



**Final Report on  
Nova Scotia's 1995  
Solid Waste Resource  
Management Strategy**

**g to waste. Not going to waste. Not g**



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## Minister's Message



Since 1995, Nova Scotians have been working hard to position the province as a world leader in recycling and composting. The following report outlines the strategy that has helped us reach our solid waste resource management goals while becoming internationally recognized for our efforts and successes.

Nova Scotians have been, and will continue to be, the champions of our strategy. Our successes in solid waste resource management have laid the foundation for our broader and more aggressive environmental goals.

Nova Scotia aims to have one of the cleanest and most sustainable environments in the world by 2020. The province's new environmental and economic goals are based on the Environmental Goals and Sustainable Prosperity Act passed in March 2006.

Through this legislation, the government committed to continue tackling our environmental challenges year by year, while striving to enhance our economic performance. The act commits the Nova Scotia government to 21 goals, including increasing the amount of legally protected land, decreasing greenhouse gas emissions, and reducing the amount of waste we send to landfills by more than one third.

Our goals are bold, ambitious, and most importantly, achievable. We have the confidence to move forward with our targets because of our past environmental successes, in particular, our success in meeting our solid waste resource management goals.

On behalf of government, I want to thank everyone who helped us reach our targets, including municipalities, private businesses, community groups, and all citizens of Nova Scotia. Together, we can have a clean and green Nova Scotia for ourselves, our families, and our future.

Mark Parent  
Nova Scotia Minister of Environment

## Introduction

In 1995, Nova Scotia developed a Solid Waste Resource Management Strategy that committed the province to achieving a national waste diversion target of 50 per cent by the year 2000. Nova Scotia was the only province to reach this goal and remains a national leader in waste diversion. In fact, **our disposal rate is 45 per cent lower than the Canadian average.** This achievement was realized through the cooperative efforts of municipalities, the Resource Recovery Fund Board (RRFB Nova Scotia), industry, and citizens in reducing, recycling, and composting waste.

In addition to the 50 per cent goal, the strategy outlined specific commitments in the areas of waste diversion, regional cooperation, education, and awareness. **Many of these commitments have been fulfilled,** while others continue to face challenges and will require further action and new approaches.

The province has recently established a new commitment to maintain Nova Scotia's position of leadership in waste resource management. In 2006 amendments to the Environment Act, Nova Scotia legislated a new disposal target of 300 kg per person per year by 2015. This target, the most aggressive in Canada, was reinforced in the Environmental Goals and Sustainable Prosperity Act, passed in April 2007. At current disposal rates (477 kg in 2006–07), **achieving the target will require reduction or diversion of an additional 177 kg of waste per capita, a 37 per cent reduction by 2015.**

The Government of Nova Scotia will develop a renewed plan to meet the new disposal target. Setting out a clear path forward will ensure that Nova Scotia continues its success in waste resource management. This will help us achieve our goal of becoming one of the cleanest and most sustainable environments in the world by 2020.

This document reports on the commitments made in the province's 1995 Solid Waste Resource Management Strategy, including successes achieved and ongoing challenges.

## Background

The Government of Nova Scotia released a comprehensive Solid Waste Resource Management Strategy in October 1995. The strategy was developed with extensive input from the public, following a series of consultations across the province. It was clear from this input that Nova Scotians were concerned about the amount of waste being disposed in the province, and its effects on the quality of our air, land, and water. Nova Scotians also recognized that waste can be considered a resource, which can benefit both the environment and the economy.

The Solid Waste Resource Management Strategy aimed to ensure that Nova Scotians would receive the maximum environmental and economic benefits while minimizing the potential increases in the cost of managing solid waste. The strategy was based on the following principles:

**environmental protection and ecological value**

**wise and efficient use**

**of renewable and non-renewable resources**

**economic opportunities through the development of a vibrant environmental industries sector**



**[ fact ]**  
 In 2006-07, 13 municipalities in Region 6 (South Shore and West Hants) boasted the lowest disposal rate in the province at 340 kg/per person.]

**[ fact ]**  
 The amount of landfill space saved across the province from diverting waste is equivalent to eliminating nine average-sized landfills.]

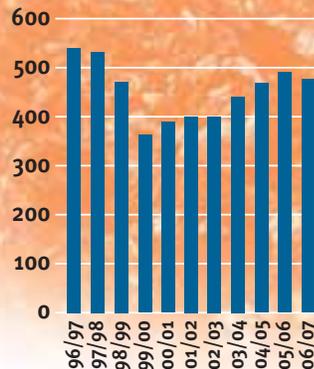
**[ fact ]**  
 Lunenburg was the first municipality in the Americas to include compostable organic materials in its curbside collection program in 1994.]



## Meeting Our Commitments

The following report outlines the commitments made in the province's 1995 Solid Waste Resource Management Strategy, and achievements made.

## Waste Diversion



**Figure 1**

### Disposal Rate

(Kg/person/yr)

shows kilograms of waste per person disposed in Nova Scotia's municipal solid waste landfills and construction and demolition (C&D) debris landfills. Data does not include primary industrial waste such as mine tailings, pulp and paper industry waste, or other materials not disposed in municipal solid waste landfills.

## 50 per cent by 2000

In 1989, the provinces, through the Canadian Council of Ministers of the Environment (CCME), set a target of 50 per cent diversion of solid waste from landfills by the year 2000. In 1995, Nova Scotia formally adopted this target in legislation. The target is based on the amount of waste disposed per person, compared to 1989 figures.

### Strategy Commitment

The Government of Nova Scotia will require municipal waste management regions to achieve a minimum of 50 per cent diversion by the year 2000.

### Achievements

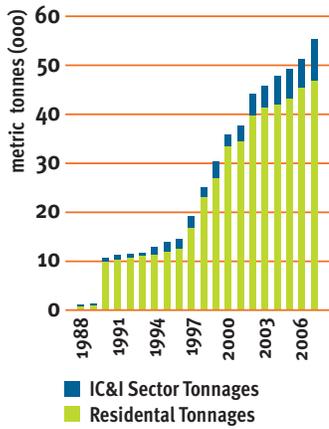
Nova Scotia became the first—and only—province to meet the 50 per cent diversion target, drawing national and international recognition. In 2000, Nova Scotians threw away half as much waste as they did in 1989.

Nova Scotia's diversion rate has been dropping in recent years, due to an increase in the amount of waste being disposed (Figure 1). At the same time, amounts of recyclables and organic materials collected have risen over the years (Figures 2 and 3). This apparent contradiction can be explained by an increase in the overall amount of waste being generated in Nova Scotia. Economic growth in the province, changes in consumption patterns, and new products and product designs are all factors contributing to this increase. Improvements in data collection methodologies are also allowing more precise measures of materials not previously captured.

The good news is that the upward trend in disposal is changing. In 2006–07, Nova Scotia's per capita disposal rate dropped from the previous year (Figure 1). With the launch of clear bag programs in more municipalities, (see side bar) the expansion of curbside green cart collection programs (Cape Breton Regional Municipality and the Municipality of the County of Antigonish), and greater focus on diverting construction and demolition wastes, the amount of waste sent to landfills is expected to continue to decrease.

**Future Target**

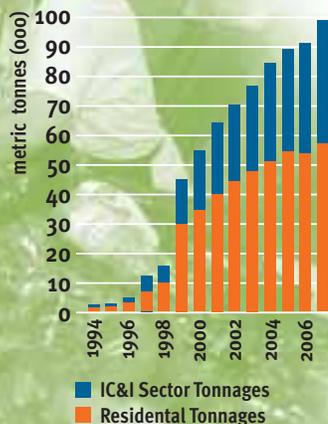
In 2006, new legislation was introduced requiring the province to maintain the 50 per cent diversion goal, while also adding a new disposal target of 300 kg/capita/year by 2015. This target will provide a more accurate measure of Nova Scotia's success in waste reduction.



**Figure 2**  
**Recyclables Received at Municipal Facilities** shows

total tonnages of materials received at recycling facilities in Nova Scotia. Much of this material is residential, with a portion arising from institutional, commercial, and industrial (ICI) sources, such as small businesses. Data does not capture significant volumes of materials collected privately for recycling, such as corrugated cardboard processed by Minas Basin Pulp and Power. Data also does not include primary industrial waste such as mine tailings, pulp and paper industry waste, or other materials not disposed in municipal solid waste landfills. The sharper incline between 1996 and 2000 reflects the growth of municipal recycling programs across the province during the implementation of the solid waste resource management strategy.

**Figure 3**  
**Organics Received at Municipal Composting Facilities** shows total tonnages of materials received at municipal composting facilities in Nova Scotia. Data does not capture material diverted through backyard composting or organic material from industrial sources including pulp and paper sludge and wood fibre. The sharp rise in 1999 reflects the launch of curbside organics collection programs in Halifax Regional Municipality (HRM) and other municipalities.



**Clear bags have clear results.** In an effort to promote compliance with recycling and composting programs, 30 of Nova Scotia's 55 municipalities require residents and businesses to place their garbage in clear bags. As a result, recycling and composting rates have increased dramatically in these municipalities, with a corresponding drop in the amount of waste going to landfill.

Based on data from eight municipalities requiring clear bags for garbage, quantities of residential waste dropped 40 per cent between 2004–05 and 2006–07, while recyclables and organics increased by 35 per cent and 38 per cent. Return rates for beverage containers have also jumped.

### Strategy Commitment

The Resource Recovery Fund will direct 50 per cent of its net revenues to waste management regions based on the tonnage of material diverted from the waste stream, allowing municipalities to manage these funds to meet regional targets for diversion

### Achievements

The Solid Waste Resource Management Strategy has resulted in clear benefits when full economic, environmental, and social effects are accounted [see box to right]. At the same time, waste management is a significant financial cost to municipalities and their taxpayers.

Funding from RRFB Nova Scotia has helped to offset a portion of the costs associated with municipal solid waste resource management. Since 1997, the RRFB has provided \$51 million to municipalities in diversion credit funding. The amount of funding distributed is based on how many tonnes of waste are diverted from landfill. The more a municipality diverts, the more funding it receives. Diversion credits provide an important economic incentive to municipalities to promote waste reduction, recycling, and composting.

**The province established the Resource Recovery Fund** (now known as the Resource Recovery Fund Board or RRFB Nova Scotia) under the Environment Act in 1995. RRFB Nova Scotia was given the following mandates:

- develop and implement industry stewardship programs
- fund municipal or regional diversion programs
- develop and operate a deposit-refund program for beverage containers
- develop education and awareness of source reduction, reuse, recycling, and composting
- promote the development of value-added manufacturing in the province

RRFB Nova Scotia funding has been essential to the success of municipal, private sector, and citizen efforts in waste diversion.

In July 2004, Genuine Progress Index (GPI) Atlantic released the findings of **a full cost-benefit study of Nova Scotia's solid waste resource management system**. The report estimates that the system results in **economic, environmental, and social benefits of at least \$31 million per year**.

These benefits include less pollution in our air and water, energy savings, reduced greenhouse gas emissions, fewer landfills, and new employment.

GPI Atlantic is an independent, non-profit research and education organization committed to the development of the Genuine Progress Index (GPI)—a new measure of sustainability, well-being and quality of life.





## Provincial Disposal Bans

### Strategy Commitment

The Government of Nova Scotia will implement a province-wide ban on the disposal of beverage containers, corrugated cardboard, newsprint, lead-acid (automotive) batteries, scrap tires, used oil, and leaf and yard waste in the short term; and waste paint, ethylene glycol (automotive antifreeze), selected plastics, steel/tin food containers, glass food containers, and compostable organic material from industrial, commercial, institutional, and residential sources over the longer term.

### [fact

**Nova Scotia is the only jurisdiction in North America that has banned compostable organic material from disposal. Keeping organic materials out of landfills reduces greenhouse gas emissions resulting from methane gas and protects our surface and groundwater from contamination by leachate. Leachate is the liquid formed when waste, particularly organic material, is exposed to water.]**

### Achievements

All disposal bans outlined in the strategy have been implemented, with the exception of used oil<sup>†</sup> [See Banned Materials to the right].

In addition, the province has been moving ahead with disposal bans on other materials. New provincial regulations (passed February 2007) banned four categories of electronic products from disposal as of February 1, 2008 (televisions, computers, monitors and printers), with bans on an additional four product categories including telecommunications and audio-video equipment in effect on February 1, 2009.

Disposal bans have been essential to the success of the strategy and will continue to be an important tool as Nova Scotia moves towards the new disposal target.



### The following materials and products were banned from disposal in Nova Scotia.

#### Between 1996 and 1999:

beverage containers

corrugated cardboard

newsprint

lead-acid (automotive batteries

used tires

leaf and yard waste

post-consumer paint products

ethylene glycol (automotive antifreeze)

compostable organic material

steel/tin food containers

glass food containers

low-density polyethylene bags and packaging (i.e., #4)

high-density polyethylene bags and packaging (i.e., #2)

#### Since February 1, 2008:

televisions

desktop, laptop, and

notebook computers,

including CPUs, keyboards

mice, cables, and other

components

computer monitors

computer printers, including

printers that have scanning

or fax capabilities

#### As of February 1, 2009:

computer scanners

audio-video playback and

recording systems

telephones and fax

machines

cell phones and other

wireless devices

<sup>†</sup>The environmentally responsible collection and management of used oil is regulated under Nova Scotia's Used Oil Regulations. Under these regulations, used oil is accepted at used oil retailers or collection facilities located within 5 km of an oil retailer.

## [facts Recycling

100 per cent of Nova Scotia's residents have access to the curbside collection of recyclable materials. Nine recycling facilities process this material in the province.

Nova Scotia's residential recycling rate is 68 per cent higher than the Canadian average (Statistics Canada). This number would be even higher if it included the beverage container and tire recycling programs.

Recycling was the clear winner in a 2006 Danish study that compared the environmental impact of managing materials through recycling, incineration, and landfill. The study was the largest and most comprehensive international review of life cycle analysis (LCA) on common materials collected for recycling, including paper and cardboard, plastics, aluminum, steel, glass, wood, and aggregates (Waste & Resources Action Programme).]

### How Are Banned Materials Managed?

Municipalities have implemented recycling and composting programs for most provincially banned materials including corrugated cardboard, newsprint, steel/tin food containers, glass containers, plastic, and organic materials. Municipalities have also extended their programs to include materials not banned from landfills, including mixed paper, plastic containers (#1–6), aluminum cans, and dairy containers.

Other banned items such as beverage containers, used tires, waste paint, and electronic products are managed through provincially regulated product stewardship programs, administered by the RRFB Nova Scotia. Further information on product stewardship programs can be found on page 11-14.



### Composting

90 per cent of Nova Scotia's residents have access to the curbside collection of organic materials, including all food waste. Local composting facilities process this material in the province. Many Nova Scotians also use backyard composters.

Nova Scotia's composting rate is 69 per cent, compared to 25 per cent for the Canadian average.

A 2007 Canadian study calculated the environmental benefits of composting organics to be almost \$50 per tonne compared to only \$8 per tonne for traditional landfilling (CM Consulting).



## Enviro-Depots

### Strategy Commitment

The Resource Recovery Fund will enhance the province-wide network of depots for the collection of a broad range of materials, including beverage containers, corrugated cardboard, and newsprint.

### Achievements

RRFB Nova Scotia administers a network of over 80 Enviro-Depots, located throughout the province. All Enviro-Depots accept beverage containers and waste paint, while many collect additional materials, including electronic products, cardboard, newsprint, and car batteries.

Previous to the introduction of Nova Scotia's beverage container program, some private businesses in Nova Scotia handled refillable beer bottles, but this network was limited.

RRFB Nova Scotia has also enhanced ENVIRO-DEPOT™ services and operating efficiencies through standards and guidelines it has developed. It is currently revising a guidance manual for depot operators and upgrading standards, based on input from operators. In 2006-07, RRFB Nova Scotia also introduced infrastructure funding for operators to upgrade their facilities.

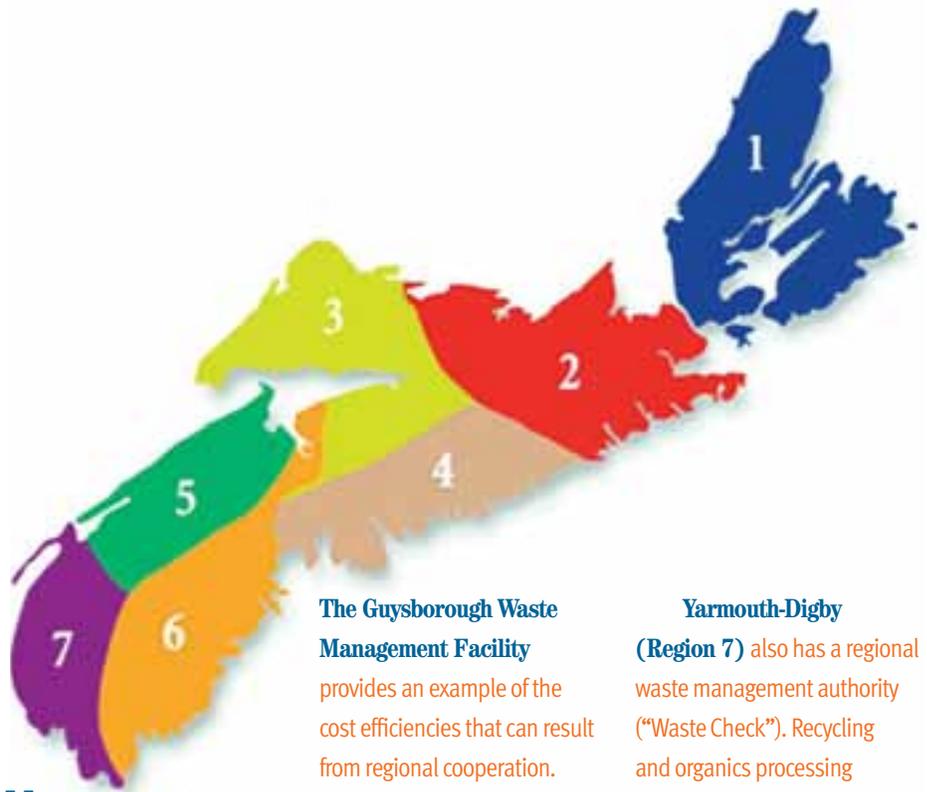


**[fact**  
87 per cent  
of Nova Scotian  
households are  
within 20 km of  
an ENVIRO-DEPOT.™]

## Regional Cooperation

Nova Scotia has a large rural population spread throughout the province. For this reason, government recognized that it would not be practical or economically feasible for each municipality to develop its own waste management programs and infrastructure. In 1994, a series of studies confirmed that certain efficiencies and economies of scale could be achieved through cooperative efforts by municipalities at a regional level.

Municipalities have demonstrated considerable success in meeting the province's goals in solid waste-resource management through the cooperative delivery of waste collection, processing and education programs.



## Waste Management Regions

### Strategy Commitment

The Government of Nova Scotia will

- establish waste management regions
- provide each region with a broad range of options to achieve the regional target of 50 per cent waste diversion
- work closely with each region to assist in the development of long-term regional plans to achieve 50 per cent diversion and sound environmental practices at regional disposal facilities

### Achievements

In 1996, the province established seven waste-management regions (see map). Since this time, some minor variations have been made to regional boundaries, but their number remains unchanged.

Each municipality in Nova Scotia has determined its own priorities for solid waste resource management. At the same time, municipalities have cooperated successfully in a number of areas, including materials processing and education.

### The Guysborough Waste Management Facility

provides an example of the cost efficiencies that can result from regional cooperation. The municipality was awarded Nova Scotia's 2007 Municipal IN-NOVA Award for a "Multi-region sustainable waste management partnership solution". The facility, which opened in 2006, was recognized for its 20-year agreements with 17 municipal units to accept waste at its landfill. Key to these agreements is the sharing of financial risk and reward. Recent reductions in landfill costs have resulted in savings for all municipalities in the system.

**The eight municipalities making up Region 5 (Annapolis-Kings)** jointly launched clear bag programs for waste on April 1, 2008. Region 5 is a good example of a fully integrated waste management system. All municipalities in the region, except the Town of Annapolis Royal, have the same bylaw and deliver waste management services and education under the umbrella "Valley Waste."

**Yarmouth-Digby (Region 7)** also has a regional waste management authority ("Waste Check"). Recycling and organics processing and education programs are managed collectively in the region under this authority.

**The 13 municipalities making up Region 6 (South Shore and West Hants)** teamed up to deliver a "Business Rewards Program" that acknowledges and promotes the waste reduction and diversion efforts of businesses in the region. Every month, the waste diversion efforts of a different business are featured in radio and newspaper ads. To date, 38 businesses have been recognized ranging from family owned and operated restaurants to large industry (over 300 employees).

## Product Stewardship

Municipalities have traditionally been responsible for managing product wastes. However, as the quantity and complexity of products has increased, costs are increasing for municipal waste management systems and taxpayers. It is also recognized that producers and consumers have little incentive to consider the environmental impacts of their product designs and purchasing decisions when they do not bear the costs.

Product stewardship programs aim to shift the financial or physical responsibility for managing a product's waste from municipal taxpayers to the consumer and, ultimately, to the manufacturer of that product.

### Strategy Commitment

The Resource Recovery Fund will solicit industry contributions to support diversion initiatives and locally based recycling.

### Achievements

RRFB Nova Scotia was set up at a time when waste diversion was still in its infancy in Nova Scotia. At the time the strategy was developed, RRFB Nova Scotia received financial contributions from a handful of industries to assist with waste diversion programs.

These industries included soft drink industries, newspapers, the Nova Scotia Liquor Corporation, grocery product manufacturers, grocery retailers, and milk producers.

Since this time, industry contributions towards waste management have evolved into more sophisticated product stewardship programs through regulations and negotiations with the Department of Environment. Some of these programs are in the form of stewardship agreements with specific industries, including dairy packaging, newsprint, residential syringes, and telephone directories. These industries contribute to the management of their product wastes, through direct funding or in-kind support.

Other product stewardship programs in Nova Scotia—for beverage containers, waste paint, used tires, and electronic products—are provincially regulated.

### Extended Producer Responsibility (EPR)

is “an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s cycle” (OECD). The term is often used in the same way as “product stewardship.” In fact, product stewardship programs tend to vary in the level of involvement by producers. A true EPR approach implies building the cost of managing a product’s waste into the producer’s business model.

### Dairy stewardship

As part of a stewardship agreement with the province, milk producers in Nova Scotia pay municipalities the full cost to collect, process, and recycle milk packaging. Milk producers also provide free advertising on milk cartons to promote municipal curbside recycling. The agreement has been in place since February 2000.

## Beverage Container Program

### Strategy Commitment

The Government of Nova Scotia will

require refillable or recyclable

containers for all beverages sold in Nova Scotia

expand the deposit-refund system covering liquor, wine, and beer containers to include all ready-to-serve beverage containers, excluding milk

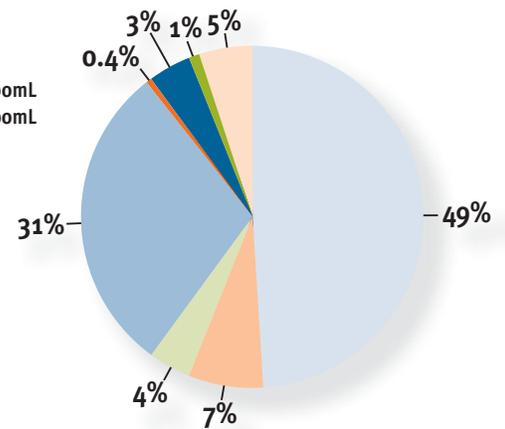
The Resource Recovery Fund will

develop and administer the beverage container deposit-refund system and industry stewardship agreements play a key role in ensuring a high rate of recovery for beverage containers and identify local end markets for recovered beverage containers and materials collected through a province-wide network of recycling depots

ensure that retailers show the amount of a beverage container deposit on sales receipts and post the location of recycling depots

**Figure 5** shows a breakdown of **beverage containers collected through the program, by material type**. Most plastic beverage containers collected through the program are sent to Novapet Inc in Amherst for further processing. [See page 15, Economic Opportunities].

- Aluminum
- Glass <500mL
- Glass >500mL
- PET plastics <500mL
- PET plastics >500mL
- HDPE Plastics
- Steel
- Gable/Tetra



### Achievements

RRFB Nova Scotia has operated a province-wide deposit-refund program for beverage containers in Nova Scotia since 1996. The program, which is regulated by the province, applies to all ready-to-serve beverages in containers five litres or less, except milk, milk products, soya milk, rice beverages, and other specified products. Nova Scotians pay a 10-cent deposit on beverages included in the program and receive a 5-cent refund. (Liquor containers over 500 ml in size are the exception, with a deposit of 20 cents and refund of 5 cents.)

Nova Scotia has one of the highest beverage container recovery rates in North America. Since the introduction of the program, 2.6 billion beverage containers have been collected for recycling in the province.

Government regulation requires all beverage containers (less than five litres) sold in the province to be either refillable or recyclable. Containers collected in the beverage container program include aluminum, plastic, and glass.

### Getting Litter Off

**Our Streets** The deposit-refund program has also been successful at reducing litter. A 2004 province-wide litter study found that beverage container litter made up only 7.5 per cent of collected litter, compared to 13 per cent in 1998, and a whopping 72 per cent in 1989 (before the program was introduced).



## [fact

A 1994 plastics industry study found that deposit-refund systems more than double the recovery rate for plastic beverage bottles. The average recovery rate for plastic beverage bottles in provincial deposit programs is 75 per cent compared to a 33 per cent recovery rate for non-deposit programs ("An Overview of Plastic Bottle Recycling in Canada," Environment and Plastics Industry Council, August 2004).]



## Used Tire Management Program

### Strategy Commitment

The Resource Recovery Fund will administer a program for the collection and reprocessing of scrap tires.

### Achievements

Over 900,000 used tires are generated in Nova Scotia every year. Tires are bulky and difficult to manage in landfills, and stockpiles pose a fire hazard. The Government of Nova Scotia banned used tires from disposal in landfills in 1997 and required tire retailers to participate in a used tire management program.

RRFB Nova Scotia administers Nova Scotia's used tire management program. The cost of collecting, transporting, and processing tires is covered by a one-time retail fee. Fees are \$3 per tire (up to 17 inches) with a \$9 fee applied to truck tires up to 24.5 inches.

To date, 9.6 million passenger tire equivalents have been collected through the program.

A local company, Atlantic Recycled Rubber, collected and processed used tires in Nova Scotia until the expiry of its contract in December 2006. The tires were crumbed using a freezing process and used in applications such as the creation of turf sports fields. Following a November 2006 report by an advisory committee on used tire management options, the Minister of Environment established an inter-agency committee to develop a new used tire management strategy for the province. The strategy will focus on how Nova Scotia will process the million tires produced annually in a manner that is cost effective and meets the environmental goals the province has set out for itself.



## Paint Recycling Program

### Strategy Commitment

The Government will provide the Resource Recovery Fund Board with the authority to lead in the development of province-wide industry stewardship programs to recover and re-process household hazardous waste and other problem materials entering the municipal solid waste stream, including waste paint, used motor oil, lead-acid (automotive batteries), ethylene glycol (automotive antifreeze), and scrap tires.

### Achievements

Paint makes up a large portion of the household hazardous waste stream. Up to 25 per cent of the paint purchased in Nova Scotia every year is never used. To protect our environment and water resources, the Nova Scotia Government banned consumer paint products from disposal in landfills. The government also passed regulations requiring that RRFB Nova Scotia set up a recycling program for paint, on behalf of “brand owners.”

RRFB Nova Scotia has operated the paint program since 2002. Products included in the program include latex and oil-based paints, stains, and varnishes. Paint is sent to The Paint Recycling Company in Springhill, Nova Scotia, for preliminary processing and then to Quebec to be manufactured into “Boomerang,” a 100 per cent recycled paint product. (See page 15, Economic Opportunities)



## Electronic Product Recycling Program

Electronic products make up a growing part of the waste stream in our high-tech society. These products are not only bulky to manage, but also contain hazardous components such as lead, cadmium, and mercury. These materials can pose a risk to our natural environment.

The province introduced regulations in February 2007 requiring “brand owners” to set up a collection, transportation, reuse, and recycling program for certain electronic products. In response, the industry association, Atlantic Canada Electronics Stewardship (ACES), developed Nova Scotia’s first industry-led product stewardship program. RRFB Nova Scotia was hired by ACES to oversee the program’s implementation. The first phase of the program (televisions, computers, and printers) was launched in February 2008. A second phase (scanners, audio-video equipment, phones, and wireless devices) will be launched in February 2009. Nova Scotians generate an estimated 4500 tonnes of electronic waste every year—the equivalent of about 9800 moose. The program will keep much of this waste out of our landfills.



1.55 million litres of waste paint have been collected to date through the program.

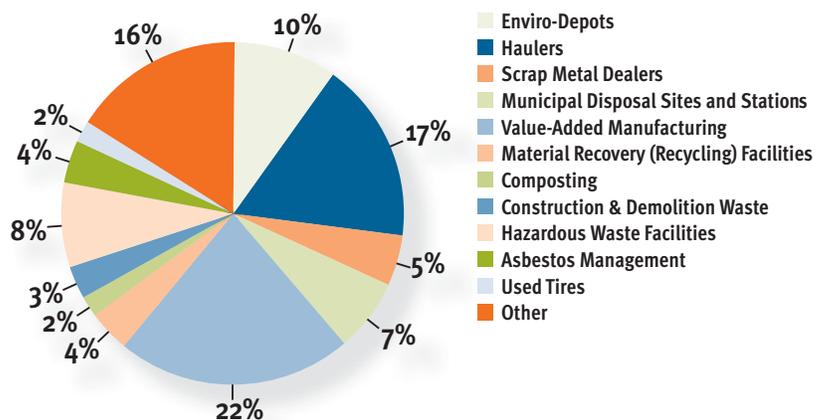
RRFB Nova Scotia also provides municipalities with \$100,000 annually to support the collection of other categories of household hazardous wastes (HHW) through permanent HHW depots and special collection events in some areas.

Province-wide stewardship programs for household hazardous waste (HHW) products are an area of interest for the province and RRFB Nova Scotia.

**[fact**  
Nova Scotia was the first Atlantic Canadian province to introduce an Electronic Product Recycling Program, joining British Columbia, Alberta, and Saskatchewan. Nova Scotia is the first in Canada to include a second phase of products in its program.]

## Economic and Business Opportunities

**Figure 6** shows a breakdown of **waste-related employment by category**, based on 2006 survey data.



The Solid Waste Resource Management Strategy has proven that jobs and economic prosperity go hand in hand with environmental protection. The relationship between the economy and environment is also a pillar of Nova Scotia’s economic development strategy, “Opportunities for Sustainable Prosperity.” This strategy recognizes that Nova Scotia’s environmental assets are essential for the long-term competitiveness of our province.

### Work from Waste

As of 2006, there were 3300 jobs in the solid waste resource management sector, an increase of 1200 or 57 per cent since the release of the strategy in 1995. “Value-adding manufacturing” makes up the largest portion of these jobs. Value-added manufacturers produce new, useful products out of materials that would have traditionally gone to landfills.

#### Strategy Commitment

The Resource Recovery Fund will, in conjunction with the private sector, municipalities, and the Environmental Technologies Initiative, identify end markets and develop a locally-based recycling capacity for materials recovered from the waste stream through municipal diversion programs, with plastics, corrugated cardboard, and compost receiving priority attention.

#### Achievements

Nova Scotia-based companies have established stable local markets for materials such as plastic beverage containers, corrugated cardboard, compost, and paint. RRFB Nova Scotia has provided \$2.3 million in funding to support companies using waste as a resource.

#### Plastics

Novapet Inc. located in Amherst processes plastic containers collected throughout the Atlantic region and Eastern USA, including beverage containers returned through Nova Scotia’s deposit-refund program. The plastic “flake” sold by the company is used to replace virgin petroleum in the manufacture of new products, saving energy and resources. The company has operated since 1998.

A 2008 study sponsored by RRFB Nova Scotia identified and recommended measures for expanding plastics recovery and recycling in Nova Scotia.

#### Nova Scotia is also selling its solid waste expertise internationally.

Nova Scotia companies have been benefiting from business opportunities in solid waste resource management across the globe, including Trinidad and Tobago, other Caribbean island states, and the United Arab Emirates (UAE). Visitors from other jurisdictions, including Japan, Russia, and Ireland have also come to our province to learn first-hand how Nova Scotians manage their waste.



### Cardboard

Minas Basin Pulp and Power in Hantsport manufactures liner board from 100 per cent old corrugated cardboard collected from the Atlantic Region. Scotia Recycling collects the cardboard from recyclers and waste haulers across the province. The liner board is used to manufacture new boxes by Maritime Paper Products, another local company, creating a closed loop for this material in Nova Scotia.

Minas Basin and its partners are able to process an estimated 45,000 tonnes of Nova Scotia's waste cardboard annually into paper products.

### Compost

Twenty-one facilities in Nova Scotia compost organic materials generated by residents and businesses. The finished compost is used for landscaping and soil amendments.

### Paint

Waste paint collected through Nova Scotia's Paint Stewardship Program is sent to The Paint Recycling Company in Springhill. The paint is bulked by the company and then further processed in Quebec. The finished product can be purchased in Nova Scotia under the brand name "Boomerang."

Many other Nova Scotia-based industries also use waste as an input, including scrap metal companies, textile (clothing) resellers, pallet recyclers, and businesses recycling office paper.

### Businesses Recognizing Waste as a Resource

**Compost from wood waste** Louisiana Pacific's East River Mill, located in Lunenburg County, is a major producer of wood products, including hardwood siding and paneling. The company has made significant progress in reducing and reprocessing wood waste that was previously disposed in an industrial landfill. In cooperation with a composting management company, Envirem Technologies, Louisiana Pacific now operates a composting facility on-site that is capable of handling 50,000 tonnes of wood waste each year. The compost is sold for use in landscaping, horticultural, and organic agriculture.

**Remanufactured cartridges** Ribbons Recycled Inc. in Halifax remanufactures inkjet, laser, and ribbon cartridges for printers in the Maritimes. This initiative diverts more than 54,000 cartridges from landfills annually. Remanufactured cartridges also save money, costing between 30 per cent and 60 per cent less than the price of a new cartridge.

**A different kind of bag** The Lunenburg Bag Company makes reusable tote bags using materials salvaged from old sails, industrial textiles, and other materials. The bags are handmade, providing employment while reducing waste, energy, and resource consumption.





## Research and Development

### Strategy Commitment

The Resource Recovery Fund will assist in the establishment of new businesses by providing funding for research and development.

### Achievements

A lack of sustainable markets for materials continues to be a barrier to increased waste diversion in Nova Scotia. Research and development funding from the RRFB aims to support the development of new applications for waste materials. This funding has supported a variety of projects in the past few years, including researching the possibility of adding clean gypsum board (“drywall”) to compost. The funding is also being used to study the addition of empty paint and aerosol cans and scrap metal to municipal curbside recycling programs and to identify issues related to dismantling of upholstered furniture.

**You spend a third of your life on them** Mattresses are not only difficult to manage in landfills, but are constructed of materials that are readily recyclable. The Centre for Adults in Progressive Employment (Cape) in Glace Bay is piloting a project to determine the barriers and opportunities related to the dismantling of unwanted mattresses and box springs.



Baled old corrugated cardboard



Manufacture of new product

## Pollution Prevention and Greening Government

### Waste Separation

#### Strategy Commitment

The Government of Nova Scotia will require the operators of convenience stores, vending and fast food outlets, and organizers of public and private events to provide receptacles for both litter and recyclable materials and to develop a pollution prevention strategy to promote source reduction.

#### Achievements

Requirements for waste separation receptacles, aimed to reduce litter and waste, are included in provincial regulation. Nova Scotia's Environment Act also requires the organizers of public and private events to maintain receptacles for recyclable and compostable materials and litter and waste disposal.

Several municipalities have made great efforts in promoting effective waste separation at quick service restaurants and events. At the same time, the separation of recyclables, organics, and residual wastes at source remains a challenge in public areas.

**The Tim Horton's chain in Bridgewater and Liverpool takes a different approach to waste separation. Rather than letting customers do the work, the store trains staff to properly sort waste from the table, an approach that has been very successful.**

Ensuring that recyclables, organics, and garbage are put in their proper place is especially difficult in public areas. In 2007, students with the **Nova Scotia College of Art and Design (NSCAD)** decided that this was a challenge worth taking on. Groups of students set out to design the "perfect" waste separation container with the aim of making it as easy as possible for people to sort their wastes. The students' designs were a great example of creative problem solving, the type of innovative thinking that will improve compliance with provincial disposal bans, and help the province achieve its waste disposal target.

### Source Reduction and Waste Management

RRFB Nova Scotia, municipal educators, and environmental organizations continue to promote waste reduction and pollution prevention in ongoing educational activities. Organizations like the Eco-Efficiency Centre are also effective in promoting pollution prevention to the business community.

The province is also doing its part in developing product stewardship programs. As producers and consumers begin to recognize the costs of producing and generating waste, this will translate into further waste reduction efforts.

Despite these initiatives, reducing waste and litter at their source requires further effort on the part of all Nova Scotians, including business and government. Litter on our streets and along shorelines remains a problem.





### Strategy Commitment

The Government of Nova Scotia will work at the national level to address source reduction and the management of household hazardous wastes through initiatives undertaken by the Canadian Council of Ministers of the Environment (National Packaging Protocol and the Task Group on Household Hazardous Wastes).

### Achievements

#### Tackling Packaging

In 1990, the Canadian Council of Ministers of the Environment endorsed the National Packaging Protocol, which set policies for packaging disposal, including a target of 50 per cent reduction by the year 2000, from 1988 levels. The target was achieved in 1996, four years ahead of schedule, mainly due to reductions in transport packaging such as pallets, boxes and crates.

Consumer packaging remains a challenge in terms of the volume of packaging material generated and its suitability for reuse, recycling, and composting. Nova Scotia is currently working with the other provinces, through CCME, to develop a new Canada-wide Strategy for Sustainable Packaging. Household hazardous wastes will also be considered by CCME in its work on Extended Producer Responsibility.

**The Eco-Efficiency Centre** helps businesses in Nova Scotia to lower environmental impacts and costs through the reduction of pollution and waste and more efficient use of natural resources. The Centre is sponsored by the Nova Scotia government and also receives annual funding from RRFB Nova Scotia.

**Keeping Nova Scotia Free of Litter** Volunteers have been essential in tackling litter in Nova Scotia. As part of the Adopt-A-Highway program, community groups and other volunteers clean up litter along 5km sections of highways. The program is coordinated through the Women's Institutes of Nova Scotia and funded primarily through RRFB Nova Scotia.

Clean Nova Scotia coordinates the Great Nova Scotia Pick Me Up, which offers volunteers the opportunity to clean up neighborhoods, parks, beaches, and other areas, while helping raise awareness of the extent and impact of littering on our environment.

## Greening Government

### Strategy Commitment

The Government of Nova Scotia will expand the government recycling program to include all government offices and target office paper, newsprint, beverage containers, other food packaging, and plastic bags.

### Achievements

Most government offices have implemented in-house recycling programs for items such as office paper and beverage containers. Government also continues to expand organics collection across offices. However, further work is needed. The government is placing greater emphasis on "in house" greening, as it moves towards the environmental goals it legislated in 2007.

### Strategy Commitment

The Government of Nova Scotia will adopt a government-wide, environmentally responsible procurement policy to ensure that government purchases meet the federal Environmental Choice Guidelines, wherever feasible.

## Achievements

### Environmentally Responsible Procurement (Purchasing)

In the province's Environmental Goals and Sustainable Prosperity Act introduced in 2007, the province has committed to developing and adopting a sustainable procurement policy by 2009. Sustainable procurement is an approach to purchasing that considers the environmental, societal, and economic value of the goods and services being purchased.

Since the Solid Waste Resource Management Strategy was developed, government departments and agencies have undertaken a number of environmentally responsible procurement initiatives:

Government-printed business cards and envelopes are certified by the Forestry Stewardship Council (FSC), contain recycled content, and are printed using vegetable, soy, or agri-based ink.

Office paper purchased by some departments is FSC certified and contains a minimum 30 per cent post-consumer recycled content fibre.

Plastic bags purchased by the Nova Scotia Liquor Corporation contain 40 per cent recycled content.

Centrally-purchased desktop and laptop computers meet a minimum silver environmental standard (EPEAT).

## Better Disposal Systems

**"...many forms of pollution cannot be isolated, buried, burned, or ignored in one place without being felt elsewhere in time and place"**

(William K. Tabb)

In the early 1970s, over 100 dumps were operating in the province. Most disposed of waste through open burning. Before 1975, these sites used little or no pollution control measures, resulting in emissions of particulate matter, carbon monoxide, dioxins, and furans. In 1994, 36 disposal sites and 6 incinerators were operating in the province, as well as 20 open burning sites.

### Burning Bans

#### Strategy Commitment

The Government of Nova Scotia will prohibit open burning (teepee, pit, and silo burners) by April 1, 1996 require energy generation to be a component for all municipally operated solid waste incinerators ensure that proposed incinerators do not, in any way, compromise opportunities for recycling or reprocessing materials

#### Achievements

All open burning sites were shut down following a provincial ban in 1996. No municipal solid waste incinerators have been in operation in Nova Scotia since the closure of Sydney's incinerator in December 2005.

**[fact**  
The number of MSW disposal sites in the province has

**dropped by 83 per cent since 1994.**

**Nova Scotia's landfill guidelines require plastic and soil liner systems and the collection and treatment of leachate. These new "containment landfills" (also called "second generation landfills") ensure that leachate (the liquid formed from waste) is properly collected and treated, protecting surface and groundwater.]**



## Landfill Guidelines

### Strategy Commitments

The Government of Nova Scotia will implement new guidelines for the design and operation of landfills.

### Achievements

The province required all municipal solid waste (MSW) landfills to meet provincial landfill guidelines by December 31, 2005. By the end of 2005, 18 municipal solid waste landfills were operating in the province. Through the closures of old landfills (which did not meet the guidelines) and the opening of new sites in 2006, there are now 7 landfills.

Municipal solid waste landfills are located in Cumberland County, Colchester County, Halifax Regional Municipality, Guysborough, Chester, West Hants (privately operated), and Queens. All meet the province's stringent, environmental standards. Some of these sites, including Guysborough and Chester, make further efforts to promote a second life for materials by setting aside part of their facilities as "reuse centers." Members of the public can pick up reusable materials for free at these centers.



## Construction and Demolition Waste

### Strategy Commitment

The Government of Nova Scotia will adopt and implement the recommendations of the Report on the Management of Construction and Demolition Waste prepared in 1995 for the Nova Scotia Department of the Environment and the Construction Association of Nova Scotia and the Metropolitan Authority.

### Achievements

Based on the recommendations of the Report on the Management of Construction and Demolition (C&D) Waste, the Government of Nova Scotia adopted C&D Debris Disposal Site Guidelines in 1997. These Guidelines define the types of materials that can be accepted at C&D disposal sites and establish consistent procedures for these sites. All C&D sites must also be compliant with municipal bylaws.

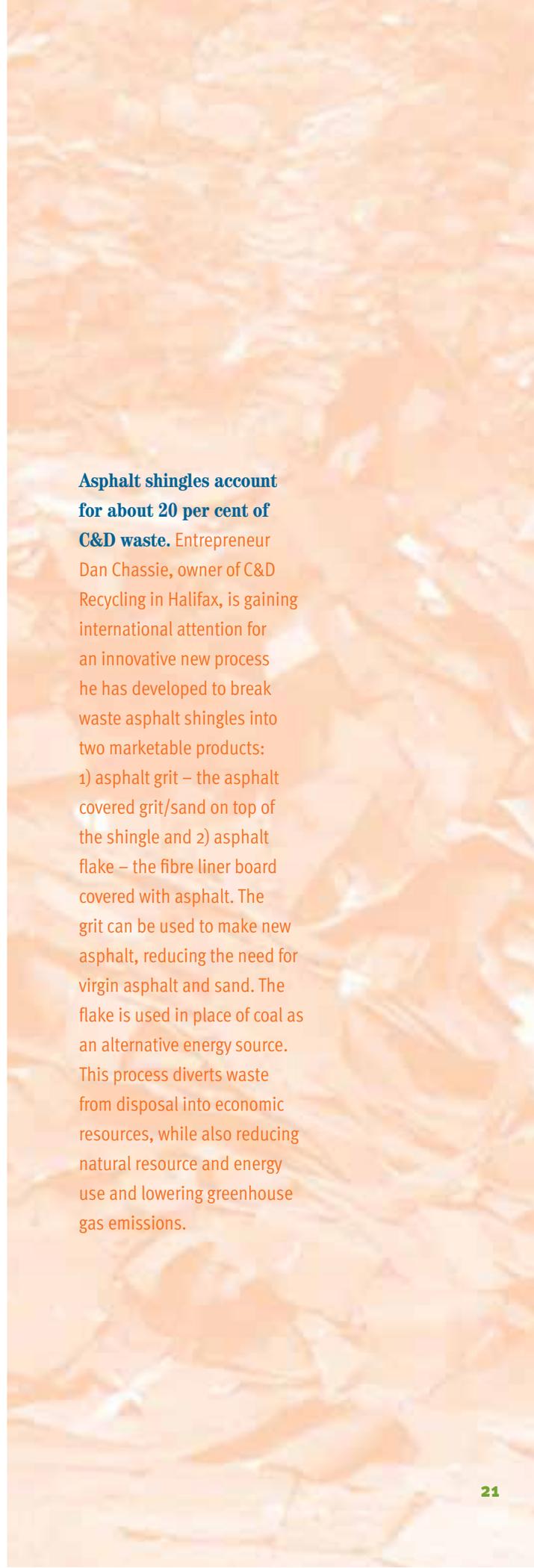
The province and RRFB Nova Scotia co-sponsored a C&D management study in 2006. The report highlighted changes in the waste stream since 1995, and evaluated compliance with the C&D disposal site guidelines. The report also identified options for maximizing diversion, including a multi-stakeholder approach involving Nova Scotia's Environment and Transportation Departments and municipalities.

### Recycling Construction and Demolition Materials

The 1995 strategy did not address C&D material diversion. Construction and demolition waste makes up about 30 per cent of the solid waste stream. Tackling this part of the waste stream will be essential to meeting the province's new disposal target.

The Government of Nova Scotia continues to work with municipalities, C&D site operators, and academics, to research and develop new methods of diverting materials for beneficial reuse.

Halifax Regional Municipality requires 75 per cent diversion of construction and demolition (C&D) waste, providing an incentive for innovation. (See sidebar)



**Asphalt shingles account for about 20 per cent of C&D waste.** Entrepreneur Dan Chassie, owner of C&D Recycling in Halifax, is gaining international attention for an innovative new process he has developed to break waste asphalt shingles into two marketable products: 1) asphalt grit – the asphalt covered grit/sand on top of the shingle and 2) asphalt flake – the fibre liner board covered with asphalt. The grit can be used to make new asphalt, reducing the need for virgin asphalt and sand. The flake is used in place of coal as an alternative energy source. This process diverts waste from disposal into economic resources, while also reducing natural resource and energy use and lowering greenhouse gas emissions.

## Government Construction and Demolition Waste

### Strategy Commitment

The Government of Nova Scotia will adopt a government-wide, environmentally responsible procurement policy to ensure that government tendered construction and demolition contracts specify terms for the appropriate disposal of construction and demolition wastes.

### Achievements

All government building contracts require that construction and demolition (C&D) debris is disposed in facilities approved by the province. Approved facilities must meet the province's environmental guidelines.

Government is also moving beyond disposal requirements to adopting green building standards. Four schools in the province have already been built to Leadership and Energy in Environmental Design (LEED) standards. The sustainability of building materials and diversion of materials from landfill are important elements of the LEED standard.

Iona School in Cape Breton was the first LEED-certified school in the province. Other schools meeting LEED standards are Sir John A. MacDonald in Tantallon, Oyster Pond Academy, and Halifax Citadel High.

## Education and Awareness

An important mandate of RRFB Nova Scotia is to develop education and awareness of source reduction, reuse, recycling, and composting. RRFB Nova Scotia delivers this mandate through a variety of province-wide programs and activities, which are outlined below.

### Strategy Commitment

**The Resource Recovery Fund Board will develop an overall communications strategy, designed to**

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increase awareness of waste management issues and encourage a conservation ethic by making better use of information related to consumer choices and tips on reducing waste and material reuse

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encourage community stewardship initiatives to address illegal dumping

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provide ready access to materials, explaining waste diversion goals and individual responsibility

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coordinate education activities of industry and other levels of government to identify efficient and cost-effective approaches to achieving the goals and objectives of this strategy

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**The Resource Recovery Fund Board will**

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direct 50 per cent of net revenues to programs such as public education and awareness, research and development, and industry start up

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fund the development of generic education materials to encourage high levels of participation in waste diversion programs

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provide funding to municipal governments to employ regional waste reduction coordinators

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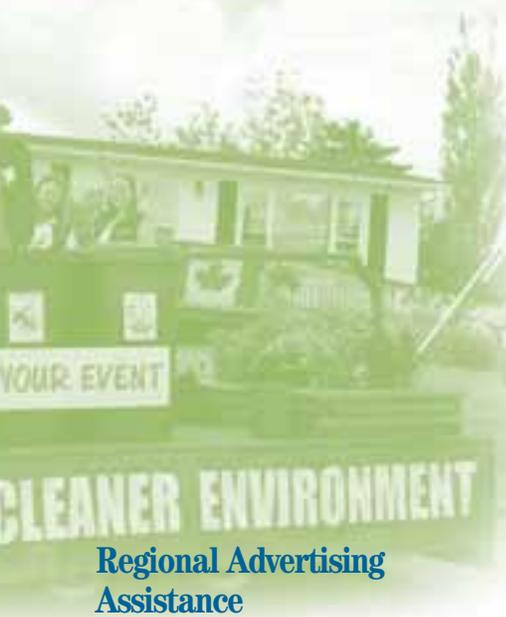
### Achievements

#### Funding and Partnerships

RRFB Nova Scotia has provided \$12 million in education funding since 1996. 38 per cent of this total has been spent on Regional Education Contracts.

Through contracts with RRFB Nova Scotia, regional and municipal educators deliver presentations, workshops, special events, and other activities to schools, businesses, institutions, and the general public. These activities promote waste reduction, recycling, composting, and anti-littering.

Other funding programs include regional advertising assistance and community sponsorship programs.



## Regional Advertising Assistance

RRFB Nova Scotia provides \$100,000 each year to municipalities to support the production of newsletters, waste collection calendars, newspaper advertising, and other media. RRFB Nova Scotia provides 50 per cent funding through this program.

## Community Sponsorship Program

RRFB Nova Scotia provides financial support to community groups for waste separation containers, green events, and school environmental education initiatives. Groups that have received a \$500 grant to purchase waste separation containers include churches, sports complexes, and schools across the province. Funding has also been provided to numerous festivals and conferences to help them “go green.”

## One Person’s Waste Is Another’s ...

RRFB Nova Scotia partners with Eco-Efficiency Centre (Halifax) to provide the Nova Scotia Material Exchange ([www.nsmaterials.com](http://www.nsmaterials.com)). The Exchange is a free service that links companies with surplus or by-product materials with other businesses or individuals who can reuse these materials. Businesses save money on disposal fees, while reducing their impact on the environment.

## Promotion and Advertising

RRFB Nova Scotia provides outreach on waste reduction and diversion through direct advertising and promotion of Enviro-Depots and product stewardship programs—beverage containers, used tires, waste paint, and end-of-life electronics. RRFB Nova Scotia has a toll-free recycling hotline to assist the public.

RRFB Nova Scotia partners with organizations such as Clean Nova Scotia to promote annual events, including Waste Reduction Week, Environment Week, and Composting Awareness Week. RRFB Nova Scotia also organizes its annual Mobius Environmental Awards, which recognize and reward businesses, municipalities, institutions, and individuals for their waste reduction efforts.



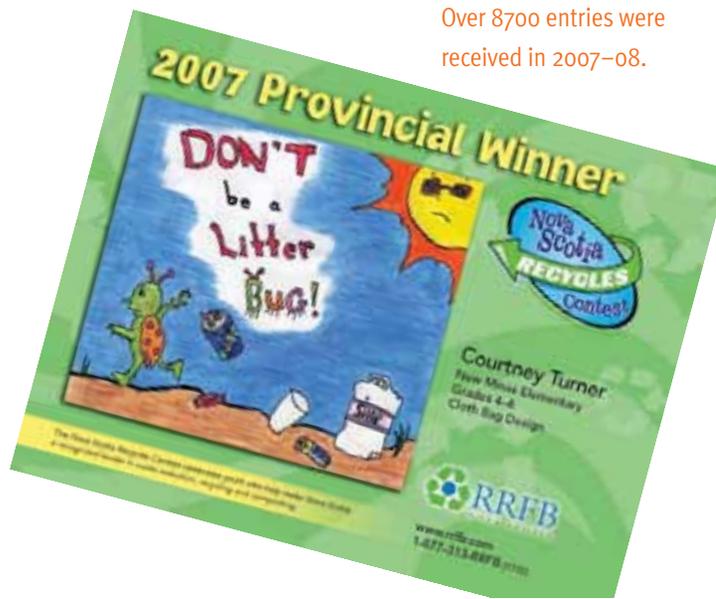
**Moby S. Loop**, often referred to as the RRFB’s “mascot” is a talking recycling robot in the shape of a large blue garbage can. Moby works with educators to deliver presentations to students, summer camps, and community events.

RRFB Nova Scotia holds an annual “**Nova Scotia Recycles Contest**” for primary to grade 12 students, offering over \$55,000 in cash, prizes, and scholarships. The contest is a fun and creative way for students to learn about waste reduction, using artwork, multimedia, essays, and other mediums. Over 8700 entries were received in 2007–08.

As one example of the success of educators in the region, the South Shore Regional School Board became the first school board in Nova Scotia to adopt a comprehensive waste diversion policy, aimed to get students and staff to reduce and properly separate waste at its source.

Newspaper credits allow RRFB Nova Scotia the opportunity to place ads in newspapers across the province. Provincial, daily, and community newspapers provide RRFB Nova Scotia with an advertising credit of \$10/tonne of newsprint consumed, as part of a stewardship agreement with the province.

RRFB Nova Scotia’s website includes a teacher’s page that provides resources for teaching the 3Rs and composting.



## Conclusion

**N**ova Scotia's Solid Waste Resource Management Strategy has been a tremendous success and something every Nova Scotian can—and should—be proud of. It continues to be looked upon as a model by other jurisdictions.

At the same time, a number of challenges remain. While most strategy commitments have been met or exceeded, some areas require further attention, such as the management of household hazardous waste, construction and demolition debris, and packaging. Compliance with provincial and municipal waste management laws also remains an issue.

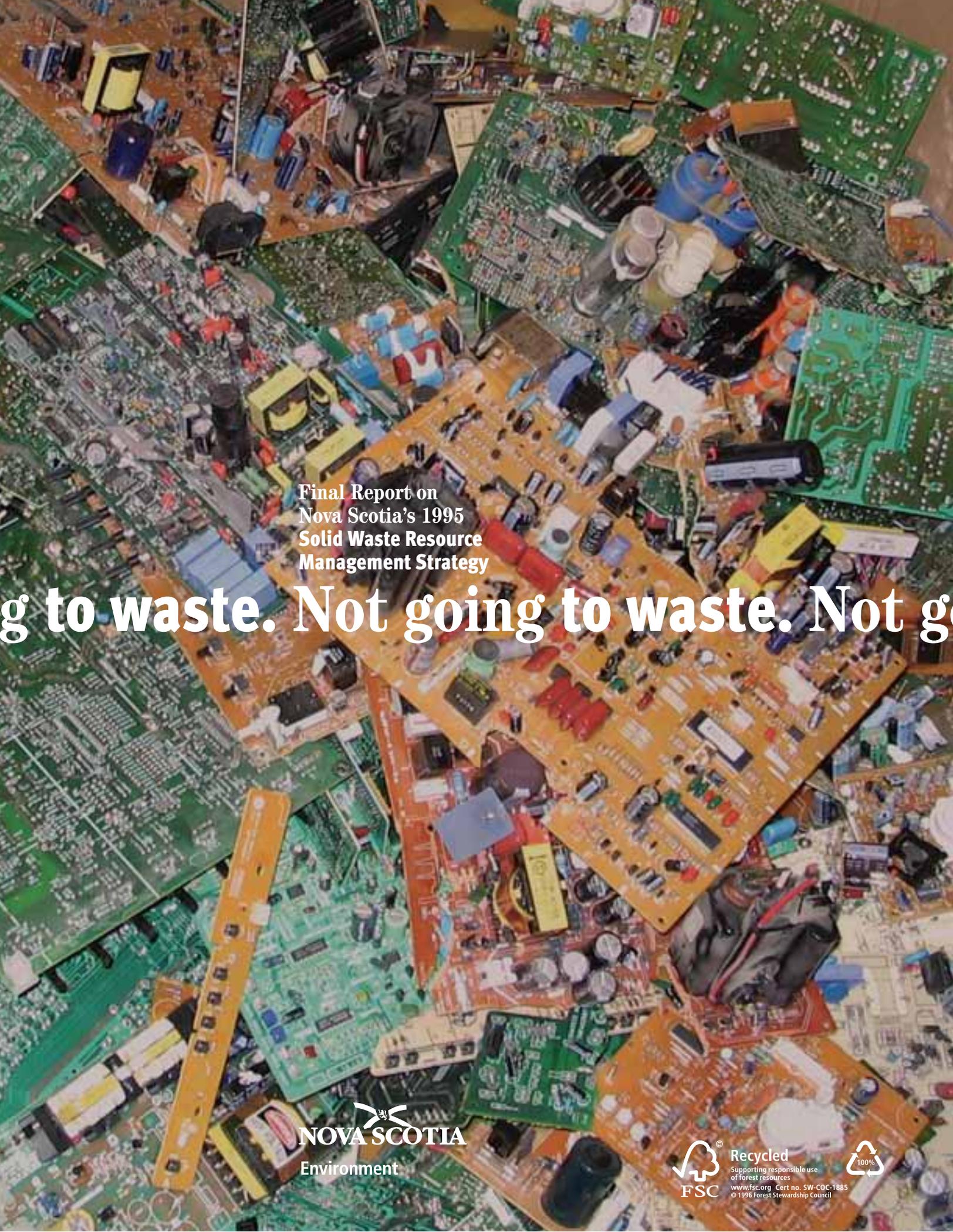
On a more fundamental level, the amount of waste being generated continues to rise in Nova Scotia, as elsewhere in Canada and other growing economies. Factors contributing to this rising waste generation are often rooted in our culture and lifestyle, which makes them particularly difficult to tackle. Fortunately, a growing number of businesses and consumers are recognizing what many Nova Scotians already know—“waste is a waste” of natural and financial resources. Government leadership in areas such as product stewardship will encourage this recognition. In its Environmental Goals and Sustainable Prosperity Act, the Nova Scotia government has committed to developing new product stewardship regulations, along with other new programming.

Even as the province and its partners move ahead with new policies and programming, there is considerable opportunity to take advantage of what we already have. Recent municipal waste characterization studies suggest that over 40 per cent of material in the waste stream can be recycled and composted in the province. Although the provincial government and municipalities must play their part in ensuring compliance through education and enforcement, businesses, institutions, and residents can do much to help Nova Scotia retain its international leadership in waste management.



**Final Report on  
Nova Scotia's 1995  
Solid Waste Resource  
Management Strategy**

**g to waste. Not going to waste. Not g**



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