; Liquor Control Board of Ontario glass bottles: 75%

In 2004, the Minister of Environment announced a 60% province-wide residential waste diversion target, however, to date there are no mandated recovery targets.

Beverage containers generated away-from-home and in the ICI sector are not included in this program. There is an ICI regulation (*3Rs regulation 102/94 & 103/94*) that mandates recycling for most commercial sectors and some basic recyclables (excludes multi-laminate containers) that has been in place since 1994. The Ministry has recently been enforcing the regulation.

Regulations also call for 40% of sales of soft-drinks to be refillables, dropping to 30% if a 60% recovery rate for non-refillables is being met. However, the refillable market share for soft-drinks is less than 2%, and the government is considering repealing the refillable quota. As such, the government has not enforced the requirements since its implementation.

Refillable and non-refillable beer containers are collected through a separate program administered and operated by Brewers Retail Inc. (The Beer Store).

In February 2007, a new deposit return program for all wine, sprits and imported beer came into force. The Liquor Control Board of Ontario is responsible for the program and has contracted collection, processing and marketing responsibilities to The Beer Store.

Plastic milk jugs with over 2 litres are required to carry a deposit and are redeemable by consumers. Few retailers maintain a deposit return program for these large milk jugs (other than Beckers), as most milk in Ontario is sold through plastic pouches and gabletop cartons.

Quebec
Agreement Relating to the Deposits, Recovery and Recycling of Non-Refillable Soft drink Containers and Beer Containers

The province-wide program has been in place since 1984. All non-refillable soft drink and beer containers are managed through a deposit return program.

The target is 80% recovery of soft drink and beer containers. Failure to meet the recovery target results in a per container penalty fee. In 2006-07 the total penalty payment from the soft drink and beer industry was almost $6.9M.

Late in 2003, through an amendment to the Environment and Quality Act, the Province created a legal obligation for stewards of packaging and printed materials to fund municipalities up to 50% of the net cost for curbside recycling, which will include all beverage containers (except soft-drinks and beer on deposit) and their associated packaging materials (cases, etc.). Currently, non-deposit bearing materials can be collected through municipal curbside programs.

The 1998-2008 *Residual Materials Management Policy* sets a goal of 60% for metal, plastic and glass materials from municipalities; 95% for metal and glass, and 70% for plastics from the ICI sector. Before 2008, these policy goals are not mandated.

Nova Scotia
Nova Scotia Deposit-Refund System

The province-wide program has been in place since April 1996. Most beverage containers are included, as the regulation defines "beverage" as any liquid that is a ready to serve drink, but does not include milk, milk products, soya milk or concentrates. RRFB policy further clarifies that infant formulas, rice milk as well as certain dietary and meal replacement beverages that meet specific policy criteria are not subject to a deposit.

There are no provincial targets for containers recovered under the program; however a 2006 amendment to the Environment Act has legislated a new disposal target of 300 kilograms per person per year by 2015. This means diverting an additional 177 kilograms of waste per capita (based on

2006-07 data) which would see Nova Scotians achieve an overall diversion rate of approximately 60 percent.

Nova Scotia Milk Packaging Stewardship Agreement

Launched in February 2000, this is a voluntary arrangement between Nova Scotia Environment (formerly Environment and Labour), the Nova Scotia Solid Waste Management Regions and the Atlantic Dairy Council. The program funds the recovery of all milk packaging through province-wide municipal curbside (blue bag) programs. The agreement identifies the following fiscal year-end (March 31) recovery targets: 27% by 1999, 32% by 2000, 39% by 2001, 43% by 2002, 45% by 2003 and 47% by 2004.

New Brunswick
New Brunswick Beverage Container Recovery Program

The province-wide program was established in 1992. The regulation covers all ready-to-drink non-refillable beverage containers up to a size of five litres. Milk and milk products, and un-pasteurized cider are exempt.

The regulation does not specify any targets, though the Department of Environment has an unofficial target of 80% recovery for designated containers.

Newfoundland
Provincial Beverage Recycling Program

The province-wide program has been in place since 1997. The regulation covers all ready-to-drink beverage containers (excluding milk, infant formulas, refillable bottles and containers more than five litres).

The regulation does not specify targets. The Department of Environment has however set overall targets of: 50% after year one, 60% after year two, 70% after year three 80% after year four.

Prince Edward Island
Prince Edward Island Beverage Container Recycling Program

The province-wide program has been in place since May 3, 2008. The program covers all ready-to-drink beverage containers except those used for dairy products, milk substitutes or nutritional supplements.

Prior to the introduction of this program, there was a provincial mandate that all carbonated-soft drink and beer were packaged in refillable containers (effectively banning one-way containers for these beverages) dating back to 1973 for beer and 1984 for soft drinks.

In 1992, the program placed a half-back deposit on all non-refillable wine, spirit and cooler containers.

Late in 2007, the government repealed the law prohibiting non-refillable beer and soft-drinks on the island. On April 15, 2008 the Minister of Environment, Energy and Forestry announced the expanded program designed to manage all the new one-way containers which would replace refillables.

There are no official targets for these materials in the regulation.

Supporting Regulatory Framework

British Columbia
The province-wide program began in 1970 with the *Litter Act*, which made British Columbia the first jurisdiction in North America to establish a mandatory deposit-refund system for soft drink and beer containers as a litter control initiative. The province enacted the Beverage Container Stewardship Program Regulation (1997), which replaced the outdated Litter Act.

The program was further expanded to include all beverage containers, excluding milk and milk substitute products with the *Beverage Container Stewardship Program Regulation* in 1997.

Enacted in October of 2004, the *Recycling Regulation was* written to consolidate all stewardship regulations including the Beverage Container Regulation.

Alberta
The program is regulated under the *Environmental Protection and Enhancement Act* and the *Beverage Container Recycling Regulation*. The Regulation, which was set to expire in October 2006, has been extended to October 2007. Alberta Environment is undertaking a review of the Regulation, the final report of which will go to the Legislature for approval prior to the Regulation being renewed in October 2007.

The Beverage Container Management Board (BCMB) took over regulatory authority for the program in 1997, supported by the *Beverage Container Management Board Administrative By-Law*, the *Beverage Container Management Board Fee By-Law*, and the *Beverage Container Management Board Administrative Compliance By-Law*.

Saskatchewan
The program is legislated under the *Litter Control Act,* 1978 and the *Designated Container Regulations,* 1990.

Manitoba
The program is legislated under the *Environment Act*, the *Waste Reduction and Prevention Act*, 1990, and the *Multi-Material Stewardship (Interim Measures) Regulation*, 1990.

Ontario
Beverage specific regulations are legislated under the *Environmental Protection Act*, 1990. These are: *Refillable Containers for Carbonated Soft Drink,* 1985; *Containers (Regulation 340),* 1986; *Disposable Paper Containers for Milk* (Regulation 345) 1990; and, *Disposable Containers for Milk (Regulation 344),* 1990

In addition, the municipal recycling regulations are legislated under the Environmental Protection Act, 1990. Specifically: *Recycling and Composting of Municipal Waste* (Regulation 101/94), 1994, and *Industrial, Commercial and Institutional Source Separation Programs* (Regulation 103/94), 1994.

The *Waste Diversion Act (Bill 90),* 2002 is recent legislation under which the Blue Box and other stewardship programs are regulated. Specifically: *Blue Box Waste (Regulation 273*), 2002. The *Blue Box Program Plan,* 2003 is not a regulation, but a Minister-approved program plan under the *Waste Diversion Act*.

Quebec
The programs are regulated under the *Environmental Quality Act*.

Recyc-Quebec took over regulatory authority for the program in 1990, supported by *An Act Respecting the Société Québécoise de Récupération et de Recyclage*.

In addition, beer and soft-drink industries are legislated under *An Act Respecting the Sale and Distribution of Beer and Soft Drinks in Non-Returnable Containers (R.S.Q., c. V-5.001)* 1996 and *Beer and Soft Drinks Distributors' Permits Regulation (v-5.001, r.1)*.

The program details are set-out in an industry-government agreement, which expires on December 31, 2008. The agreement is called: *Non-legislative Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Soft Drink Containers*.
The agreement has been extended indefinitely until the Minister makes a decision on how the proceed follow recommendations from an all-party review committee.

In December 2002 an amendment to the *Environment and Quality Act* was made, which created a legal obligation for stewards to financially compensate municipalities.

In November 2004, the government of Québec adopted the *Regulation Respecting Compensation for Municipal Services Provided to Recover and Reclaim Residual Materials* (Q-2, r. 2.3), which institutes a new municipal compensation regime of 50% of the net program costs as of March 1st. 2005. This obligates all beverage producers (including milk) to fund curbside recycling. Soft-drink and beer containers are exempt from this program.

Nova Scotia
The program is legislated under the Solid Waste-Resource Management Regulations made under Section 102 of the Environment Act (1994-95 and as amended from time to time).

The Resource Recovery Fund Board (RRFB) was created under these same regulations to assume administrative authority for the program.

New Brunswick
The program is legislated under the *Beverage Containers Act*, 1991 and the *General Regulation - Beverage Containers Act*, 1992.

Newfoundland
The program is regulated under the *Environment Protection Act*, 2002 and the *Waste Management Regulation, 2003*.

Prince Edward Island
The program was regulated under the *Environmental Protection Act*, 1988 and the *Litter Control Regulations*, 1992. As of May 3rd, 2008 a new deposit return program is mandated under the *Beverage Containers Act, 2008 (Bill 14)*.

Summary of Initiative

British Columbia
The *Beverage Container Recovery Program* was expanded on October 1, 1998 and targets for brandowners or first importers (stewards) of non-refillable beverages (excluding milk products), which are sold in the province of British Columbia. Prior to the expansion, only soft drink containers were regulated under a deposit return program. The expansion added bottled water, juice, new age, and alcohol containers.

With the enactment of the recycling Regulation in 2004, stewards were required to submit stewardship plans, which described the development and operation of the beverage container program. The plans also describe how the program provides consumers with an efficient and convenient system for collecting and recycling beverage containers.

All beverage containers carry a deposit based on their size.

Currently there are two "stewards" in British Columbia representing beverage manufacturers.

Encorp Pacific (Canada) represents brand owners of non-alcohol, wine, spirit, some cider, coolers and beer manufacturers. Encorp return centres include 170 independent depots and thousands of retail outlets. Encorp manages about 64% of recovered beverage containers province-wide.

Brewers Distributors Ltd. is the second steward representing brand owners of domestic coolers, beer and cider. Brewers Distributors Ltd. provides for retail returns at all Liquor Distribution Branch retail outlets, Cold Beer and Wine stores, agency stores and unlimited returns at 28 depots. Brewers Distributors Ltd. manages about 36% of recovered beverage containers province-wide.

Alberta
The province requires beverage producers/brand owners to operate a common collection system to recover containers from the bottle depots and retail locations for beer.

The Beverage Container Management Board administers the *Beverage Container Recycling Regulation*.

The Alberta Beverage Container Recycling Corporation (ABCRC) is the agent representing producers/brand owners of non-beer beverages sold in Alberta. It is responsible for ensuring that containers are collected, transported, processed and recycled as per the requirements of the regulation.

Alberta Gaming and Liquor Commission (AGLC) represent the producers of alcohol. AGLC uses ABCRC to manage its wine and spirit containers and Alberta Beer Container Corporation (ABCC) to manage its beer containers. ABCC is responsible for ensuring that all beer containers are collected, transported, processed and recycled as per the requirements of the regulation. ABCC subcontracts the imported beer portion of their containers - one-way glass - to ABCRC.

Saskatchewan
The Saskatchewan Association of Rehabilitation Centres' Recycling Division, known as SARCAN, administers the program.

SARCAN operates under contract to Saskatchewan Environment, the provincial environment ministry

This Ministry designates containers that can be collected for recycling and establishes the value of the deposit and Environmental Handling Charge that consumers pay when purchasing a beverage.

The retailer passes the collected revenue through to the distributor and then to the Department of Finance.

When returning the empty non-refillable container to one of SARCAN's 71 depots, the consumer is refunded the full deposit.

The Environmental Handling Charge is not refunded to the consumer, but used by the provincial government to offset SARCAN's contract cost and contribute to general revenues.

Manitoba
The Manitoba Product Stewardship Corporation (MPSC) is an independent, non-profit organization representing the interests of all sectors of Manitoba, including consumers, industry, municipalities and governments.

MPSC is a statutory corporation that operates at arm's length from the provincial government, and is currently funded by the 2-cent levy on all non-refillable beverage containers (excluding dairy) sold in Manitoba.

Under the Waste Reduction and Prevention Act, MPSC is mandated to establish and administer a waste reduction and prevention program for designated materials for Manitoba. Utilizing revenue from the 2-cent beverage levy, MPSC funds 80% of municipal curbside and depot programs for designated materials, which include all non-deposit beverage containers. MPSC also funds many school recycling programs.

A new stewardship regulation will be in place very soon, (estimated to be in Q2 of 2008) which will require that all printed paper and packaging stewards pay fees to support municipal curbside recycling (similar to Ontario's stewardship program). The new program should be in place by early 2009.

Refillable and non-refillable beer containers are collected through a voluntary deposit return program administered by the beer industry.

Ontario
Municipal authorities operate multi-material curbside programs in place for recovering beverage containers and other packaging and printed paper materials. Municipalities with over 5000 people are mandated to offer curbside collection services for at least aluminum, steel, PET and glass containers. Municipalities may also voluntarily offer recycling services for aseptic, gabletop, HDPE and other container types. About 98% of the Ontario population have access to curbside or depot recycling services.

In February 2003, Ontario brandowners and first importers, known as "stewards" of Blue Box materials, were mandated to finance 50% of the program net costs.

The Waste Diversion Ontario (WDO) was established in 2002 "to develop, implement and operate waste diversion programs" for a wide range of materials that include Blue Box Waste. WDO oversees the implementation of the new Blue Box financing program and collects annual cost and recovery data from municipal authorities. Municipal authorities are responsible for all program operations.

Stewardship Ontario (SO) is the not-for-profit agent representing affected industry. SO collects fees from its members and pays out monies to municipalities.

As of February 2007, wine, spirit and LCBO-only imported beer were added to the existing deposit return program for beer. The program operations are undertaken by The Beer Store on contract to the LCBO (a crown entity).

Refillable and non-refillable beer containers are collected through a voluntary deposit return-to-retail program administered by The Beer Store. The Beer Store is Ontario's primary distribution and sales channel for beer products in Ontario. All brewers whose beer products are sold through The Beer Store fund the system.

More than 86% of the population live within 5 km of a beer container redemption point, of which there are 441 Beer Stores, 120 retail partner stores, 82 northern agency stores, and about 150 empty bottle dealers (small independent depots contracted in more remote locations where beer retailers are not available).

Quebec
The program is overseen by Recyc-Quebec, a crown agency responsible for monitoring performance, increasing or decreasing the deposit levels and education and promotion. Recyc-Quebec also administers the program for non-refillable beer containers.

Boisson Gazeuses Environment (BGE) administers the program on behalf of the soft drink industry. Boissons Gazeuses Environment took over this role from Recyc-Quebec on December 1, 1999.

Refillable beer containers are collected voluntarily by the beer industry using the same collection infrastructure.

The program is based on a return-to-retail collection system, with over 40,000 licensed grocers, service stations, pharmacies etc. acting as redemption points for containers.

All other beverage containers, including those used for wine, spirits, water, new-age drinks, juices and milk are collected through municipal curbside collection programs available throughout most of Quebec. As of March 2005, the municipal program costs were shared 50/50 between municipalities and brandowners (stewards).

Nova Scotia
Resource Recovery Fund Board, Inc. was incorporated in 1996 to administer major components of the Nova Scotia Solid Waste-Resource Management Strategy (1995). The Board, operating as RRFB Nova Scotia, was tasked with five mandates – one of which was to develop and operate a deposit-refund system for beverage containers.

The program model is the half-back system which contributes to covering program costs and other diversion initiatives as required under regulation and as directed by the Minister of Environment.

Distributors of deposit-applicable beverage products must register with RRFB in order to legally sell these products in or into Nova Scotia. They must also report and remit applicable deposit amounts monthly on units sold directly to RRFB.

From the distributor's sale of product down the chain to the retailer's sale of product to the consumer, it is a cost recovery exercise. Retailers are required by regulation to show the deposit amount charged on the sales receipt and display a notice identifying the location of the nearest depot where a beverage container can be redeemed for a refund.

RRFB Nova Scotia established a province-wide Enviro-Depot™ network to accept redeemable beverage containers from consumers.

New Brunswick
The Department of Environment oversees the program. Distributors are required to recover their containers. The Department of Environment registers distributors of containers sold in the province.

Encorp Atlantic is responsible for managing non-alcoholic container recovery on behalf of non-alcohol brand owners.

New Brunswick Liquor Commission is responsible for the recovery of liquor containers (wine, beer, spirits and coolers), and contracts transportation and processing of their containers to Rayan Investments.

Collection takes place through about province-wide 80 bottle depots.

Newfoundland
The program, which began in 1997, requires that deposits be paid on all regulated beverage containers.

Consumers pay either 8-cents on non-alcohol containers or 20-cents on alcohol containers and receive 5-cents or 10-cents back when they are returned to one of 39 Green Depots, satellite and mobile units.

The Multi-Materials Stewardship Board is a statutory corporation established pursuant to The Environmental Protection Act. This Board manages the Used Beverage Container Deposit Refund System, the Used Tire Recycling Program, the Residential Backyard Composting Program, and the Newfoundland and Labrador Waste Management Trust Fund in the Province of Newfoundland and Labrador and is mandated to support and promote the protection, enhancement and wise use of the environment through waste management programs.

Prince Edward Island
As of May 3, 2008 non-refillable soft drink and beer container are legally sold on the island., and subject to a deposit. The program is a half-back system similar to the other Atlantic provinces.

There are 10 province-wide depots that will serve as collection centres. Liquor stores no longer take-back liquor containers on deposit.

In addition, the Island Waste Management Corporation (IWMC) operates and maintains the Waste Watch Program; a 3-stream source separation based waste management system that is Island-wide. Through the Waste Watch program, all non-beverage containers and containers used for milk are collected and recycled.

All island residents have access to the Waste Watch recycling program, which is funded through a per household change.

Collection Mechanism

British Columbia
Beverage containers are redeemed at depots, retail outlets and Liquor Distribution Branch (LDB) stores. Independent transporters collect the containers and take them to about 12 processing sites across the province.

Processors receive bags of mixed containers and prepare them for the appropriate recycling market by sorting, crushing and/or baling the glass, aluminum, plastic and other materials.

In the case of all domestic beer, cider and coolers, the Brewers Distributors Limited collects these containers from LDB stores, licensees, cold beer and wine stores, agency stores and about 28 depots. In general, other bottle depots will also accept empty domestic beer containers, but will discount the refund as a handling fee. Empty containers are back-hauled to the various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Milk containers are accepted without a refund at 116 bottle depots.

Alberta
Consumers may return empty containers to privately owned and operated registered bottle depots (214 province-wide) and collect their refund. There are also 78 liquor stores, known as "Class D Beer Depots" that accept beer containers and offer consumers a refund.

Bottle depots collect and sort the containers for the Alberta Beverage Container Recycling Corporation (ABCRC) (representing non-beer beverage distributors) and the Alberta Beer Container Corporation (ABCC) representing brewers.

ABCRC and Brewers' Distributor Ltd. (the contract agent of ABCC), transport and process containers to two processing facilities in the province where the materials are prepared for recycling end-markets.

Saskatchewan
Containers are returned to 71 province-wide depots in the 62 communities. Depots sort and flatten the containers, which are picked up by SARCAN trucks, taken to SARCAN processing facilities and sent to recycling end-markets.

Beer containers are returned to Saskatchewan Liquor and Gaming Commission (SLGC) stores, hotels, and four depots. All SARCAN depots and all SLGC stores will discount the refund as a handling fee. Brewers Distributors Ltd. collect these empty beer containers, back-haul them to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Manitoba
Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recycling services. Generally, containers are collected, transported to material recovery facilities, sorted, baled and shipped to their respective end-markets for recycling. Not all beverage containers are collected through all municipal programs. For the most part, PET, glass, aluminum and steel containers are collected in most programs, whereas aseptic, gabletop, HDPE and other less common containers are collected in fewer programs.

Refillable and non-refillable beer containers are collected via beer vendors, Manitoba Liquor Commission and rural agency stores. Brewers Distributors Ltd. collect these empty beer containers, back-haul them to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Ontario
Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recycling services. Generally, containers are collected, transported to material recovery facilities, sorted, baled and shipped to their respective end-markets for recycling. PET, glass, aluminum and steel containers are regulated to be collected in all programs, whereas aseptic, gabletop, HDPE and other less common containers are not regulated and collected in fewer programs.

Wine, spirit and beer containers and associated packaging are collected through 441 Beer Stores, 120 retail partners (private retailers who act as agents of The Beer Store in smaller Ontario communities), 82 northern agency stores, and 15- empty bottle dealers. The Beer Store trucks collect these empty beer containers, back-haul them to various distribution centres where recyclables are sent to a processing facility for sorting, baling and sending to market. Refillable bottles are sent back to the brewers for washing and refill.

Quebec
Soft drink and beer containers are returned to over 40,000 grocers, service stations, pharmacies, etc. Upon return, consumers are provided with a full refund.

Distributors are required to collect redeemed containers from the vendors. About 40% of soft drink containers are collected using the same trucks that deliver full goods (reverse logistics). The remaining 60% of soft drinks and 100% of non-refillable beer containers are collected using third party dedicated transport. These containers are then consolidated at distribution warehouses for shipment to accredited recyclers. Distributors keep the revenue associated with the recycling exchange. Refillable beer bottles are sent back to the brewers for washing and refill.

Nova Scotia
There are currently 83 individually owned and operated Enviro-Depot™ locations in Nova Scotia. Each owner/operator must sign a standard form agreement with RRFB Nova Scotia to become an Enviro-Depot™.

Consumers may bring their empty redeemable beverage containers directly to any Enviro-Depot™ for a five or ten cent refund (depending on container type and size). The depot sorts containers by type and colour, storing them in bulk bags or tubs. RRFB arranges collection of full bags and tubs from the depots and transports them to the nearest of three Regional Processing Centres (RPCs). Plastic and aluminum are baled at the RPC and marketed by RRFB while ownership of glass is relinquished to the RPC which is responsible for marketing this commodity.

Note: All Enviro-Depot™ locations are required to also accept leftover paint and any other material designated by RRFB from time to time. Some individual operators also accept cardboard, newsprint, metals and auto/marine batteries but at their own discretion.

Enviro-Depot™ operators have a separate arrangement with the breweries to accept refillable domestic beer bottles from consumers which are sorted and sent back to the brewers for washing and refill.

New Brunswick
There are approximately 80 individually owned and operated depots in the province. All depots must be licensed with the New Brunswick Department of Environment. Consumers bring used beverage containers directly to these depots, where they are sorted.

Encorp Atlantic organizes the collection of all non-alcohol containers from the depots, sends materials for processing, and markets them. Rayan Investments organizes collection of all alcohol containers from the depots, sends materials for processing, and markets them.

Refillable beer bottles are sorted and sent back to the brewers for washing and refill.

Newfoundland
Consumers bring containers to 39 Green Depots within the province. The Multi-Materials Stewardship Board arranges for collection from the depots to one of three processing plants in Newfoundland and Labrador, where material is processed and shipped to end-markets.

Refillable beer bottles collected by retailers are sorted and sent back to the brewers for washing and refill. MMSB is not responsible for the management or administration of refillables.

Prince Edward Island
As of May 1st, 2008 non-refillable beverage containers subject to deposits can be returned to 10 province-wide depots for a half-refund.

Containers used for milk and other exempted beverages are collected through the Island's Waste Watch curbside recycling program available to all island residents.

Program Financing

(Note: All $ or cents presented in this report are in Canadian currency)

British Columbia

The *Beverage Container Recovery Program* in British Columbia is funded through revenues generated from the sale of material, revenues from unredeemed deposits, and a Container Recycling Fee (CRF) paid at the point of purchase by consumers, and contract fees provided by LDB (until 2007).

Container Recycling Fees are charged based on the net cost of recovering specific container types, net of unredeemed deposit and material revenue. Fees are re-evaluated every year, and are rounded up to the nearest penny. For example, if the net system cost to recover an aluminum can is $0.0095, the Container Recycling Fee will be $0.01 per can.

The Container Recycling Fee varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. In 2008, the fees range from no fee to $0.05 per unit depending on the size and material used for the container. Some containers, like drink pouches, do not carry a fee because their recovery rates are low enough that the unredeemed revenue covers their collection cost, thereby not requiring a CRF.

Since the implementation of the Container Recycling Fee (CRF) , the beverage industry bears no direct costs associated with the operation of the *Beverage Container Recycling Program*. These costs have been transferred to the product consumer/user.

In 2006 Encorp Pacific was the contractor for the BC Liquor Distribution Branch (LDB) to collect wine, spirits and imported beer bottles from depots and LDB stores. These contract fees contribute to operating revenue, which provides economies of scale to the system.

As of 2007, Encorp assumed the stewardship responsibility on behalf of the Liquor Distribution Branch and CRFs have been applied to the purchase price of all liquor containers, except domestic beer.

Brewers have internalized the financing of the collection system for beer cans and domestic beer bottles. Financing information is therefore proprietary.

Alberta

In 2006, the *Alberta Beverage Container Recycling Program* was funded through revenues generated from the sale of material, revenues from unredeemed deposits, and a Container Recycling Fee (CRF) paid at the point of purchase by consumers.

The CRF varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. In 2006, the fees range from zero to $0.04 per unit depending on the size and material used for the container. Some containers, like aluminum cans do not carry a fee because high material revenue and unredeemed cover the collection costs. Gabletop, drink boxes, and bag-in-the-box over 1L also do not carry a fee because the unredeemed deposit revenue is high enough to carry the costs of collecting these materials.

Since the implementation of the Container Recycling Fee (CRF) , the beverage industry bears no direct costs associated with the operation of the *Beverage Container Recycling Program*. These costs have been transferred to the product consumer/user.

Milk Jugs and Carton recovery by municipal authorities are financed partially by the dairy industry. More specifically, a guaranteed market value of $400 per tonne for jugs and $225 per tonne for

cartons is provided by the industry directly to municipalities, plus a $40 per tonne transportation subsidy for some municipalities.

Saskatchewan
The program is funded through revenue generated from the sale of empty beverage containers and a provincial grant awarded to SARCAN. SARCAN is also paid a handling fee for all milk container collected through its depots.

In 2006-07 the contract was worth $10.1M. The provincial government raises revenue through the Environmental Handling Charge, which ranges from $0.03 to $0.07 per unit sold. Excess funds generated by the provincial government are put into general revenues.

The financial responsibility is borne by the consumer through the Environmental Handling Charges. Also, consumers who choose not to return their containers contribute revenue through the unredeemed deposit.

The beverage industry bears no financial responsibility for operating the program.

SARCAN along with 21 other Contracted Recycling Services is contracted to collect and process milk containers and are paid $225 per tonne for the polycoat and $500 per tonne for the plastic jugs. The dairy industry fund these costs plus management and advertising through a levy they have on all large sizes milk containers. Specifically, 1 and 2-litre containers have a 1-cent per container fee while larger than 2 litre has a 2-cent per container fee. Average annual budget is about $450,000, with half going to salvage subsidy and management and the other half going into advertising.

Manitoba
The multi-material municipal recycling program, which also collects beverage containers from the residential sector, is funded by consumers and municipalities. More specifically, consumers pay a 2-cent levy on all non-refillable, non-beer containers, which is used to finance 80% of municipal recycling programs. Municipalities pay the additional 20%.

The provincial government has written a new stewardship regulation due out in early 2008, which will require that all printed paper and packaging stewards pay fees to support municipal curbside recycling (like Ontario and Quebec). These funds will contribute to 80% of municipal recycling net costs.

Ontario
The multi-material municipal recycling program, which also collects beverage containers, is funded by municipalities and stewards. Stewards of packaging, paper and printed paper are brandowners or first importers and publishers.

In 2006, stewards contributed $51.7 million to municipalities, plus an additional $5.8 million for other required costs like: external program elements, program delivery, administration & GST.

Each year, Waste Diversion Ontario conducts a tonnage and financial data call with municipalities to determine the total net program costs. From this data, along with material generation estimates, Stewardship Ontario determines “fair” levies to charge stewards based on the type of material sold into the Ontario marketplace. New levy schedules are released annually. Stewards pay levies in quarterly increments.

Quebec
Return Incentives paid to retailers (2-cents per unit) fund the retail collection portion of the program.

Funding for Return Incentives, transportation, processing, marketing, administration, education and promotion is generated through the unredeemed deposits and the revenue from the sale of material.

The program is assumed be self-financed[2]. Currently the soft drink industry pays a small fee to Boissons Gazeuses Environment (BGE) to support administration (~ 0.15-cents or $0.0015 per unit sold). Distributors pay (through contracting) directly for transportation and processing, which are offset by material revenue (sale of cans, plastic and glass). This information is proprietary; therefore actual system costs are unavailable. However, program cost and revenue estimates have been determined to provide a fairly good approximation of the expenses and revenue for the system. These are identified in Appendix C.

Nova Scotia

Deposit-Refund System

The Nova Scotia program is a half-back system where half of the ten or twenty cent deposit is refunded to the consumer. The remaining half of the deposit plus revenues generated from the marketing of these container materials is used to pay for program costs which includes the handling fee (per container) paid to Enviro-Depot™ operators.

Due to the fact that not all beverage containers sold in the province end up being returned for a refund, a portion of these excess funds (unredeemed deposits) are mandated to be distributed to municipalities to help offset the cost of their waste diversion initiatives.

Nova Scotia Milk Packaging Stewardship Agreement

The Atlantic Dairy Council currently contributes $380 per tonne to municipalities to offset their costs of recovering and recycling milk packaging. This equates to an industry cost of less than 1 cent per milk container sold in Nova Scotia.

New Brunswick

New Brunswick operates a half-back system where half the deposit is not refunded.

50% of this half-back revenue, plus the revenue generated from the unredeemed deposits and the sale of containers, is used to pay for the program, which includes the handling fee per unit to redemption centres.

The remaining 50% of the half-back revenue goes into the province's Environmental Trust Fund and is used for beautification, conservation, etc.

The Department of Environment manages the fund.

Newfoundland & Labrador

The program is funded through revenue generated from the sale of empty beverage containers and unredeemed deposits.

The program also uses part of the revenue generated from the non-refunded portion of the deposit to offset costs. In Newfoundland & Labrador, the system is similar to a half-back program in principle, but it provides 5-cents for non-alcohol containers returned based on an 8-cent deposit, and 10-cents for alcohol containers returned based on a 20-cent deposit.

Excess revenue is placed in the province's "Waste Management Trust Fund".

Prince Edward Island

Prince Edward Island operates a half-back system on all non-refillable beverages, where half of the deposit is not refunded. Unredeemed deposits and half-back revenue off-set program costs. Excess funds are placed in the Environmental Trust Fund for Island-specific initiatives.

[2] Based on analysis from Recyc-Quebec, see appendix C for financial breakdown.

Reuse/Recycling

As the price of energy passes $100 per barrel of oil, the value of most beverage containers is strong, consistent, high-value, and competitive. Empty containers are bought and sold like any other commodity. Markets vary depending on the consistency of quantities and the quality (the amount of contamination).

The following provides a brief description of the empty beverage container market today.

Aluminum cans

Cans are crushed, compacted into biscuits, and transported to aluminum markets where they are melted down and reformed into rolled stock. New aluminum cans are punched out from the sheet at a can production plant and the off-cuts or in-house scraps re all recycled.

Glass Bottles

Glass bottles are sorted by colour type (flint, green, brown and light blue) or they remain mixed. Glass is crushed into small pieces (known as cullet) and used to make new bottles, utilized for road paint's reflective properties, ground back into sand for sand blasting materials, or made into fibreglass.

Most of the glass collected in western Canada is recycled into fibreglass at a facility in Alberta. In addition, an end-market also exists for paint beading in Saskatchewan. In Ontario the majority of wine, spirit and beer glass collected is sold to Owens Illinois for bottle-to-bottle re-manufacture, while glass collected the curbside program is used for fibreglass insulation, sand blasting medium and drainage material. Atlantic Provinces were sending the majority of their glass to Owens Illinois for bottle–to-bottle recycling, however with a recent closure of the New Brunswick Owens Illinois facility, Atlantic provinces will require a new end-market for their material.

Refillable beer bottles

Refillable beer bottles are sent back to brewers for washing and refill. Brewers estimate an average "trippage" rate is 15 times.

The term "trippage "refers to the amount of servings one refillable bottle offers. In many countries around the world refillables are more common place for a wide variety of beverages including water, soft-drinks, milk, beer and wine. Glass bottles can achieve trippage rates of 50 times, and thick refillable PET bottles can achieve trippage rates of 20 times.

Scruff marks on the plastic and erosion rings on glass bottles increase with every use. The lower trippage rate on refillable Canadian beer bottles may perhaps

only be explained by the importance of bottle ascetics, which is a critical element of successful marketing when competing with one-way beer bottles.

PET plastic bottles

Clear plastic beverage containers are baled, shredded and flaked. Plastic flake may be turned into a fibre that can be used to make fleece clothing and carpet underlay, new bottles used for detergents, motor oil and other non-food related products. Increasing amounts of PET bottles from deposit return programs are melted down and made into new beverage bottles. Recent data[3] suggests the north American end-use consumption of recycled pet is: 54% fibre, 15% strapping, 13% food & beverage bottles, 8% sheet and film, and 7% non-food bottles.

HDPE plastic jugs

High Density Polyethelene (HDPE) milk jugs and juice containers are baled, chipped and washed. The clean chipped plastic is melted at high temperature and formed into pellets. The pellets are used as resin feedstock for the manufacture of non-food containers, plastic formed products, furniture and toys.

Steel / bi-metal cans

Steel beverage containers are crushed, baled and transported to steel markets. There they are melted down with other scrap metal, which can then be used as construction re-bar and other steel products.

Tetra Pak boxes

Tetra Pak cartons or drink boxes are made up of paper, an aluminum lining and a plastic coating. Tetra Pak cartons are hydro-pulped and separated into different material types. The resulting paper pulp (~50%) is used to make tissue. The remaining aluminum and plastic mix (~50%) can be used to manufacture durable products like pallets, and paper core plugs, but most end-markets currently do not use the aluminum/ plastic mix for value-added products. Tetra Pak material is sent off-shore to China and Korea for pulping and tissue production.

Gabletop cartons

Gabletop cartons used for juice and milk are made up of "polycoat", a lightweight, high-grade paperboard sandwiched between two thin layers of polyethylene film. Polycoat is converted into new material by hydrapulping, which uses a combination of heat, water and agitation to break down the material to produce pulp or raw fibre. This pulp can be used as feedstock to make new paper products such as corrugated medium (the inner layer of corrugated cardboard), linerboard, household tissue products, and fine paper. The small amount of

[3] National Association for PET Container Resources (NAPCOR)

residual polyethylene can be screened off for use in other plastic and composite materials. Most Gabletop material is sent to facilities in the U.S, and some is sent off-shore to China and Korea.

Poly Pouch containers

Poly Pouch containers are made up of composite layers of plastic including low density polyethylene with aluminum foil. The technical description is PET/ink/adhesive/aluminum foil adhesive with LLDPE sealant.

Traditional recycling methods via the aluminum or plastics recycling markets are not available, as this material is a contaminant in both processes. Several recycling agents – primarily in provinces that mandate that all beverage containers get recycled (versus landfill or incineration) – are currently sourcing a permanent market for recycling this material. Test batches are being sent to North America, Europe and Asia.

1.5

Cups

Today more than ever, there is a wide variety of beverage containers. "On-the-go" or "away-from-home" beverage consumption has risen dramatically in the last decade for all beverages including those served in unsealed cups used for coffee, tea, soft drinks and juices, usually sold by the quick serve sector or at events. Until recently, these beverage containers have been exempt from all deposit return regulations, using definitions like "a beverage that was sealed by the manufacturer after the beverage was placed in it".

With the launch of Ontario, Quebec and Manitoba's (in 2009) industry–funded municipal recycling program retailers or brandowners of these cups are required to pay levies to support municipal recycling of these containers. However, while industry is financially supporting recycling via municipal programs, very few programs are actually accepting and recycling these materials.

Cups are recyclable

Polystyrene cups are recyclable where polystyrene recycling facilities exists. In general, these cups are commingled with other expanded polystyrene recycling programs and shipped to facilities in the US, in Ontario and oversees. In general the challenge with recycling polystyrene cups is the associated cost of shipping, given they have a large volume to weight ratio.

Paper cups can be recycled by some paper mills either on their own, mixed with gabletop containers or mixed-in with boxboard material. Depending on the end-use (usually tissue) the yield rate[4] is about 80%[5]. A homogeneous mix of cups with low levels of contamination provides the greatest yield rate.

Wax coated cups used for cold beverages provide greater challenges with recycling and composting because of the wax.

Cups are compostable

Paper cups can also be composted. Cups with a poly-based liner usually take longer than those with a biogenic liner (from corn etc.). Cereplast and the Solo cup company have produced a fully biodegradable coated cup.[6]

What's happening now?

In Prince Edward Island paper cups are accepted in the province's compost facility and requested be placed in the green bin. The lids go in the blue bag with recyclables.[7] Tim Hortons also has a store-level pilot project with Scotia Recycling for collecting and recycling the cups in the communities of Yarmouth, Chester, and Kentville, Nova Scotia. Several Ontario

[4] "Yield rate" refers to the percentage of material that is actually recycled.
[5] Based on a conversation with technical contact at Atlantic Packaging
[6] http://findarticles.com/p/articles/mi_m0EIN/is_2006_August_7/ai_n16609975
[7] http://www.modl.ca/content/view/228/432/

municipalities also promote placing hot beverage cups in green bin or blue boxes for recycling. These communities include Owen Sound, Essex-Windsor County, Hamilton, and Halton Region, to name a few.

Tim Hortons Coffee Cup Recycling became a Canadian first on Earth Day, April 22, 2002 when Westmorland-Albert Solid Waste Corporation, a wet-dry facility in Moncton, NB and Tim Hortons announced their joint venture to reduce litter and recycle a largely popular waste product.[8] On Earth Day 2002, The Corporation team-up with one of the region's largest community-involved organizations, and Tim Hortons, to recycle coffee cups. Able to find markets for coffee cups, Tim Hortons placed recycling bins for "hot beverage containers" at the Drive-thrus and inside stores at 25 locations. This program was a first of its kind in Canada and was also launched during Tim Hortons Anti-Litter Campaign. That year, the Compost facility performed a pilot project to compost Tim Hortons coffee cups. The cups were shredded and used as a bulking agent. In 2004, over 1 million Tim Hortons coffee cups were diverted from landfill.[9]

[8] http://www.elements.nb.ca/theme/recycled/waswc/wetdry.htm
[9] http://www.westmorlandalbert.com/english/index.html

1.6

Provincial Contacts

Province	Recycling Affiliate	Phone /Fax	Web Site & Logo
British Columbia	Encorp Pacific (Canada) Neil Hastie, President and CEO 206–2250 Boundry Road. Burnaby, British Columbia V5M 3Z3	Phone: (604) 473-2400 Fax: (604) 473-2411	www.encorpinc.com
British Columbia	Brewers Distributor Limited Beau Pyatt, Manager 109 Braid Street New Westminster, British Columbia V3L 5T3	Phone : (604) 664- 2302 Fax: (403) 664-2349	www.bdl.ca
Alberta	Brewers Distributor Limited Garry Clermont, President 11500 – 29th Street East. Calgary, Alberta T2Z 3W9	Phone : (403) 531-1000 Fax: (403) 531-1025	www.bdl.ca
Alberta	Alberta Beverage Container Recycling Corporation Guy West, President and General Manager 3617 Ogden Road. S.E. Calgary, Alberta T2G 4N6	Phone: (403) 264-0170 Fax: (403) 264-0179	www.abcrc.com
Alberta	Beverage Container Management Board John Bachinski, Managing Director #1010, 10707 - 100 Avenue Edmonton, Alberta T5J 3M1	Phone: (780) 424-3193 1-800-424-7671 Fax: (780) 428-4620	BEVERAGE CONTAINER MANAGEMENT BOARD www.bcmb.ab.ca
Alberta	Alberta Dairy Council Roberta Windrum, Program Coordinator P.O. Box 3452 Leduc, Alberta T9E 6M2	Phone: 780.418.1400 1-877-414-5847 Fax: 780-418-1600	www.milkcontainerrecycling.com/AB/
Saskatchewan	Brewers Distributor Limited Jeff Ross, Manager of Operations 1400 Saskatchewan Ave. Winnipeg, Manitoba R3A 0L3	Phone: 204-958-7930 Fax: 204-786-5561	www.bdl.ca
Saskatchewan	SARCAN Recycling Ken Homenick 111 Cardinal Crescent Saskatoon, Saskatchewan S7L 6H5	Phone: (306) 933-0616 Fax: (306) 653-3932	www.sarcan.sk.ca

Province	Contact	Phone /Fax	Web Site and Logo
Manitoba	Brewers Distributor Limited Lil Schultz, Manager of Operations 380 Dewdney Ave. East P.O. 3057 Regina, Saskatchewan S4P 3G7	Phone: 306-924-9667 Fax: 306-352-3575	BREWERS DISTRIBUTOR LTD. www.bdl.ca
Manitoba	Manitoba Product Stewardship Corporation Jim Fogg, General Manager 280-530 Kenaston Blvd Winnipeg, Manitoba R3N 1Z4	Phone: (204) 989-6222 Fax: (204) 989-6229	mpsc www.mpsc.com
Ontario	The Beer Store Ted Clarke, President 5900 Explorer Drive Mississauga, Ontario L4W 5L2	Phone: (905) 361-1005 Fax: (905) 361-4289	The Beer Store www.thebeerstore.ca
Ontario	Stewardship Ontario Joyce Barretto, CEO 26 Wellington Street East, Suite 601 Toronto, Ontario M5E 1S2	Phone: 416 594-3456 1-888-277-2762 Fax: 416 594-3463	Stewardship ONTARIO www.stewardshipontario.ca
Ontario	Waste Diversion Ontario Glenda Gies, Executive Director 45 Sheppard Avenue East, Suite 920, North York, Ontario, M2N 5W9	Phone: (416) 226-5113 Fax: (416) 226-1368	Waste Diversion Ontario www.wdo.ca
Quebec	Boissons Gazeuses Environnement Édouard Darche 100, rue Alexis-Nihon St., Suite 406 St. Laurent, Québec H4M 2N9	Phone: 514-747-7737 1-877-226-3883 Fax: 514-747-3606	Boissons gazeuses environnement www.bge-quebec.com
Quebec	Association des Brasseurs du Quebec Alain Madgin, President and Director General 1981 McGill College Montréal, Quebec H3A 2Y1	Phone: (514) 284-9199 Fax: (514) 284-0817	L'ASSOCIATION DES BRASSEURS DU QUÉBEC www.brasseaurs.qc.ca
Quebec	Recyc-Quebec Yves Boivert 7171 Jean-Talon East Suite 200 Anjou, Quebec H1M 3N2	Phone: (514) 352-5002 Fax: (514) 873-6542	RECYC-QUÉBEC Québec www.recyc-quebec.gouv.qc.ca

Province	Contact	Phone /Fax	Web Site and Logo
Quebec	Éco Entreprises Québec Maryse Vermette Président 1600 Blvd. Rene Levesque O. Bureau 600, Montreal, Quebec H3H 1P9	Phone: (514) 987-1491 Toll free: 1-877-987-1491 Fax: (514) 987-1598	www.ecoentreprises.qc.ca
New Brunswick	Encorp Atlantic Inc. Bryan Howell, General Manager Box 65 Moncton, New Brunswick E1C 8R9	Phone: (506) 532-7320 Fax: (506) 533-7006	ENCORP
New Brunswick	NB Liquor Tanya Rumbolt, Intermediate Accountant 170 Wilsey Rd. P.O. Box 20787 Fredericton, New Brunswick E3B 5B8	Phone: (506) 452-6826 Fax: (506) 462-2024	www.alcoolnb.com
New Brunswick	Rayan Investments Murry Cruikshank, President 1635 Berry Mills Road, Moncton, New Brunswick E1E 4R7	Phone: (506) 858-1600 Fax: (506) 852-9102	
Newfoundland & Labrador	Multi-Material Stewardship Board Paul Russell P.O. Box 8131 , Station A St. John's, Newfoundland A1B 3M9	Phone: (709) 753-0955 Fax: (709) 753-0974	www.mmsb.nf.ca
Nova Scotia	Resource Recovery Fund Board William Ring Chief Executive Officer 14 Court Street Suite 305 Truro, Nova Scotia B2N 3H7	Phone: (902) 895-7732 Fax: (902) 897-3256	www.rrfb.com
Prince Edward Island	Ministry of Environment, Energy and Forestry Don Jardine, Director of Pollution Prevention Jones Building, 4th and 5th Floors 11 Kent Street P.O. Box 2000 Charlottetown, PE C1A 7N8	(902) 368-5035 (902) 368-5830	www.gov.pe.ca
Prince Edward Island	Island Waste Management Corporation Gerry Moore, CEO 110 Watts Ave. Charlottetown, PE C1E 2C1	Phone: 902-894-0330 Fax: 902-894-0331 Toll free 1-888-280-8111	www.iwmc.pe.ca

2.1

Consumer Fees

In many deposit return programs, the beverage industry pays for the bulk of the system costs. In Canada, however, programs have evolved in a way to minimize or eliminate the industry's financial obligation, and pass it on to their customers in the form of a front-end fee or a back-end fee.

Currently in Canada, there are four different examples of consumer-based fees that are charged to beverage consumers and used to finance the collection systems.

Container Recycling Fee (CRF)

Currently being charged in British Columbia and Alberta, the CRF represents a portion of the net cost per unit. The Container Recycling Fee varies depending on the value of the material and the recovery rate for a particular container. For example, high recovery rates generate less unredeemed deposit revenue, and therefore a higher Container Recycling Fee, while lower recovery rates generate greater unredeemed deposit revenue and lower Container Recycling Fees. The fees range from no fee to $0.08 per unit depending on the size and material used for the container. Some containers, like drink pouches and aluminum cans, do not carry a fee. Fees have no relationship to the environmental profile of the container type.

Environmental Handling Charge (EHC)

Currently being charged in Saskatchewan, the EHC is charged on every non-refillable beverage sold. The funds are collected by the provincial government and used to pay for the operation of the program. The EHCs range from $0.03 - $0.07 per unit sold depending on the size and material used for the container. The EHC usually generates far more revenue needed to fund the system. Excess funds generated by the provincial government are put into general revenues.

Beverage Container Levy

Currently being charged on all non-refillable beverages sold in Manitoba, the 2-cent levy is used to finance 80% of the province's multi-material municipal curbside collection system. Excess revenues are kept in a surplus fund and accessed in years where shortfalls may occur. This model is slated to be replaced by a brandowner-funded levy program on a wider range of packaging and printed material (like in Ontario and Quebec) in 2009. The existing program will cease only when a new program is set-up and funds are flowing.

Half-Back

Currently in place in Nova Scotia, New Brunswick, Newfoundland and PEI, a Half-Back represents half of the deposit paid on a non-refillable beverage container. The half-back is charged upon redemption, when only half of the deposit is redeemed. Funds are used to pay for the operation of the program. Half-Backs always generate far more revenue than needed to fund the system. Excess funds are used to subsidize the municipal curbside recycling program and/or other provincial environmental initiatives.

Table 2.1 **Consumer Fees**

in cents per unit sold

(as of March 1, 2008)

Province	BC	AB	SK*	MB	ON	QC	NS	NB	NF
Type of Fee	**CRF**	**CRF**	**EHC**	**Levy**	**-**	**-**	**Half-Back**	**Half-Back**	**Half-Back**
Aluminum Cans	0	0	5	2	0	0	5	5	5
PET 0 – 1L	3	2	6	2	0	0	5	5	5
PET over 1L	3	3	6	2	0	0	5	5	5
PVC or HDPE 0 – 1L	3	2	6	2	0	0	5	5	5
PVC or HDPE over 1L	3	0	6	2	0	0	5	5	5
Plastic up to 500ml	3		6	2	0	0	5	5	5
Plastic 501ml-1L	3		6	2	0	0	5	5	5
Plastic over 1L	3		6	2	0	0	5	5	5
Polystyrene Cups (with sealed foil lid)	3	0		2	0	0	5	5	5
Polypropylene 0 – 1L	3	2	6	2	0	0	5	5	5
Polypropylene 1L	3	0	6	2	0	0	5	5	5
Pouch 0 – 1L	0	1		2	0	0	5	5	5
Glass up to 500ml	5	3	7	2	0	0	5	5	5
Glass 501ml-1L	5	3	7	2	0	0	5	5	5
Glass over 1L	5	4	7	2	0	0	5	5	5
Drink box up to 500ml	0	1	3	2	0	0	5	5	5
Drink box 501ml-1L	4	1	3	2	0	0	5	5	5
Drink box over 1L	0	0	3	2	0	0	5	5	5
Gabletop up to 500ml	0	1	3	2	0	0	5	5	5
Gabletop 501ml-1L	0	1	3	2	0	0	5	5	5
Gabletop over 1L	0	0	3	2	0	0	5	5	5
Bi-metal less than 1L	0	4	5	2	0	0	5	5	5
Bi-metal less over 1L	0	0	5	2	0	0	5	5	5
Bag-in-the-Box over 1L	0	0		2	0	0	5	5	5
Wine and Spirits under 500ml	3	3	7	2	0	0	5	5	10
Wine and Spirits equal to or greater than 500ml	3		7	2	0	0	10	10	10
Milk Cartons & Jugs 1& 2 litres		1							
Milk Jugs 4 litres		2							

Container Recycling Fee *(CRF) - Represents a portion of the net system cost of recovering the container.*

Environmental Handling Charge *(EHC) - A fee charged by the provincial government to cover the deposit return program costs and generate general revenues.*

Levy *- Manitoba charges a 2-cent levy on all non-refillable, non-milk beverages - This revenue is used to subsidize 80% of the curbside program.*

Half-Back *represents half of the deposit on each container. Half-Back revenue covers the deposit return program costs and funds other residential recycling initiatives or provincial environmental programs.*

There are ***no consumer fees*** charged on beverages sold in Quebec.

*The 6-cent handling fee charged on refillable beer in Saskatchewan is charged at the back-end, and taken off the refund by depot operators. This is not a regulated fee. It is imposed voluntarily by depot operators.

Note: Shaded cells represent categories that are not applicable for consumer fees.

2.2

Deposit Levels
(as of May 1, 2008)

In provinces where deposit return systems exist, deposits are paid on beverage containers at the point of purchase. Generally they are indicated separately on the sales receipt.

Consumers receive the full deposit back (a refund) if they return the container to the appropriate collection centre (retail store and/or depot).

In some jurisdictions for certain containers depots keep part of the refund as their handling fee, thus reducing the refund for consumers.

In the Atlantic Provinces (New Brunswick, Newfoundland, Nova Scotia and PEI), only half the deposit is refunded when a non-refillable container is returned. The remaining half deposit is used to pay for the system and subsidize other provincial environmental initiatives. (Note: In NF, 5-cents are refunded on an 8-cent deposit.)

Table 2.2

Province	BC	AB	SK	MB	ON	QC	NS	NB	NF	PEI
Container Type										
Containers ≤ 1L	5	5		n/a		n/a				
Containers > 1L	20	20		n/a		n/a				
Carbonated beverage containers				n/a	n/a	5				
Non-alcohol				n/a	n/a	n/a	10	10	8	10
Metal cans < 1L			10	n/a	n/a	n/a				
Metal cans ≥ 1L			20	n/a	n/a	n/a				
Refillable soft-drink and beer ≤ 500ml				n/a	n/a	n/a				10
Refillable soft-drink and beer > 500ml				n/a	n/a	n/a				20
Glass Bottles ≤ 300ml			10	n/a	n/a	n/a				
Glass Bottles 301ml-999ml			20	n/a	n/a	n/a				
Glass Bottles ≥ 1L			40	n/a	n/a	n/a				
Plastic bottles < 1L			10	n/a	n/a	n/a				
Plastic bottles ≥ 1L			20	n/a	n/a	n/a				
Juice box and Gabletop			5	n/a	n/a	n/a				
Wine & Spirit Containers ≤ 500ml	10	5		n/a		n/a	10	10	20	10
Wine & Spirit Containers 501ml-1 Litre	10	5		n/a		n/a	20	20	20	20
Wine & Spirit Containers > 1L	20	20		n/a		n/a	20	20	20	20
Wine & Spirit Containers ≤ 630ml					10					
Wine and Spirit Containers > 630ml					20					
Beer cans & bottles ≤ 1L	10	10		10	10		10	10	10	10
Beer cans & bottles > 1L	20	20		20	20		20	20	20	20
Beer cans ≤ 450ml						5				
Beer bottles (glass) ≤ 450ml						10				
Beer containers > 450ml						20				
Refillable beer bottles	10	10	10	10	10	10	10	10	10	10

2.3 Container Handling Fees

A handling fee is the fee charged per unit collected by the collection agent (depot or retail). In general, the same handling fee is charged for all container types, however in western provinces (BC and AB) handling fees range from a low of 3-cents (for aluminum cans in BC) to a high of 12-cents (for bag-in-the-box containers in AB). The varied fees are based on the cost of handling and storage. Handling fees in most provinces have and continue to experience increases year after year. In British Columbia, handling fees for grocers are privately negotiated and are proprietary. The handling fees presented below for BC represent those fees awarded to depots only.

The table below presents handling fees by province and container type, as of March 15, 2008. shaded regions represent container categories that are not applicable to that particular province in terms of categorization.

Handling Fees

In cents per unit recovered
(As of March 15, 2008)

Table 2.3

Province	BC[10]	AB	SK[11]	QC	NS	NB	NF&L	PEI[12]
Aluminum Cans	3	3.02	n/a	2	3.63	3.66	3.5	3.6
PET 0 – 1L	4.5	3.94	n/a	2	3.63	3.66	3.5	3.6
PET over 1L	7	7.23	n/a	2	3.63	3.66	3.5	3.6
PVC 0 – 1L	4.5	7	n/a		3.63	3.66	3.5	3.6
PVC over 1L	7	12	n/a		3.63	3.66	3.5	3.6
HDPE 0 – 1L	4.5	6	n/a		3.63	3.66	3.5	3.6
HDPE over 1L	7	12	n/a		3.63	3.66	3.5	3.6
Polypropylene	4.5	6	n/a		3.63	3.66	3.5	3.6
Polystyrene Cups (with sealed foil lid)	4	6	n/a		3.63	3.66	3.5	3.6
Polystyrene 0 – 1L	4.5	8	n/a		3.63	3.66	3.5	3.6
Polystyrene over 1L	7	8	n/a		3.63	3.66	3.5	3.6
Pouch	3	6						
Plastic up to 500ml	4.5		n/a		3.63	3.66	3.5	3.6
Plastic 501ml-1L	4.5		n/a		3.63	3.66	3.5	3.6
Plastic over 1L	7		n/a		3.63	3.66	3.5	3.6
Glass bottles 0 – 1L	5.5	5.08	n/a	2	3.63	3.66	3.5	3.6
Glass bottles over 1L	5.5	11	n/a	2	3.63	3.66	3.5	3.6
Drink box up to 500ml	3.5	3.81	n/a		3.63	3.66	3.5	3.6
Drink box 501ml-1L	5	3.81	n/a		3.63	3.66	3.5	3.6
Drink box over 1L	5.5	10	n/a		3.63	3.66	3.5	3.6
Gabletop up to 1L	5	6	n/a		3.63	3.66	3.5	3.6
Gabletop over 1L	5.5	10	n/a		3.63	3.66	3.5	3.6
Bag in the Box over 1L	5.5	12	n/a		3.63	3.66	3.5	3.6
Bi-metal $\leq$ 1L	3.5	6	n/a		3.63	3.66	3.5	3.6
Bi-metal over 1L	5.5	10	n/a		3.63	3.66	3.5	3.6
Imported beer bottles	3.5	4.87	n/a		3.63	3.66	3.5	3.6
Liquor and wine ceramic & aerosols		12	n/a		3.63	3.66	3.5	3.6
Sleeman bottles		4.12	n/a		3.63	3.66	3.5	3.6
Import beer in PET 0-1L		6	n/a		3.63	3.66	3.5	3.6
Import beer cans bi-metal		6	n/a		3.63	3.66	3.5	3.6
Refillable Beer	2.42[13]	3.96[14]	6[15]	0	2.57	2.61	1	n/a
Milk jugs	~2.9[16]	$400/ tonne	$500/ tonne		$380 tonne			
Milk cartons	~3.75	$225/ tonne	$225/ tonne					

[10] Effective May 2008, handling fees in BC will increase by 3%, from an average of 4.1-cent/unit to 4.23-cents per unit
[11] While there are no official container handling fees in Saskatchewan, SARCAN estimates that their handling costs are 5.86-cents per container recovered.
[12] The 3.6-cent handling fee in PEI will apply as of May 1, 2008 with the introduction of the new deposit return program.
[13] In BC bottle depots independently negotiate handling fees directly with the beer industry. The average rate is about 29-cents/doz or 2.42 -cents/bottle
[14] Big Rock bottles carry a handling fee of 3.87-cents
[15] Saskatchewan does not charge handling fees. SARCAN depots are paid a contracted rate per year, which is generated through the Environmental Handling Charge (EHC).
A 6-cent handling fee charged on refillable beer in Saskatchewan is charged at the back-end from the refund.
[16] About 116 Depots in BC are paid a handling fee for collecting milk jugs and carton. They are paid $1.75 per bag for jugs and $2.25 per bag for cartons. The fee shown in the table is based on 60 units per bag.

2.4

System Costs

In order to determine the costs of deposit return programs in Canada, income statements from the various operating agencies must be reviewed. In general, the income includes sales from empty containers sold to the recycler. In some cases, operators use the unredeemed deposit revenue to help offset their costs. Therefore, in determining the net cost of a provincial program, it is reasonable to identify a net cost without unredeemed deposit revenue and a net cost with unredeemed deposit revenue.

Net system cost per container sold without unredeemed deposit revenue =

$$\frac{\textit{gross costs} - \textit{material revenues}}{\textit{containers sold}}$$

Net system cost per container sold with unredeemed deposit revenue =

$$\frac{\textit{gross costs} - \textit{material revenues} - \textit{unredeemed deposits}}{\textit{containers sold}}$$

The following table provides a summary of the system costs with and without unredeemed revneue. See Appendix – C for individual program revenue/expenses, calculations and methodologies.

Table 2.4

	System Costs/Surplus in cents / per unit sold (CAN$)						
	BC	**AB**	**SK**	**QC**	**NB**	**NS**	**NF**
excludes:	domestic beer	domestic beer	refillable beer bottles	beer	domestic beer	refillable beer	refillable beer
Without un-redeemed deposits	3.5	2.9	3.0	1.6	n/a	4.0	3.4
With un-redeemed deposits	2.1	1.0	1.6	0.0	n/a	1.6	0.5

2.5

Who Pays What Analysis

In order to provide a clearer picture of the associated program costs, a new approach called *Who Pays What* has been developed by CM Consulting. This new approach provides a transparent picture of the associated program cost/unit sold as they relate to the various "funders" or stakeholders of the system. The following identifies and defines these costs.

Beverage Industry Cost: Direct system related cost/unit sold or surplus/unit sold to the beverage industry – brand owners or distributors.

Operating Agent Cost: Direct cost or surplus/unit sold to the operating agent that year. It should be noted that in order to achieve smooth financial operations, agents require a reserve fund. Generally, surplus funds are accrued under the reserve fund. Similarly, if an agent were in a deficit situation for that year, reserve funds can be used to balance the budget.

Provincial Government Cost: Direct system related cost incurred by the provincial government/taxpayers.

Municipal Government Cost: Direct system related cost incurred by municipal authorities/taxpayers. Note: container disposal costs are always a cost to municipalities/taxpayers. These costs are not part of the *Who Pays What* analysis.

Consumer Recycling Cost: Direct system cost/unit purchased to the beverage consumer. Revenue generated from these consumers is used directly to offset the system costs. These costs can be part of an up-front non-refundable eco-fee, container recycling fee (CRF) or the half-back portion of the refund.

Consumer Wasting Cost*:* Additional system cost/unit purchased to beverage consumers that choose not to return their container. These costs are generally quite high because they are equal to the value of the deposit. While these costs vary from container to container depending on the level of the deposit, the cost/unit shown is an average.

Non-System Related Consumer Cost: Several programs in Canada use Environment Handling Charges (EHCs) or Half-Back schemes to generate additional revenue. While this revenue may be generated from the beverage container consumer, it does not necessarily mean that it is being used to offset the system costs associated with operating the program that year. These non-system related costs subsidize other provincial programs or contribute to provincial general revenues. In the case of excess Container Recycling Fees (CRFs), surplus funds are used to offset the following year's costs. CRFs do not subsidize other programs.

Indirect costs: There may be indirect costs associated with beverage collection programs that impact consumers or municipalities, which are seldom accounted for. These may include: the costs incurred by consumers when driving containers to a depot; costs incurred by municipalities for disposal and litter abatement etc. These costs are not part of the *Who Pays What* analysis

The following table provides a summary of stakeholder costs. These costs are unique to the individual stakeholder for every container sold, and will vary year-to-year. It is important to note that each identified stakeholder cost represents but a portion of the total. For example, the "wasting consumer" represents only a small portion of all consumers – those who have chosen not to redeem their container; the "recycling consumer" represents only those consumers that have redeemed their container. As such, these costs should be examined as individual stakeholder costs and columns or rows should not be totalled.

Table 2.5

Who Pays What

in cents / per unit sold (CAN$)

Stakeholders	BC	AB	SK	MB	ON	QC	QC	NB	NS	NF
	wine /spirits / non-alcohol	all (excluding domestic beer)	all (excluding refillable beer)	all (excluding refillable beer)	all (excluding beer)	soft-drinks	all (excluding beer & soft drinks)	all (excluding refillable beer)	all (excluding refillable beer)	all (excluding refillable beer)
Beverage Industry	0	0	0	0	See Ontario Fee Schedule range ~(0.03)... 1.18	0.15	See Ontario Fee Schedule range ~0.02…0.87	n/a	0	0.0
Operating Agent	0.02	(0.65)	0.00	0	n/a	-	n/a	n/a	(2.64)	(1.5)
Provincial Government	7.10	n/a	n/a	0	0	n/a	0	0.00	0	0.0
Municipal Government	-	-	-	n/a	n/a	-	n/a	-	-	-
Recycling Consumer	1.16	0.83	n/a	2	0	0	0	~5.4	5.20	>3.0
Wasting Consumer	5.72	6.70	10	0	0	5.55	0	~10.7	10.19	~9.0
Non-System related consumer cost	0	0.65	n/a	0	0	-	0	n/a	2.64	1.54

*In Manitoba, part of the revenue generated from the 2-cent levy on beverage containers subsidizes recovery of other materials in the municipal waste stream. The portion of revenue dedicated to beverage container recovery is unavailable.

Who Pays What
Summary of Analysis

The *Who Pays What* analysis confirms that in British Columbia, Alberta, Saskatchewan, Manitoba, Nova Scotia, Newfoundland and New Brunswick (for liquor), the beverage industry bears no costs to run the provincial beverage recovery program.

The bulk of system costs are borne by the consumer that chooses not to return their container – the "wasting consumer".

There may be a small portion of a front-end or back-end consumer fee (EHC and Half-back) which is used directly to offset the system costs. In half-back provinces most or all of the half-back is used to fund non-related environmental programs.

Beverage producers or first importers (including milk) in Ontario and Quebec (excluding soft-drink and beer brandowners) are required to pay levies on all their packaging sold into the residential stream.

2.6

Ontario & Quebec
Beverage Container Packaging Fees

Both Ontario and Quebec have legislation in place that mandates 50% funding support from industry for municipal recycling. The Ontario program began funding municipalities in February 2003 and the Quebec program as of March 2005.

The targeted industry is brand owners or first importers of packaging and paper, and publishers of printed paper. In Ontario target materials are "packaging" and "printed papers", and in Quebec they are "containers and packaging", "printed matter" and "written media".

In Ontario, through a municipal data call, both cost and tonnage information is collected. From that data call, Stewardship Ontario (the Industry Funding Organization representing affected stewards) determines who pays how much. The formula used to determine the fees utilizes a combination of factors which include the recovery rates, net cost and a penalization factor for lower performing materials.

Each year, as the costs and tonnages change, Stewardship Ontario submits a new fee schedule which requires approval from the Minister of Environment. In 2006, $51.6 M was distributed to municipalities, plus an additional $5.8 M, which was used for program delivery, research, market development and administration.

In Quebec, because a data call process is not yet in place, negotiated net costs were determined by both association of municipalities and Eco-Entreprises Quebec (EEQ) for fiscal 2006 to be $74.2 M. The total industry contribution for 2006 is: $29.7 M.

The following are the fee schedules for 2008 (based on operational costs from 2006).

Table 2.6a

	2008	
Package Type	**Ontario cents per kg sold**	**Quebec cents per kg sold**
Aluminum	-2.22	1.15
PET	11.24	8.75
HDPE	11.14	7.04
Other plastics	18.45	12.1
Glass - clear	3.53	2.6
Glass - coloured	3.98	2.73
Steel / bi-metal	4.74	3.59
Tetra Pak	12.53	7.14
Gabletop	12.53	7.14

Because levies are based on different material types, per container fees can be calculated when the weight of each unit is measured. The following table represents an expression of the 2006 fee schedule by container type for specific volume units.

All containers will carry a levy with exception of aluminum in Ontario, which will accrue a credit against other levies charged to a brand owner. If the credit exceeds a brand owner's total stewardship fees, funds will not be paid to that brand owner. In addition, a credit cannot be carried over to the next fiscal year.

In Quebec, most aluminum cans are part of the deposit return program and therefore exempt from the municipal funding program.

Table 2.6b

Expression of Ontario and Quebec levies by beverage container type in CENTS per unit sold			
Beverage Container	**weight in grams**	**Ontario**	**Quebec**
2-litre **gabletop**	63	0.79	0.45
1-litre **gabletop**	41	0.51	0.29
250ml **Tetra pak**	10	0.13	0.07
1.36 litre **steel** can	153	0.73	0.55
473ml clear **glass** bottle	228	0.80	0.59
750ml clear **glass** bottle	335	1.18	0.87
2-litre **PET** bottle	58	0.65	0.51
600ml **PET** bottle	30	0.34	0.26
4-litre **HDPE** water bottle	65	0.72	0.46
outer milk bag - **LDPE film**	8	0.15	0.10
355ml **aluminum** can	15	-0.03	0.02
Container weights are based on Stewardship Ontario Blue Box Program Plan 2003.			

3.0

Environmental Benefits from reusing and recycling beverage containers

Traditionally, the measurement of waste and recycling has been based on the weight of material disposed of or diverted. More recently however, recycling measurements are being expanded to comprise of factors which include the amount of energy saved and the reduction in greenhouse gas emissions from recycling. These new measurements provide a much more comprehensive understanding of the environmental and economic impacts of beverage container reuse and recycling.

Both Environment Canada and the US Environmental Protection Agency have undertaken extensive life-cycle analyses which measure the inputs and outputs from cradle-to-grave of various materials. The results can be applied to beverage container diversion in order to quantify the environmental benefits associated with those programs. The following tables summarize the results. Note: Some tonnage information is not available, and not represented in this report. Therefore, provincial totals should not be compared with each other.

Table 3a

Province	Avoided emissions (MTCO2e)	Equivalent number of cars taken off the road.	Avoided energy (GJs)	Equivalent avoided crude oil extraction in barrels	Value of crude oil saved ($) (based on $133/barrel)
British Columbia	98,044	17,957	1,159,188	183,998	$ 24,471,752
Alberta	137,040	25,099	2,317,435	367,847	$ 48,923,633
Saskatchewan	32,758	6,000	586,551	93,103	$ 12,382,734
Manitoba	25,051	4,588	422,252	67,024	$ 8,914,200
Ontario	244,051	44,698	4,280,523	679,448	$ 90,366,589
Quebec	156,905	28,737	2,505,380	397,679	$ 52,891,354
New Brunswick	21,550	3,947	373,231	59,243	$ 7,879,320
Nova Scotia	26,892	4,925	481,913	76,494	$ 10,173,712
Newfoundland	15,498	2,838	273,503	43,413	$ 5,773,945
TOTAL	**757,789**	**138,789**	**12,399,975**	**1,968,250**	**$ 261,777,240**

Some rounding and residual error is present

Notes and sources on multipliers used:

- PEI and Territories have been excluded because reliable tonnage data is not currently available.
- Source for avoided energy and emission multipliers: *Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions*: 2005 Update Final Report, Environment Canada & Natural Resources Canada, October 2005
- GHGs per car per year 5.46; Source: www.epa.gov/cleanenergy/energy-resources/calculator.html

One barrel of crude oil is equal to about 6.3 GJ of energy. Source: US Department of energy – Energy Efficiency and Renewable Energy – Industrial Technologies Program

- The value of a barrel of crude oil on Wednesday, June 20th, 2008 was $133. Source: www.msnbc.msn.com

Table 3.1

Avoided Greenhouse Gas emissions in tonnes of CO_2 equivalent (MTCO2e) from beverage container reuse and recycling versus landfill disposal

Province	Aluminum	Steel	PET	HDPE	Glass Reuse	Glass Recycling	Total	Equivalent number of cars taken off the road.
Emissions Reduction Factor	**6.51**	**1.20**	**3.64**	**2.29**	**0.38**	**0.12**		
British Columbia	68,610	340	-	-	25,005	4,089	**98,044**	17,957
Alberta	66,837	355	35,108	4,445	25,039	5,256	**137,040**	25,099
Saskatchewan	14,758	114	12,653	831	3,220	1,182	**32,758**	6,000
Manitoba	13,295	-	6,694	765	2,952	1,345	**25,051**	4,588
Ontario	92,019	137	82,908	5,945	28,680	34,362	**244,051**	44,698
Quebec	65,933	1,200	31,945	-	27,792	30,034	**156,905**	28,737
New Brunswick	8,587	277	7,280	332	2,283	2,791	**21,550**	3,947
Nova Scotia	11,822	403	11,215	556	-	2,895	**26,892**	4,925
Newfoundland	4,913	79	5,863	111	1,547	2,986	**15,498**	2,838
TOTAL	**346,774**	**2,905**	**193,665**	**12,985**	**116,519**	**84,941**	**757,789**	**138,789**

Glass to bottle to bottle or fibreglass recycling: BC:90%; AB: 95%; SK: 44%; MB: 50%; ON: 80%; QB: 80%; Atlantic provinces 100%

Table 3.2

Energy Savings (giga joules/tonne)
from beverage container reuse and recycling versus landfill

Province	Aluminum	Steel	PET	HDPE	Glass Reuse	Glass Recycling	Total GJs saved	Avoided crude oil extraction (in barrels)	Value of crude oil saved
Energy Reduction Factor	**87.36**	**12.61**	**85.31**	**64.42**	**6.00**	**1.68**			
British Columbia	920,708	3,569	-	-	177,668	57,243	**1,159,188**	183,998	$ 24,471,752
Alberta	896,906	3,733	822,815	125,039	395,355	73,588	**2,317,435**	367,847	$ 48,923,633
Saskatchewan	198,045	1,198	296,538	23,384	50,838	16,547	**586,551**	93,103	$ 12,382,734
Manitoba	178,406	-	156,885	21,516	46,614	18,831	**422,252**	67,024	$ 8,914,200
Ontario	1,234,834	1,438	1,943,106	167,234	452,844	481,067	**4,280,523**	679,448	$ 90,366,589
Quebec	884,782	12,610	748,681	-	438,828	420,479	**2,505,380**	397,679	$ 52,891,354
New Brunswick	115,228	2,913	170,620	9,341	36,054	39,075	**373,231**	59,243	$ 7,879,320
Nova Scotia	158,646	4,237	262,840	15,654	-	40,536	**481,913**	76,494	$ 10,173,712
Newfoundland	65,924	830	137,412	3,109	24,423	41,804	**273,503**	43,413	$ 5,773,945
TOTAL	**4,653,479**	**30,526**	**4,538,896**	**365,278**	**1,622,624**	**1,189,171**	**12,399,975**	**1,968,250**	**$ 261,777,240**
Avoided crude oil extraction (in barrels)	738,647	4,845	720,460	57,981	257,559	188,757	1,968,250		
Value of crude oil saved	$98,240,110	$ 644,440	$95,821,146	$7,711,433	$34,255,399	$25,104,712	$261,777,240		

- PEI and Territories have been excluded because reliable tonnage data is not currently available.

Table 3.3

Beverage Container Reuse and Recycling in Canada
Estimates in tonnes (12 months, 2006-2007)

PROVINCE	ALUMINUM	STEEL	PET	HDPE	GLASS	GLASSS REUSE	OTHER PLASTICS	TOTAL PLASTICS	POLYCOAT/ TETRAPAK	POUCHES	TOTAL
British Columbia	10,539	283	-	-	65,803	37,859	-	8,695	2,220	22	125,421
Alberta	10,267	296	9,645	1,941	65,892	46,108	51	-	2,443	-	136,643
Saskatchewan	2,267	95	3,476	363	8,473	22,386	59	-	595	-	37,714
Manitoba	2,042	-	1,839	334	7,769	22,417	-	-	-	-	34,402
Ontario	14,135	114	22,777	2,596	75,474	357,937	-	-	2,543	-	475,576
Quebec	10,128	1,000	8,776	-	73,138	312,857	-	8,600	6,300	-	420,799
New Brunswick	1,319	231	2,000	145	6,009	23,259	-	-	275	-	33,238
Nova Scotia	1,816	336	3,081	243	-	24,128	-	-	329	-	29,933
Newfoundland	755	66	1,611	48	4,071	24,883	57	-	275	-	31,765
TOTAL	**53,268**	**2,421**	**53,205**	**5,670**	**306,629**	**871,834**	**167**	**17,295**	**14,980**	**22**	**1,325,491**
Value per tonne	**$ 2,099**	**$ 184**	**$ 367**	**$ 572**	**$ 32**	n/a	$0	**$ 367**	$0	$0	
Estimate of Material Value	$111,809,206	$445,425	$19,526,140	$3,243,391	$9,812,128			$6,347,265			$151,183,554

Values per tonne are based on a three-year average (2006-2008) of curbside material. Source: www.csr.org/pricesheet/pricesheet.htm

- PEI and Territories have been excluded because reliable tonnage data is not currently available.

Notes on Estimates:

- The tonnage data used for Ontario was calculated from the municipal datacall totals. Manitoba recovery data is from MPSC. For these two provinces, the following amendments were made to the values provided:

    - 85% of total PET collected are beverage containers based on waste comp audits in Ontario;
    - 17% of Steel is considered beverage cans;

- These percentage estimates are based on waste audit data measuring the recycling stream for the cities of London, Essex-Windsor, Toronto, Durham, Ottawa and Sudbury in 2005. Source: Stewardship Ontario – Single Family Waste Audit Program.

    - 97% of total aluminum containers are beverage cans;
    - 60% of total on glass is liquor. 66% of remaining non-alcohol is beverage.

- These estimates represent the beverage share of the materials collected. Source: *Understanding Beverage Container Recycling*, Jan 2002., R.W. Beck, Franklin and Associates, Boisson and Associates, Sound Resource Management, Telus Institute.

    - 87% of tetrapak are beverage based on quote from Jaan Koel
    - 95% gabletops are assumed to be beverage

- Quebec data includes all beverage containers. Non-deposit container data is derived from 2005 - *Mise en Marche et Recuperation des Contenants de Boisson au Quebec, Jan 2008*.

- Tonnage for non-refillable liquor glass, and cans in New Brunswick were derived using weight to unit values of:

    - beer cans : 15.6 grams per unit Source : TBS ; and
    - liquor glass : 330 grams per unit Source : LDB.

3.4

Data Summary

NON-REFILLABLES

Total tonnes of non-refillable beverage containers collected for recycling 453,656t

Total material value of non-refillable beverage containers collected ..... ~$151M[20]

REFILLABLE GLASS BOTTLES

Total tonnes of reused glass bottles (refillable beer bottle servings) ..... 871,834t[21]

Estimated avoided GHG emissions by using refillable bottles instead of one-way bottles (GHGs savings from avoided primary resource extraction activities) ..... 116,519t (CO_2e)

ALUMINUM CANS (UBCs)

Total tonnes of UBCs collected and sent for recycling 53,268t

National UBC collection rate 66%

Amount of UBCs discarded 27,809t

Value of UBCs per tonne (loose) ..... $2,099[22]

Total value of UBCs collected for recycling $111.8M

Total value of UBCs discarded (lost revenue) $58.4M

Total avoided GHG emissions from recycling UBCs (MTCO2e) 346,774t

Total potential avoided GHG emissions if discarded UBCs were recycled 181,037t

PET

Total tonnes of PET bottles sent for recycling ..... 68,355t[23]

National PET collection rate ..... ~51%[24]

Amount of PET discarded ..... ~65,674t

Value of PET per tonne ..... $367[25]

[20] Includes aluminum, PET, HDPE, glass and steel.
[21] Assumes a trippage rate of 15 times and a average bottle weight of 263 grams
[22] Based on three-year rolling average 2006, 2007, 2008 (CSR Price Sheet) - Source: www.csr.org/pricesheet/pricesheet.htm
[23] Includes PET for BC based on assumption that ~95% of plastic collection are PET bottles, as per AB. Also includes PET tonnage from Quebec's curbside program, based on assumption that 85% of plastics collected represent PET bottles.
[24] Excludes non-deposit bearing PET bottles sold and collected in curbside program.
[25] Based on three-year rolling average 2006, 2007, 2008 (CSR Price Sheet) - Source: www.csr.org/pricesheet/pricesheet.htm

Total value of PET collected for recycling $25M

Total value of PET discarded (lost revenue)..... $24M

Total avoided GHG emissions from recycling PET..... 193,665t

Note: a small percentage of containers are incinerated or gasified for energy (i.e. waste-to-energy), because recycling markets do not exist, or small volumes limit ability to find sustainable markets. Examples include: Polypropylene bottles, Polystyrene bottles in western Canada, plastic bags from bag-in-the-box etc.

Appendix A – Information and Data Sources

British Columbia	Sales & Recovery Data non-alcohol & alcohol	Encorp Pacific annual report, LDB 2006 stewardship report, BDL 2006 stewardship report
	Financials non-alcohol, wine, spirits and import beer and cider	Encorp Pacific
	Recovery tonnage –domestic beer	Brewers Distributors Limited 2006
Alberta	Sales & Recovery Data domestic beer	BCMB Annual Report – 2006
	Financials, Sales & Recovery Data - non-alcohol, wine & spirits and imported beer	Alberta Beverage Container Recycling Corporation
	Sales & Recovery Data - refillable beer Milk tonnage	BCMB Annual Report – 2006 Alberta Dairy Council
	Recovery tonnage – domestic beer	Brewers Distributors Limited 2006
Saskatchewan	Financials, Sales & Recovery Data - non-refillables	SARCAN 2006-2007
	Recovery tonnage – refillable beer	Brewers Distributors Limited 2006
Manitoba	Recovery Rates	Manitoba Product Stewardship Corporation annual report 2006
	Sales & Recovery Data - Beer	Brewers Association of Canada – 2006 Statistical bulletin
	Recovery tonnage – beer containers	Brewers Distributors Limited 2006
Ontario	Municipal recycling costs and fee information	Stewardship Ontario 2006 data year
	Sales & Recovery Data - Beer (not including non-TBS listed imports)	The Beer Store – Responsible Stewardship 2006-2007
Quebec	Municipal recycling costs and fee information Municipal collection of beverage containers	Eco-Entreprises Quebec *Mise en Marche et Recuperation des Contenants de Boisson au Quebec, Jan 2008*
	Sales & Recovery Data - soft-drinks & non-refillable beer; recovery data bi-metal & gabletop curbside.	Recyc-Quebec ; Recyc-Quebec Bilan
	Sales & Recovery Data - refillable beer	Brewers Association of Canada – 2006 Statistical bulletin
Nova Scotia	Financials, Sales & Recovery Data - non-refillables	Resource Recovery Fund Board 2006-2007
	Sales & Recovery Data - refillable beer	Brewers Association of Canada – 2006 Statistical bulletin
New Brunswick	Sales & Recovery Data - non-alcohol	Encorp Atlantic 2006-2007
	Sales & Recovery Data - Liquor	Provincial Government
	Sales & Recovery Data - refillable beer	Brewers Association of Canada – 2006 Statistical bulletin
Newfoundland & Labrador	Financials, Sales & Recovery Data - non-refillables	Multi-Materials Stewardship Board 2006-2007
	Sales & Recovery Data - refillable beer	Brewers Association of Canada – 2006 Statistical bulletin

Appendix B –

Sensitivity Analysis
Aluminum and PET Container Collection
In Manitoba & Ontario

In an effort to attain recovery rates that represent recovery of all beverage containers generated in the residential sector and the away-from-home sector, two assumptions are required.

First is the portion of containers that are generated in the away-from-home sector and the recovery rate for those containers.

This report applies an assumption of a 30% recovery rate with an away-from-home share of 20% for aluminum cans and 63% for PET bottles.[26]

The following table provide a sensitivity analysis using assumptions for:

1) the "away-from-home" share of beverage consumption of:
    - 63%, 50%, & 40% for PET
    - 40%, 30%, & 20% for AL
    -
2) an ICI recovery rate of Pet and aluminum beverage containers of:
    - 20%, 30% & 40%

The results show that the application of the assumptions used in this report provides a "reasonable" estimate for recovery rates in terms of sensitivity.

More specifically,

- Ontario PET recovery is estimated at 40%, with a range of 34% - 54%.
- Ontario AL recovery is estimated at 46%, with a range of 38% to 50%
- Manitoba PET recovery is estimated at 51%, with a range of 40% to 64%
- Manitoba AL recovery is estimated at 40%, with a range of 38% to 54%

ONTARIO PET	"Away-from home" share		
ICI recovery rate	63%	50%	40%
20%	34%	38%	42%
30%	40%	43%	46%
40%	46%	48%	50%
50%	53%	53%	54%

ONTARIO AL	"Away-from home" share		
ICI recovery rate	40%	30%	20%
20%	38%	41%	44%
30%	42%	44%	46%
40%	46%	47%	48%
50%	50%	50%	50%

MANITOBA PET	"Away-from home" share		
ICI recovery rate	63%	50%	40%
20%	45%	42%	40%
30%	51%	47%	44%
40%	57%	52%	48%
50%	64%	57%	52%

MANITOBA AL	"Away-from home" share		
ICI recovery rate	40%	30%	20%
20%	42%	40%	38%
30%	46%	43%	40%
40%	50%	46%	42%
50%	54%	49%	44%

[26] Taken from the *BEAR report - Understanding Beverage Container Recovery: A Value Chain Assessment Prepared for the Multi-Stakeholder Recovery Project*, Jan 2002

Appendix C – Cost and *Who Pays What* (WPW) Analysis by Province

British Columbia			
(Does not include domestic beer)			
REVENUE			**Notes**
Container Recycling Fees (CRF)	$	12,950,203	CRFs are charged directly to consumers at the point of purchase
Unredeemed deposits	$	17,855,127	Unredeemed deposits for non-alcohol containers only. LDB retains all unredeemed deposits on wine, liquor, cider, spirits and imported beer. Unredeemed deposits retained by LDB in 2006-07 were $2,548,223.
Sale of recyclables	$	15,253,181	
Other income	$	824,021	
Contract fees	$	14,229,148	Contract fees are a revenue source for Encorp, from the contract between Encorp Pacific and LDB for collection, transport, processing and marketing LDB containers.
TOTAL	$	61,111,680	
EXPENSES			
Handling fees	$	38,211,744	
Depot operations	$	331,743	
Processing & Transportation	$	17,807,230	
Consumer Awareness	$	1,864,326	
Administration	$	2,987,860	
Loss on foreign exchange	$	(72,671)	
Amortization	$	149,858	
Loss on disposal of capital assets	$	34,031	
TOTAL	$	61,314,121	
Surplus / (deficit)	$	(202,441)	

Containers sold (not including domestic beer)	1,331,904,631	non-alcohol: 1,131,584,767 (for 2006); LDB managed container sales: 200,319,864 (for 2006-March 31, 2007)
Containers recovered	996,901,986	non-alcohol: 819,174,889; LDB managed container recovery: 177,727,097
Un-recovered containers	335,002,645	
COST ANALYSIS		
Net Cost per unit sold (**without** unredeemed deposit revenue)	$ 0.035	Represents the system costs net of material revenues divided by the units sold.
Net Cost per unit sold (**with** unredeemed deposit revenue)	$ 0.021	Represents the system costs net of material revenues and unredeemed deposit revenue, divided by the units sold. Included are LDB unredeemed revenues, but not LDB handling costs, as they are internalized and not available to the public.
WPW ANALYSIS		
Beverage industry cost	$ -	
Operating agency cost/surplus	$ 0.0002	
Provincial liquor commission cost/surplus	$ 0.071	
Municipal government cost	-	Costs associated with the management of beverage containers ending up in the waste stream are not available or accounted for in this report.
Recycling consumer cost	$ 0.012	
Wasting consumer cost	0.057	Total unredeemed deposits including LDB are: $17,855,127
Consumer "non-system" related cost	$ 0.000	Represents what consumers paid in CRF revenue, that was not required for operating the system in 2004.

Alberta		
(Does not include domestic beer and all beer cans)		
REVENUE		**Notes**
Container Recycling Fees (CRF)	$ 19,639,700	CRFs are charged directly to consumers at the point of purchase
Unredeemed deposits	$ 25,185,400	
Sale of recyclables	$ 17,265,100	
Other income	$ 2,229,500	
(Loss) / Gain on foreign exchange	$ 113,300	
TOTAL	$ 64,433,000	
EXPENSES		
Handling fees	$ 43,110,900	
BCMB management fees	$ 404,700	
Processing & Transportation	$ 8,588,500	
Advertising & System Dev.	$ 1,605,600	
Administration	$ 1,964,600	
Amortization	$ 178,500	
TOTAL	$ 55,852,800	
Surplus / (deficit)	$ 8,580,200	
Containers sold (not including domestic beer)	1,328,049,990	
Containers recovered	952,387,200	
Un-recovered containers	375,662,790	
COST ANALYSIS		
Net Cost per unit sold (**without** unredeemed deposit revenue)	$ 0.029	Represents the system costs net of material revenues divided by the units sold.
Net Cost per unit sold (**with** unredeemed deposit revenue)	$ 0.010	Represents the system costs net of material revenues and unredeemed deposit revenue, divided by the units sold.
WPW ANALYSIS		
Beverage industry cost	$ -	
Operating agency cost/surplus	$ (0.006)	
Provincial liquor commission cost/surplus	n/a	
Municipal government cost	-	Costs associated with the management of beverage containers ending up in the waste stream are not available or accounted for in this report.
Recycling consumer cost	$ 0.008	
Wasting consumer cost	0.067	
Consumer "non-system" related cost	$ 0.006	Represents what consumers paid in CRF revenue, that was not required for operating the system in 2004.

Saskatchewan		
(Does not include refillable beer)		
REVENUE		**Notes**
Contract fee	$ 10,144,224	Saskatchewan Environment contracts the service of collection (via depots), processing and marketing to SARCAN for a fixed rate which changes each year.
Unredeemed deposits	$ 4,481,158	Saskatchewan Environment will not disclose the amount of unredeemed deposit revenue retained. A conservative estimate was calculated by multiplying the number of un-recovered containers by 10-cents, representing the lowest refund level, and most likely the bulk of un-recovered containers. This is a conservative estimate.
Sale of recyclables	$ 6,360,916	
Other income	$ 187,187	
TOTAL	$ 21,173,485	
EXPENSES		
Collection costs	$ 12,378,740	
Processing costs	$ 2,234,368	
Administration	$ 1,174,424	
Amortization / depreciation	$ 435,200	
(Loss)/Gain foreign exchange	$ 1,274	
TOTAL	$ 16,224,006	
Surplus / (deficit)	$ 4,949,479	This surplus revenue is not held by SARCAN, rather it is retained by the Province with EHC revenue, which is excluded from this analysis, as the total amount is not available.
Surplus / (deficit) to SARCAN	$ 468,321	This represents the surplus amount reported by SARCAN at year end.
Containers sold (not including refillable beer)	328,388,516	
Containers recovered	283,576,939	
Un-recovered containers	44,811,577	
COST ANALYSIS		
Net Cost per unit sold (**without** unredeemed deposit revenue)	$ 0.030	Represents the system costs net of material revenues divided by the units sold.
Net Cost per unit sold (**with** unredeemed deposit revenue)	$ 0.016	Represents the system costs net of material revenues and unredeemed deposit revenue, divided by the units sold.
WPW ANALYSIS		
Beverage industry cost	$ -	
Operating agency cost/surplus	$ 0.001	
Provincial liquor commission cost/surplus	n/a	
Municipal government cost	-	Costs associated with the management of beverage containers ending up in the waste stream are not available or accounted for in this report.
Recycling consumer cost	n/a	
Wasting consumer cost	0.10	
Consumer "non-system" related cost	n/a	

Quebec		
Non-refillable beer and soft-drinks		
REVENUE		**Notes**
Unredeemed deposits	$ 23,443,335	
Sale of recyclables	$ 20,403,726	
Direct revenue from bottlers	$ -	
TOTAL	$ 43,847,062	
EXPENSES		
Handling fees	$ 18,250,793	
Contribution for L'ISE	$ 889,495	
Penalty payments	$ 6,920,536	Penalty payments are made by the bottlers to Recyc-Quebec when targets are not met.
Trasportation / processing	$ 15,012,946	Estimate calculated by Recyc-Quebec
Administration cost from BGE to Recyc-Quebec	$ 856,000	
Contamination costs from non-deposit containers	$ 1,883,380	These costs are incurred when non-deposit bearing containers are treated as a deposit container. The associated costs are from the handling fee and the refund for a contamination unit cost of 7-cetns/unit.
TOTAL	$ 43,813,150	
Surplus / (deficit)	$ 33,912	
Containers sold (not including refillable beer)	1,423,192,140	
Containers recovered	1,000,863,066	
Un-recovered containers	422,329,074	
COST ANALYSIS		
Net Cost per unit sold (**without** unredeemed deposit revenue)	$ 0.016	Represents the system costs net of material revenues divided by the units sold.
Net Cost per unit sold (**with** unredeemed deposit revenue)	$ (0.000024)	Represents the system costs net of material revenues and unredeemed deposit revenue, divided by the units sold.
WPW ANALYSIS		
Beverage industry cost	$ 0.0015	As per estimate from BGE collects funds from the SD industry.
Operating agency cost/surplus	-	
Provincial liquor commission cost/surplus	n/a	
Municipal government cost	-	Costs associated with the management of beverage containers ending up in the waste stream are not available or accounted for in this report.
Recycling consumer cost	$ -	There are no upfront or backend fees on containers in Quebec
Wasting consumer cost	0.056	
Consumer "non-system" related cost	-	

Nova Scotia		
(Does not include refillable beer)		
REVENUE		**Notes**
Unredeemed deposits	$ 8,309,077	Unredeemed deposits were calculated by multiplying all un-recovered containers (by type and deposit level) with their deposit amount.
Half-back revenue	$ 13,949,898	Half-Back revenue was calculated by multiplying all recovered containers (by type and deposit level) with their half-back amount.
Sale of recyclables	$ 5,337,300	
Other income	$ 897,194	
TOTAL	$ 28,493,469	
EXPENSES		
Handling fees	$ 9,742,050	Based on a handling fee of 0.0363 for 2006-2007
Cartage/Regional processing, and other operational costs	$ 6,650,130	Estimated by subtracting handling fees and refunds from total operating costs
Education and Awareness	$ 487,830	Represents 35% of RRFB's total E&A costs.
Administration	$ 2,366,392	Represents 65% of RRFB's total administration costs.
TOTAL	$ 19,246,402	
Surplus / (deficit)	$ 9,247,067	
Containers sold (not including domestic beer)	349,950,672	
Containers recovered	268,376,033	
Un-recovered containers	**81,574,639**	
COST ANALYSIS		
Net Cost per unit sold (**without** unredeemed deposit revenue)	$ 0.040	Represents the system costs net of material revenues divided by the units sold.
Net Cost per unit sold (**with** unredeemed deposit revenue)	$ 0.016	Represents the system costs net of material revenues and unredeemed deposit revenue, divided by the units sold.
WPW ANALYSIS		
Beverage industry cost	$ -	
Operating agency cost/surplus	$ (0.026)	
Provincial liquor commission cost/surplus	$ -	
Municipal government cost	-	Costs associated with the management of beverage containers ending up in the waste stream are not available or accounted for in this report.
Recycling consumer cost	$ 0.052	
Wasting consumer cost	0.102	
Consumer "non-system" related cost	$ 0.026	

Determining unredeemed deposit revenue and half-back revenue for Nova Scotia

Deposit level	Refund level	Container Type	Container Sales	Container Recovery	Containers Un-recovered	Unredeemed revenue	Half-Back revenue
$ 0.10	$ 0.05	al	157,226,586	128,815,614	28,410,972	$ 2,841,097	$ 6,440,781
$ 0.10	$ 0.05	gl	23,407,165	18,117,206	5,289,959	$ 528,996	$ 905,860
$ 0.20	$ 0.10	gl	10,892,229	9,654,842	1,237,387	$ 247,477	$ 965,484
$ 0.10	$ 0.05	pet	117,332,700	88,580,102	28,752,598	$ 2,875,260	$ 4,429,005
$ 0.20	$ 0.10	pet	1,245,831	967,086	278,745	$ 55,749	$ 96,709
$ 0.10	$ 0.05	hdpe	16,401,070	6,093,053	10,308,017	$ 1,030,802	$ 304,653
$ 0.10	$ 0.05	steel	2,707,927	2,882,699	(174,772)	$ (17,477)	$ 144,135
$ 0.10	$ 0.05	gable/tetra	20,737,164	13,265,431	7,471,733	$ 747,173	$ 663,272
TOTAL			**349,950,672**	**268,376,033**	**81,574,639**	**$ 8,309,077**	**$ 13,949,898**

Determining Half-Back and Unredeemed revenues for New Brunswick (non-refillable)
(Note: All Liquor Glass are considered as large containers (deposit 20-cents) for this analysis, as a breakdown by size is not available)

	Sales	Recovery	Unredeemed	deposit	half-back	Unredeeemd Revenue	Half-Back Revenue
Beer cans	40,196,127	30,348,076	9,848,051	$ 0.10	$ 0.05	$984,805	$1,517,404
N/R cans	84,326,763	61,728,362	22,598,401	$ 0.10	$ 0.05	$2,259,840	$3,086,418
PET	82,977,784	61,969,431	21,008,353	$ 0.10	$ 0.05	$2,100,835	$3,098,472
N/R Glass	6,365,169	4,929,956	1,435,213	$ 0.10	$ 0.05	$143,521	$246,498
Liquor Glass	20,031,383	15,123,694	4,907,689	$ 0.20	$ 0.10	$981,538	$1,512,369
other	32,713,010	17,908,571	14,804,439	$ 0.10	$ 0.05	$1,480,444	$895,429
TOTAL	**266,610,236**	**192,008,090**	**74,602,146**			**$ 7,950,983**	**$10,356,589**

Newfoundland and Labrador		
(Does not include refillable beer)		
REVENUE		**Notes**
Unredeemed deposits estimate	$ 5,691,875	Unredeemed deposits are not available through MMSB income statements. An estimate was calculated by multiplying all un-recovered containers (by type and deposit level) with a deposit amount of 8-cents. While there are some refunds worth 20-cents. This is a conservative estimate.
Half-back revenue estimate	$ 4,053,637	Retained half-back revenue is not available through MMSB income statements. An estimate was calculated by multiplying all recovered containers (by type and deposit level) with a half-back amount of 3-cents. While there are some refunds worth 10-cents, this is a conservative estimate. The income statement does however provide the combined value for unredemed and half-back revenues. This figure was higher by $608,496. This amount was added to the unredeemed estimate. While both the unredeemed value and half-back values are estimates in this table, added together they represent the accurate value as reflected in the income statement.
Sale of recyclables	$ 2,427,746	
TOTAL	$ 12,173,258	
EXPENSES		
Handling fees	$ 4,391,621	
Regional processing	$ 730,361	
Freight & transportation	$ 1,336,369	
Depot fees	$ 256,495	
Green School Program	$ 636,168	
Quality assurance and storage	$ 77,928	
Administration	$ 1,682,015	
TOTAL	$ 9,110,957	
Surplus / (deficit)	$ 3,062,301	
Containers sold (not including domestic beer)	198,663,472	
Containers recovered	135,121,235	
Un-recovered containers	63,542,237	
COST ANALYSIS		
Net Cost per unit sold (**without** unredeemed deposit revenue)	$ 0.034	Represents the system costs net of material revenues divided by the units sold.
Net Cost per unit sold (**with** unredeemed deposit revenue)	$ 0.005	Represents the system costs net of material revenues and unredeemed deposit revenue, divided by the units sold.
WPW ANALYSIS		
Beverage industry cost	$ -	
Operating agency cost/(surplus)	$ (0.015)	
Provincial liquor commission cost	$ -	
Municipal government cost	-	Costs associated with the management of beverage containers ending up in the waste stream are not available or accounted for in this report.
Recycling consumer cost	$ 0.030	
Wasting consumer cost	0.09	
Consumer "non-system" related cost	$ 0.015	

Determining Half-Back and Unredeemed revenues for Newfoundland and Labrador (non-refillable)

Deposit level	Half-back	Container Type	Sales	Recovery	Un-recovered	Unredeemed revenue	Half-Back revenue
$0.08	$ 0.03	al	81,123,099	56,696,881	24,426,218	$ 1,954,097	$ 1,700,906
$ 0.08	$ 0.03	pet	68,880,704	49,031,720	19,848,984	$ 1,587,919	$ 1,470,952
$ 0.08	$ 0.03	steel	14,947,735	6,254,334	8,693,401	$ 695,472	$ 187,630
$ 0.08	$ 0.03	gable/tetra	15,831,726	10,601,224	5,230,502	$ 418,440	$ 318,037
$ 0.08	$ 0.03	glass	17,880,208	12,537,076	5,343,132	$ 427,451	$ 376,112
			198,663,472	**135,121,235**	**63,021,480**	**$ 5,083,379**	**$ 4,053,637**