2.13 Solid Waste Management

Introduction

The planning and delivery of waste management in Newfoundland and Labrador is the direct responsibility of municipalities and communities. The Province holds overall responsibility for the development and enforcement of policies, regulations and standards related to the municipal management of waste.

The departments responsible for overseeing waste management are the Department of Environment and Conservation (development of policies and standards), the Department of Municipal and Provincial Affairs (provision of funding, resources and direction to municipalities and regional waste management committees) and the Department of Government Services (inspection of facilities and determination of compliance with established standards). The Multi-Materials Stewardship Board also has an integral role in the Province's waste management initiatives through its recycling, public awareness and funding programs.

In 2002, the Department of Environment and Conservation estimated that $21 million is spent annually on waste collection and disposal. The latest information available from Statistics Canada indicated that, in 2002, residents of the Province produced 414,979 tonnes of waste which amounts to 799 kilograms per person per year. In 2004, there were 201 landfill sites and 1 transfer station (a temporary holding area) operating in the Province. The Department of Environment and Conservation indicated that a typical site serves only two or three communities and about 2,000 people and is located within 20 kilometres of the next site.

Scope and Objectives

We completed our review of solid waste management in October 2004. The objectives of our review were to determine what progress the Province has made towards a Province-wide waste management system and whether the Province has systems in place to monitor and regulate waste management activities.

Conclusions

The Province has a significant issue to deal with regarding waste management. The problem resulted because historically, we have not recycled, there was no strategy as to either the number of landfill sites or their location, there was little control over access to the sites or what was being dumped, open burning and incinerators were commonly used, and the landfill sites were not lined.

In 1989, at a meeting of the Canadian Council of Ministers of the Environment, Government set a goal to reduce the amount of waste going for disposal by 50% by the year 2000. However, in 2002, Newfoundland and Labrador had a waste diversion rate of only 9%, the lowest rate of

waste diversion of any province in Canada. The other Atlantic Provinces in 2002 averaged a diversion rate of 27% (three times the diversion rate in this Province) while the Canadian average for that year was 22%, again significantly higher than the diversion rate in this Province.

This Province has a disproportionate number of waste disposal sites compared to the other Atlantic Provinces. In 2004, the Province had 201 waste disposal sites versus a combined total of 25 disposal sites for the other three Atlantic Provinces.

A report prepared by Government's Waste Management Advisory Committee in October 2001 indicated that incinerators in our Province produce more than one-third of the total volume of dioxins and furans from municipal incineration in Canada. Open burning, which was not measured and is common in more than half of the sites in the Province, produces even more dioxins and furan emissions.

Although the Multi-Materials Stewardship Board (MMSB) has a mandate to develop, implement and manage effective waste management programs, it takes its direction from the Department of Environment and Conservation. However, the Department has not identified programs to adequately address all significant areas for waste diversion (e.g. paper and organic which account for 67% of waste). Furthermore, MMSB is not meeting its beverage recycling program targets and there are issues relating to its used tire recycling program.

In April 2002, a Provincial Waste Management Strategy was issued indicating that a Province-wide modern waste management system would be implemented by 2010. However, the Minister of Municipal and Provincial Affairs has publicly expressed concerns about the amount and source of funding ($150 - $200 million) and timelines relating to the 2010 target date and the Minister of Environment and Conservation has publicly indicated that the Strategy is too ambitious. Furthermore, there is no schedule in the Strategy to indicate either when this funding will be required or the source of funding, e.g. Federal, Provincial, and municipal. In addition, the Strategy does not include annual targets to measure progress towards the various initiatives such as diverting waste, closing unlined landfill sites and constructing new lined sites.

Currently, none of the 201 landfill sites in the Province are lined. The use of a liner controls the escape of leachate and provides for its recovery and treatment to minimize potential environmental consequences. While the Strategy did not indicate that all unlined sites would be remediated, it is likely that some sites will be determined to have contaminates at such a level that the sites will require remediation. As a result, there will likely be significant expenditures for site remediation.

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Government does not have complete and accurate information available on its landfill sites to determine the status of each site for use in planning, implementation, and monitoring of these sites. For example, although a number of the waste disposal sites are nearing the end of their useful life, there is no information readily available to identify when these sites will expire or what alternate course of action will be taken when the sites expire. A consultant was engaged in September 2004 to gather information and assess and classify existing waste sites in the Province and a report is expected by December 2004.

Findings and Recommendations

Background

In 1989, at a meeting of the Canadian Council of Ministers of the Environment, the amount of material going for disposal was identified as a concern across Canada. As a result, a goal was set to reduce the amount of waste going for disposal by 50% by the year 2000.

In 1992, Government banned the disposal of septic waste at landfills in eastern Newfoundland and in 1997 this ban was extended to western Newfoundland.

In 1994, Government banned the disposal of petroleum contaminated soils at landfills in eastern Newfoundland. In 2000 this ban was extended to western Newfoundland and in 2001 was extended throughout the island portion of the Province.

In 1996, Government established the Multi-Materials Stewardship Board (MMSB) to develop, implement and manage effective waste management programs.

In the March 2001 Speech from the Throne, Government committed to develop a long-term Provincial strategy to address waste management. In May 2001, the Minister of Environment appointed an independent Waste Management Advisory Committee. This Committee conducted public consultations and made recommendations to Government in October 2001.

In April 2002, the then Department of Environment released a Provincial Waste Management Strategy based on the Committee's recommendations. The Provincial Waste Management Strategy is estimated to cost between $150 million to $200 million to implement. The Strategy established five goals which would help the Province achieve a modern Province-wide waste management system by 2010.

Findings

The Provincial Waste Management Strategy identified five goals. Our review of the status of each goal is outlined in the following sections.

1. Diversion of 50% of the materials currently going to disposal by 2010

Waste diversion refers to the practice of removing specific types of material from those designated for disposal by landfilling and incineration, through reuse, recycling, recovery and composting. Many materials such as paper, newspaper, glass, plastics, tins, cardboard and tires can be separated at source and sold in various markets.

The Provincial Waste Management Strategy indicated that waste materials in the Province consist of seven categories as outlined in Figure 1.

Figure 1

Categories of Waste Materials

Category	Percentage
Paper (e.g. newsprint, cardboard)	37
Organic (e.g. compost materials)	30
Metal (e.g. fridges, stoves, car wrecks)	9
Plastic	8
Glass	6
Inorganic (e.g. fertilizers, cleaners, paint, rubber)	4
Other (e.g. neutralized hazardous waste, disposed ammunition, types of medical waste, recovered asbestos)	6
Total	**100**

Source: Provincial Waste Management Strategy

Our review indicated the following:

- The Province has not met its planned target to divert 50% of all waste materials. In 1989, the Province agreed to a 50% target for waste diversion by 2000; however, in its April 2002 Strategy, the Province again indicated that it planned to divert 50% of waste materials with the target date now moved to 2010. The Minister of Municipal and Provincial Affairs has publicly expressed concerns

about the amount and source of funding required ($150 - $200 million) and timelines. Therefore, it is questionable whether the 2010 target date will be achieved.

- As Figure 2 indicates, in 2002, Newfoundland and Labrador had a waste diversion rate of 9%, the lowest rate of waste diversion of any province in Canada. The other Atlantic Provinces in 2002 averaged a diversion rate of 27% (three times the diversion rate in this Province) while the Canadian average for that year was 22%, again significantly higher than the diversion rate in this Province. We do note however that generation per capita did decrease from 822 kg. per person in 2000 to 799 kg. per person in 2002.

Figure 2

Waste Disposal, Diversion and Generation per Capita per Year

	Disposal kg per capita		Diversion kg per capita		Generation kg per capita		Percentage diverted	
Jurisdiction	**2000**	**2002**	**2000**	**2002**	**2000**	**2002**	**2000**	**2002**
Prince Edward Island	n/a	n/a	n/a	n/a	n/a	n/a	20	28
Nova Scotia	416	417	150	182	566	598	26	30
New Brunswick	550	551	152	164	702	715	22	23
Average							23	27
Newfoundland and Labrador	**742**	**725**	**80**	**74**	**822**	**799**	**10**	**9**
Quebec	787	745	209	234	996	979	21	24
Ontario	764	797	202	200	966	997	21	20
Manitoba	798	776	188	217	986	993	19	22
Saskatchewan	804	799	147	147	951	946	15	16
Alberta	914	928	140	189	1,054	1,117	13	17
British Columbia	636	667	278	269	914	936	30	29
Canada	753	760	199	211	952	971	21	22

Source: Statistics Canada

- Figure 2 shows that, while most provinces have seen improvements in percentage of diversion from 2000 to 2002, there has been a reduction in this Province's diversion rate during that period.

- The Multi-Materials Stewardship Board (MMSB) was created in 1996 and, as outlined in its Strategic Plan, has a mandate to *"…support and promote the protection, enhancement, and wise use of the environment through the development, implementation and management of effective waste management programs."* Officials of MMSB indicated that the Department of Environment and Conservation is responsible to identify waste management programs and provide direction to MMSB on their implementation and management.

  Our review indicated that Government has not identified programs to adequately address all significant areas for waste diversion. For example:

  - Although waste is normally comprised of paper, organic, metal, plastic, glass, inorganic and other, Government has not established programs to address all these areas. For example, no programs have been implemented for paper and organic waste which comprise 67% of all waste materials disposed of in landfill sites.

    Prior to the Provincial Waste Management Strategy of April 2002, Government had only directed the MMSB to establish programs relating to beverage containers and used tires. As a result, the goal of establishing programs to divert the various types of waste had not been met and, therefore, the Province had not come close to achieving the 50% diversion that was envisaged in 1989 to be met by 2000. In fact, Statistics Canada reported that, as of 2000, only 10% of the Province's waste was being diverted.

  - The beverage container recycling program commenced in 1997. Although the target rate for recycling beverage containers was 80% for 2000, in 2000 the rate achieved was only 47%. The rate achieved in 2004 was 68% and the MMSB only expects to achieve a rate of 70% in 2005.

  - Government did not direct the MMSB to establish a used tire recycling program until April 2002. Currently used tires are only being stock-piled throughout the Province and not recycled. [*see Part 2.14 of this Report*]

- In April 2003, Government introduced the *Used Oil Control Regulations.* Under these *Regulations,* licensed service stations throughout the Province keep their used oil which is then collected by a contractor hired by the service station. However, the program does not apply to businesses selling less than 1,000 litres of lubricating oil per year. MMSB funds two inspector positions through the Department of Government Services and offers an education and awareness program. MMSB has indicated that 4 million of the 5 million litres of used oil available for collection is being collected.

- Government has not established a comprehensive, Province-wide household hazardous waste program. In 1998, MMSB had 8 communities involved in a three-year household hazardous waste collection program. In April 2002, the program was extended a further two years and expanded to include 14 communities. Officials indicated that MMSB does facilitate household hazardous waste days; however, the communities affected only account for 26% of the Province's population (excluding St. John's [accounting for approximately 20% of the Province's population] which has its own household hazardous waste days).

2. Reduce the number of waste disposal sites by 80%

In 1992, Government identified approximately 240 waste disposal sites operating in the Province and concluded that this was too many. The April 2002 Strategy indicated that the Province had a goal of reducing the number of waste disposal sites by 80% (i.e. 192) which would leave a maximum of 48 sites in the Province. Our review indicated the following:

- Although the Strategy indicated that at least 192 waste disposal sites would be eliminated by 2010, there is no plan to indicate the number of sites to be eliminated each year in order to meet its objective. As a result, it is not possible to determine whether there has been adequate progress made to date. As of July 2004, there were 201 waste disposal sites and one transfer station in the Province (i.e. a reduction of 16%). The Minister of Environment and Conservation has publicly indicated that the Strategy was too ambitious and that by 2012 or 2014 there would be approximately 15 sites.

- Newfoundland and Labrador has significantly more waste disposal sites than the other Atlantic Provinces combined. As Figure 3 indicates, this Province had 201 waste disposal sites versus 25 for the other three Atlantic Provinces.

Figure 3

Number of Waste Disposal Sites by Atlantic Province

Province	Population	Square km	Sites
Newfoundland and Labrador	517,027	405,720	201
New Brunswick	751,384	73,440	5
Nova Scotia	936,960	55,284	18
Prince Edward Island	137,864	5,656	2

Source: Statistics Canada and Provincial Governments

Officials indicate that geographical differences would require more sites in Newfoundland and Labrador than the other Atlantic Provinces. Currently, geographical differences cannot account for the need for all of the sites. For example, although the Avalon Peninsula encompasses a relatively small area, there were 43 sites (including 8 incinerators) serving 169 communities with approximately 260,000 people.

- Officials at the Department of Municipal and Provincial Affairs indicated that a number of the waste disposal sites are nearing the end of their useful life. However, Government does not have information readily available to identify when these sites will expire or what alternate course of action will be taken when the sites expire.



Waste Disposal Site at Sunnyside

3. Eliminate open burning at disposal sites by 2005 and phase out the use of incinerators by 2008

A number of the Province's waste disposal sites use open burning and incineration as a method for disposing of waste. The April 2002 Strategy indicated that the Province had a goal of eliminating open burning by 2005 and eliminating the approximately 50 incinerators operating in the Province by 2008. Our review indicated the following:

- The report produced by the Waste Management Advisory Committee in October 2001 indicated that studies have shown that incinerators in our Province produce more than one-third of the total volume of dioxins and furans from municipal incineration in Canada. Open burning, which was not measured and is common in more than half of the sites in the Province, produces even more dioxins and furan emissions.

- The Strategy did not identify annual targets for the elimination of sites with open burning or incinerators. However, deadlines for the closure of the majority of the incinerator sites have been set by the departments of Environment and Conservation, and Municipal and Provincial Affairs. Departmental officials indicated that, as at September 2004, 15 of the 53 incinerators have been closed, 1 is scheduled to close by 31 December 2004, 8 are scheduled to close by 2005, 24 are scheduled to close by 2008 and 5 are likely to remain operational because they are in remote locations and options are limited.

- Government has not identified how much it will cost to close, and remediate as necessary, each incinerator site. Officials at the Department of Municipal and Provincial Affairs indicated that a consultant was engaged in September 2004 to gather information and assess and classify existing waste disposal sites in the Province. The consultant is expected to report to the MMSB by 31 December 2004, at which time the Department will be able to estimate these costs.



Incinerator at Wabana, Bell Island

4. Phase out use of unlined landfill sites by 2010

The Strategy indicated that none of the 240 landfill sites in the Province are lined. The use of a liner in a landfill site controls the escape of leachate. The contained leachate can then be recovered and treated in order to further minimize potential environmental consequences. The Strategy indicated that 80% of the landfill sites (192) would be closed by 2010. Therefore, there would be a maximum of 20% (48) landfill sites left in operation. It is expected that there will be three major lined landfill sites (western, central and eastern) while some of the remaining unlined sites would remain open to service remote areas of the Province. Our review indicated the following:

- The Strategy did not identify annual targets for the elimination of unlined landfill sites. Therefore, it is not possible to determine if Government is on target. As at July 2004, 39 of the 240 unlined landfill sites have been closed.

- In 1992, Government determined that 50% of the landfill sites in the Province had uncontrolled access, and only 25% had site attendants. The lack of access controls or attendants has led to uncontrolled fires at the sites, smoke, vermin, odours, and excessive wind borne litter. Furthermore, without knowledge of what materials are going into a landfill site it is not possible to either predict what the leachate contains or what steps could be taken to minimize the environmental contamination.

- There are no lined landfill sites in the Province. While there have been some waste management studies conducted and some regions have identified the sites for modern lined waste management operations to be built, Government has indicated that, as a result of the amount and source of required funding ($150 - $200 million) and timelines, it is questionable whether the three major lined landfill sites will be operational by 2010. Therefore, without the construction of these three major lined landfill sites, most of the unlined landfill sites will not be able to be closed. In addition, Government has acknowledged that some unlined landfill sites will have to remain open in order to service remote areas of the Province.

- Government has not identified how much it will cost to close, and remediate as necessary, each landfill site. While the Strategy did not indicate that all unlined sites would be remediated, it is likely that some sites will be determined to have contaminates at such a level that the sites will require remediation. As a result, there will likely be significant expenditures for site remediation.

  Officials at the Department of Municipal and Provincial Affairs indicated that a consultant was engaged in September 2004 to gather information and assess and classify existing waste disposal sites in the Province. The consultant is expected to report to the MMSB by 31 December 2004, at which time the Department will be able to estimate these costs.

5. Implement full Province-wide modern waste management by 2010

Government indicated that the ultimate goal of the Strategy is to implement full Province-wide modern waste management by 2010. For our Province, modern waste management would be comprised of optimized waste diversion, regional waste management sites with transfer stations (temporary holding areas) and modern standards and technology. Our review indicated the following:

- Although the Strategy indicated that modern waste management would be implemented Province-wide by 2010, there are no annual targets to determine progress towards this objective. As a result, it is not possible to determine whether there has been adequate progress made to date.

- Although the total capital cost of the Provincial Waste Management Strategy, which is to be phased-in by 2010, is estimated to cost between $150 million to $200 million, very little has been spent to date. Implementing modern waste management initially requires significant financial investment to build the necessary infrastructure. In addition, there will be significant costs to close obsolete disposal sites and equipment. There is no schedule in the Strategy to indicate when this funding will be required. Furthermore, there is no indication of the source of funding, e.g. Federal, Provincial, and municipal. As at 31 March 2004, only approximately $3.5 million has been spent on this initiative ($1.2 million by the Department of Municipal and Provincial Affairs and $2.3 million by the MMSB). Significant funding is going to be required over the next five years.

- Although the Strategy has been in place for almost three years, environmental standards for municipal solid waste containment landfills have not been finalized. The Department of Environment and Conservation has drafted standards; however, at least one of the regional committees indicated the lack of final standards as an obstacle in developing their waste management plan.

- In 2002 a new on-line database, the Waste Management Information System (WMIS) was created to record information on waste sites in the Province. However, not all information regarding waste sites in the Province has been entered into the system and the information that has been inputted into the system has errors. As a result, it is difficult to determine the status of each site and to prepare reports that would assist in the planning, implementation, and monitoring of the Provincial Waste Management Strategy.

  Officials at the Department of Municipal and Provincial Affairs acknowledged the problems and indicated that a consultant was engaged in September 2004 to gather information and assess and classify existing waste sites in the Province. This information will then be input into the WMIS. The consultant is expected to report to the MMSB by 31 December 2004.

Recommendations

Government should:

- *ensure that the Province moves towards a modern waste management system and implements the Provincial Waste Management Strategy by the planned 2010 completion date; and*

- *develop a schedule to indicate when the Provincial Waste Management Strategy's estimated $150 million to $200 million funding will be required and identify the source of this funding, e.g. Federal, Provincial, and municipal.*

The Department of Environment and Conservation should:

- *ensure that the MMSB is proactive in its efforts to increase opportunities for waste diversion; and*

- *formalize Environmental Standards for Municipal Solid Waste Containment Landfills.*

The Department of Municipal and Provincial Affairs should continue the process of updating the Waste Management Information System.

Departments' Response

This response is a joint response for the Departments of Municipal and Provincial Affairs who are the lead agency for the Waste Management Strategy and Environment and Conservation who are responsible for waste diversion programs and the Multi-Materials Stewardship Board (MMSB).

First we will respond directly to the recommendations.

- *The goals of the Provincial Waste Management Strategy are very ambitious and while the province remains committed to advancing the implementation of the strategy, "full" implementation by 2010 is not considered to be a realistic target. Adequate fiscal resources to address provincial participation in the estimated $150-$200 million capital cost of this major undertaking have not been secured. Likewise there is significant organizational, environmental, and engineering work required to support this major re-development of a key component of municipal infrastructure.*

- *With regard to a schedule for sourcing and securing the estimated $150-$200 million of capital funding, the Department of Municipal and Provincial Affairs is currently considering the Provincial Waste Management Strategy within the context of Program Renewal. In addition, the priority of the province's role and participation in funding the strategy will be considered within the context of the fiscal circumstance of the province and the fiscal challenges facing municipalities. It should be noted that capital funding for waste management initiatives must also be considered within the framework of the full range of capital priorities including water treatment, sewage treatment, roads, fire service, etc.*

- *The Department of Environment and Conservation will work with the MMSB to ensure that they proactively participate, either directly or indirectly, as appropriate, in waste diversion opportunities. The Minister of Environment and Conservation has engaged the MMSB, municipalities, industry (haulers and recyclers) on paper and cardboard recycling initiatives. Announcements are anticipated in 2005.*

- *The standards that have been developed by the Department of Environment and Conservation are considered to be a final draft at this time and are being used by regional committees in their planning processes. Consideration will be given by the Department for the most appropriate instrument to make these standards official at the earliest opportunity.*

- *The Department of Municipal and Provincial Affairs will continue to update and enhance the Waste Management Information System to aid in planning good waste management initiatives.*

While the above are direct responses to the Auditor General's recommendations, we would like to make the following observations on the report:

- *It should be understood that while the MMSB has been tasked with developing and implementing waste diversion programs in designated areas as directed by the Minister of Environment and Conservation, the Waste Management Strategy does not contemplate the introduction of stand-alone or separate waste diversion programs for each waste product. Instead, the Waste Management Strategy outlines a multi-pronged approach to waste diversion that builds on the programs implemented to date by MMSB and focuses on the establishment of modern and fully*

integrated waste management systems at the municipal and regional levels(e.g. integrated curbside collection, diversion and disposal infrastructure).

- *The report indicates that both the Minister of Municipal and Provincial Affairs and the Minister of Environment and Conservation have expressed concerns about the timing of full implementation of the Waste Management Strategy. This has to be taken in context. Full implementation of the Strategy by 2010 is not achievable. This does not mean that other elements of the Strategy cannot be achieved by the year 2010. Indeed, much good progress has been made - most areas of the Province have been organized on a regional basis, a schedule is in place to eliminate open burning and teepee incinerators, and the Minister of Environment and Conservation has engaged the MMSB, municipalities, industry (haulers and recyclers) on paper and cardboard recycling initiatives. Announcements are anticipated in 2005. In addition, efforts continue to be employed to reduce the number of waste sites through regional consolidation which will promote improved management of waste and facilitate other efforts aimed at diversion and recycling.*

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