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**VOLUNTARY SITING OF WASTE FACILITIES IN CANADA:
A CASE STUDY ANALYSIS**

by

Catherine McLennon

**A Thesis
Submitted to the College of Graduate Studies and Research
through the Geography Program
in Partial Fulfillment of the Requirements for
the Degree of Master of Arts at the
University of Windsor**

Windsor, Ontario, Canada

1999

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ABSTRACT

Canada is in a garbage crisis. The amount of waste needing disposal increases each year despite attempts to such as the 3Rs (reduce, reuse, recycle) to alleviate it. This means that facilities need to be sited to handle these wastes. Waste facilities are commonly sited using the “traditional process”. The failure of this process to site waste facilities effectively has resulted in the call for an alternative process. This failure is due in part to what has been referred to as NIMBYism. The alternative process developed to overcome some of the failures of the traditional process is the “volunteer process”. The evaluation of this volunteer process will be the focus of this thesis. A case study analysis of volunteer siting cases from across Canada will be undertaken to determine if this process is a viable alternative to the traditional process.

DEDICATION

This thesis is dedicated to Fluffy, the one person who has tirelessly stood by my side (even though we were in different cities) over the past two years. More than anyone else, you managed to keep me sane enough to accomplish my goal. You never gave up on me and made sure I never gave up on myself. So it is with extreme sincerity that I thank you for all your love and support and remind you once again that YOU ARE SIMPLY THE BEST.

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1. INTRODUCTION

Canada is in a garbage crisis. In 1994, Canadians produced 20.3 million tons of municipal solid waste. This figure increased to 25.1 million tons in 1995 (Gies, 1997). This places Canada among the highest per capita waste generators in the world. Waste reduction measures such as the 3Rs (reduce, reuse, recycle) have been introduced and while these have had an impact on waste generation numbers, there will always be residual waste. In terms of municipal solid waste, most of this waste goes to a landfill. There are also other kinds of wastes, such as radioactive and hazardous wastes, that need to be disposed of as well. This is inevitable in an industrial, consumer driven society such as Canada. The waste that is produced has to go somewhere, which means facilities need to be sited. Waste facilities are difficult to site because even though they are generally regarded as necessary, they are locally undesirable. The failure to site new waste facilities will mean, in some cases, having to do with barely adequate existing facilities. This may in fact pose more risk than a new facility. This makes the issue of waste facility siting one of the most contentious issues in environmental planning today.

This thesis will begin by examining the current site selection process in use in Canada. The failure of this traditional (or systematic) process to site facilities 'effectively' has resulted in the call for an alternative process. The term 'effectively' is important because facilities do get sited. In this case, effectively is socially defined and refers to siting with minimal opposition from the host community. The failure to site effectively is due in part to what has been referred to as NIMBYism. The factors leading to NIMBYism and its effect on siting will be discussed. An alternative siting process, the volunteer process, was developed to alleviate NIMBYism and lead to effective siting by placing a greater emphasis on both public participation and acceptance. The evaluation of this

volunteer siting process will be the focus of the thesis. A case study analysis of several volunteer siting cases from across Canada will be undertaken to determine if this process is a viable alternative to the traditional siting process.

2 REVIEW OF THE LITERATURE

This section will present the background information that forms the theoretical basis for the case study analysis of the volunteer siting process. First, the traditional siting process will be introduced. As an example, the Ontario Waste Management Corporation's attempt to site a hazardous waste facility in the 1980s will be outlined. This is meant to illustrate some of the problems with the traditional process. Although the traditional process has its salient points, the negative aspects of it will be focussed on as a lead-in to the volunteer siting process. One of these negative aspects is the issue of NIMBYism. While the failure to site a facility traditionally cannot be wholly contributed to NIMBY, it is a factor in some siting cases. The next section will outline some efforts to overcome NIMBY. The volunteer siting process is then introduced as a process that encompasses some of those efforts to overcome NIMBYism, thereby leading to effective siting. Whether or not this is the case will be addressed at the end of the thesis. Finally, the two processes are contrasted in a table, again with the intent of pointing out the superiority of the volunteer process.

2.1 TRADITIONAL SITING

This top-down approach to siting has often been called the Decide-Announce-Defend or DAD approach. Under this approach, the developer unilaterally makes a series of choices on the type of facility needed and where to build it, with usually no interaction with those who may be affected by the choices. These choices are then publicly announced. Often alternatives are given along with the preferred choice for a site, however, these alternatives are often not feasible. The developer then defends the choices amidst conflict and opposition (O'Hare, Bacow and Sanderson, 1984).

There are five steps in the traditional siting process (see Table 1). In the first step, the candidate area is defined. Where the waste is generated, whether there are limits on how far the waste can be transported and whether there are any political boundaries across which the waste cannot or should not be transported are some factors which must be taken into consideration when defining the candidate area. The second step involves area screening. Here, constraint mapping is used to screen out those areas that do not meet the minimum requirements for a given set of environmental criteria. For example, areas with sandy soils are ruled out because they do not provide a natural environment for leachate control from solid waste landfilling. The areas remaining are then put on a long list of candidate sites (Maclaren, 1995).

TABLE 1: The Traditional Siting Process

1. Define Candidate Areas
 2. Area Screening
 3. Site Screening
 4. Comparative Evaluation
 5. Best Site Selected
-

The third step in the process involves site screening. More detailed analysis of the data is conducted within the remaining potential site areas and a second level of screening criteria is applied to delineate potential sites. A short list of candidate sites is now created. The sites on this list then go through a comparative evaluation in the fourth step. This is done to determine the best overall site. This step involves identifying and weighing criteria to reflect trade-offs among them. The weighted scores of each potential site are then combined into a single value. The fifth step in the process involves the identification

of the preferred site. This site is the one that had the best score from the previous step (Maclaren, 1995).

Armour (1992: 31) describes the traditional siting process as “an exercise in social frustration”. The process results in a no-win situation for the proponents and the residents of the potential host community alike. The potential host communities are identified on a long list (usually 25-50 sites) and then a short list (usually 4-6 sites). It is at this short list stage that public opposition usually arises. A community feels that it had no say in its area being selected as a potential site. However, despite their opposition, the community is still chosen to host the facility. This increases its frustration because the community feels that its concerns were not taken seriously. For the proponent, they are usually limited by where they can site their facility (in terms of jurisdiction) and often face strict time constraints. Frustration on their part usually arises because of these factors as well as the vociferous public opposition (Rowe, 1992).

There are several problems associated with the traditional siting process. For instance, site selection relies heavily on scientific and technical criteria that are measured on an objective scale. It has been argued that the traditional process is best because it chooses the ‘environmentally’ best site (Opulach et al, 1993). The definition of environment with this argument almost exclusively refers to the physical environment. While protecting the physical environment is very important, the definition of environment, in the *Ontario Environmental Assessment Act* (EAA) for example, also includes “the social, economic and cultural conditions that influence the life of humans or a community” (Ministry of Environment, 1996, subsection 1(1)). Social impacts such as stress or lifestyle disruption are frequently ignored because they are subjective, and therefore, difficult to measure. Also, scientists make most of the decisions in the siting

process concerning the type of criteria used and how to measure and weight them, with relatively little public input. This fuels opposition to a process over which the potential host community feels it has no control (Portney, 1991).

The host community also shares a disproportionate share of the costs associated with the facility. If these issues are not dealt with then there will be continued opposition to the proposed facility. For the most part, the risks the host community are asked to bear are not tangible, but rather come in the form of high perceived risk to personal health and safety (Portney, 1991). This level of perceived risk is often exacerbated by media coverage of disastrous events such as Love Canal and more recently, the fire at the plastics recycling plant in Hamilton, Ontario. Any similar style facility that is being proposed will face opposition that has been fuelled by media hype, whether the risks are high or not.

That is not to say that the media always fuel opposition to a facility. This can be illustrated by the attempt of the Ontario Waste Management Corporation to site a hazardous waste facility in Ontario. This process was fraught with many problems, of which public opposition was a part.

2.1.1 Ontario Waste Management Corporation (OWMC)

The OWMC was formed in 1981 to “research, develop, establish, operate and maintain facilities for the transmission, reception, collection, examination, storage, treatment and disposal of wastes, including sewage” (Joint Board, 1991: p.3). It hoped to secure a site and construct a facility that could initially handle 150,000 tonnes of hazardous waste per year and double that over a ten-year period. Prior to the formation of the OWMC, the Ontario government attempted to site a facility in South Cayuga in the

Region of Haldimand-Norfolk. There was no site selection process to speak of. There were large tracts of vacant crown land available in South Cayuga and the Ontario government decided to place the hazardous waste facility there. The OWMC was then given the task of deciding whether the site was suitable. Tests were conducted and several problems were found. First, the selected site was located in a flood plain. It also contained a gas well. In addition, there was the strong possibility of leakage of hazardous material into the major groundwater aquifer below the proposed site. A hydrogeologic study concluded that the site was not suitable for such a facility. As a result, in September 1981, the OWMC recommended that the proposal be withdrawn. This occurred almost one year after the official announcement of the preferred site in South Cayuga (Sharp, 1999).

The OWMC then focused its attention on finding another site for the hazardous waste treatment plant. It initiated the facilities development process in 1982 to find a suitable site for the facility. Three goals guided this site selection process. In order of priority, they were:

1. To minimise risk to human health.
2. To minimise environmental impact.
3. To minimise financial costs to OWMC and to the people of Ontario (OWMC, 1986).

The facilities development process involved five steps.

Step 1: Information gathering – This phase was completed in September 1982. It outlined the hazardous waste problem in the province, the possible treatment technologies and hydrogeologic conditions across the province. The engineering, planning and environmental issues that would be considered in future phases were also outlined (OWMC, 1985).

Step 2: Choose candidate region & generic technologies – This phase was completed in January 1983. The search focussed on the Golden Horseshoe Region because seventy percent of the waste was generated in this area so shipping costs would be minimised. Also, the area was next to the United States border so this created the possibility of accepting their waste if the facility was not operating at capacity (OWMC, 1985).

Step 3: Choose candidate areas and sites – This phase had two parts. Part A, completed in May 1983, identified twenty candidate areas within the Golden Horseshoe Region. These areas were selected on the basis of airshed, transportation, agricultural, environmental, and land use considerations.

Part B, completed in March 1984, identified 152 potential sites within the twenty candidate areas. After the application of forty evaluation factors these 152 sites were reduced to eight and finally to six candidate sites (OWMC, 1985).

Step 4: Evaluate candidate sites, select preferred site and assess suitability of preferred site – In part A, which was completed in September 1985, the six remaining candidate sites were put through a detailed comparative evaluation. The sites were evaluated using criteria such as hydrogeology, transportation, agriculture, biology and surface water. In part B, the suitability of the preferred site in West Lincoln Township in the Region of Niagara was assessed. Also, the issues of transportation access routes and the potential impact on the agricultural and rural communities were addressed. At this point the OWMC had to produce an environmental assessment (EA) of the site for review by the Ministry of the Environment (OWMC, 1986).

Part 5: Public hearings under Environmental Assessment Act – In 1990, the EA was sent to the Joint Board by the Minister of the Environment for a decision¹. In 1994, the Joint Board voted not to accept the environmental assessment and, therefore, denied approval to construct the facility. In coming to its decision, the Joint Board stated that the OWMC had failed to assess reasonable alternatives to the facility as required by the EAA. More specifically, it had not established that landfilling the waste was better than placing them in the existing salt mines. The OWMC had evaluated the use of salt mines early in the siting process but had not re-evaluated it before deciding to adopt its chlorides management plan. This chlorides management plan called for: the recovery of chlorides from the waste streams; reuse of high-grade salts and mixed grade salts, if possible; storage; and deep well disposal. Landfilling the waste was thought to be feasible mainly because of the deep clay soils in the area. The Joint Board later discovered that despite the deep clay soils, burying the waste residue would contaminate groundwater in the area. The chlorides management plan proposed by the OWMC would have been very expensive compared to using existing salt mines, with estimates reaching the tens of millions of dollars over the life of the facility (Hardy and Rowe, 1995).

The Joint Board did not deny that the facility was needed. In fact, part of the hearing dealt with the issue of need. The Joint Board found that the “OWMC’s facility could provide assured hazardous waste management capacity, protect Ontarians from the vagaries of the hazardous waste management marketplace, provide for the management of

¹ The Joint Board is a quasi-judicial body responsible for deciding whether an environmental assessment should be approved. A Joint Board is convened when Acts other than the *Environmental Assessment Act* are applicable, for example the *Planning Act* or *Ontario Water Resources Act*. The Joint Board is made up of representatives responsible for administering all the Acts applicable to the environmental assessment.

all types of hazardous waste generated in the Province, and provide for the management of contingency and unforeseen waste” (Joint Board, 1994, p.ii).

By the time of Joint Board’s decision in 1994, the OWMC had already spent more than 100 million dollars and no facility had been sited (Rabe, 1994). Meanwhile, the hazardous waste in the province is being disposed of in other ways. Depending on the source of the waste, it is either treated on-site, sent to a facility in the Sarnia area, or is exported to the hazardous waste plant in Swan Hills, Alberta or to the United States. Some of the hazardous waste also ends up in landfills (Sharp, 1999).

2.2 NIMBY

The term NIMBY has become a catch phrase for any opposition against a proposed facility. It is therefore seen as a function of the attitudes of opposing residents. The term NIMBY has been joined by a multitude of others. These include: LULU (Locally Unwanted Land Uses); NIMTOF (Not In My Term of Office); NIABY (Not In Anybody’s Back Yard); and BANANA (Build Absolutely Nothing Anywhere Near Anyone). With the exception of LULU, the other acronyms are not as widely used as NIMBY. The term has negative connotations and is interpreted as pure selfishness on the part of the local community. Lending to the negative connotation is the fact that NIMBY is often used in conjunction with the word ‘syndrome’ (i.e. ‘NIMBY syndrome’). This makes it appear to be some kind of a disease (Edelstein, 1988). The goal is then to ‘overcome’ the ‘syndrome’. Munton (1996) argues that this implies that NIMBY is a hostile enemy that has to be defeated. In reality, much opposition to a facility is to the construction of waste facilities in general and not just to the location of them in a particular community.

What then is the definition of NIMBY? Mazmanian and Morrell (1994: 234) defines NIMBY as “a response to an inherent imbalance in the distribution of any project’s benefits and costs”. More simply, NIMBY is a response to a proposed LULU. The costs associated with the facility are borne by those individuals in the area of the facility while the benefits extend to a wider area. Mazmanian and Morrell (1994) further argue that the goal in siting should be to attain a procedure whereby good facilities are sited in good locations, good facilities are not sited in bad locations and bad facilities are not sited anywhere. The problem then becomes what constitutes a good and a bad facility. Despite this problem, however, siting good facilities in good locations requires a process that encourages community involvement, power sharing and risk sharing.

Community acceptance of a facility can be illustrated hierarchically. Table 2 presents one such illustration. Some facilities are easily tolerated while other types are absolutely shunned. As indicated in table 2, garbage landfill, and as an extension, other waste facilities, are absolutely unwelcome in a community. It is important to note that ‘absolutely unwelcome’ does not always mean the facility is always a bad one (i.e. not needed). Waste facilities need to be sited and maintaining the status quo (which may mean outdated facilities) could have serious repercussions for the host community.

TABLE 2: Hierarchy of acceptance

Most welcome	School Nursing home Medical clinic
Mixed reviews	Homeless shelter Alcoholic rehabilitation center Chronic mentally ill facility
Absolutely unwelcome	Garbage landfills Prison Shopping mall

Source: Dear, 1992, p.291.

Edelstein (1988) argues that NIMBY is affected by five psychosocial factors. The first of these is stigma. For example, the term 'hazardous' attached to a facility always leads to stigmatization because of the negative images that the term conjures up. The facility is thought to threaten the community directly in terms of physical hazards and indirectly by courtesy stigma. With courtesy stigma, a community feels stigmatized because it is associated with an undesirable facility.

The second psychosocial factor described by Edelstein is health threat and anticipatory fear. NIMBY is a proactive rather than a reactive response to a potential facility. It is proactive because residents in the potential host community are reacting to anticipatory fears instead of realised fears. In other words, they are anticipating a decline in their physical health and as such, are opposing the facility on those grounds. Anticipatory fear is often exacerbated by media exposure of problems occurring with other similar facilities.

The third factor is invasion of home and territoriality. The idea of home is that of a psychological refuge. With the home comes a large economic investment, which results

in territoriality. Any facility that jeopardises this economic investment, for example, in terms of decreased property values, will be opposed.

The fourth factor affecting NIMBY is loss of control and disablement. The traditional process is exclusionary in terms of community involvement. The community is unable to prevent unwanted change and this threatens its sense of well being. By mobilising to fight the siting attempt, a community can regain some of the control it lost.

The final psychosocial factor is stress and lifestyle infringements. This encompasses the previous four factors. The proposed facility can disrupt daily life because of among other things, increased traffic to the community, noise or odour from the facility. These physical stressors and the stigma attached to the facility are lifestyle infringements.

Dear (1992) argues that locational conflict follows a three-stage cycle. Stage one is 'youth'. Once news of the proposal breaks, conflict arises. At this point, the opposition is limited to a small group of people who reside near the site of the proposed facility. The second stage is 'maturity'. Supporters on both sides of the issue are garnered. Opposition focuses on concerns such as property value declines, increased traffic volumes and health concerns. In the third stage (old age), the debate is often long and inconclusive. Arbitration is incorporated in this stage with both sides making concessions. A stalemate may occur and victory usually goes to the side that is most persistent.

NIMBY is not limited to Canada or even North America. In the Netherlands, for example, the government has introduced NIMBY legislation. The Dutch government has blamed NIMBY for the failure to site much needed waste facilities. The legislation is meant to limit the amount of influence local communities have on the siting, construction and design of facilities. The argument is that restricting community involvement will

speed up the process (Wolsink, 1994). Wolsink, however, argues that reaching decisions without regard to the local community will likely result in a failure to site the desired facility without enormous opposition. Also, costs associated with the facility are not borne by all that enjoy its benefits. These two factors form the basis of NIMBY opposition and contribute greatly to the failure of the traditional siting process.

Blaming only NIMBY for the ineffectiveness of siting waste facilities masks the complexity of the issues. Opposition on the part of the local community is not always the result of pure self-interest. While there is some reaction to the potential impacts and risks associated with the facility, there is also concern about the need for the facility, the decision making process and the equity of the outcome (Armour, 1992).

2.3 TOWARDS EFFECTIVE SITING

Siting waste facilities have proven to be a contentious issue. It is not enough just to site facilities in a 'physically suitable' location. The needs of the host community also need to be addressed. Only then will siting be effective. Numerous examples on what constitutes effective siting can be found in the literature. Kasperson (1986: 139), for example, suggests a set of principles that should guide successful siting. These are:

1. The general well-being of society requires that some individuals will have to bear risks on behalf of others;
2. Wherever reasonable, such risks should be avoided rather than mitigated or ameliorated through compensation;
3. Reasonably unavoidable risks should be shared, not concentrated, in the population of beneficiaries;

4. **The imposition of risk should be made as voluntary as reasonably achievable within the constraints of deploying sites in a timely manner, and the burden of proof for the site suitability should be on the developer;**
5. **Reasonably unavoidable risks should be accompanied by compensating benefits.**

Recognising the difficulties in siting noxious facilities, a set of guidelines for a more effective siting process was developed during a Facility Siting Workshop, which was held in 1990. The Credo is similar to Kasperson' principles and involves seven guidelines.

1. **Institute a broad-based participatory process**
 - **Representatives of all affected parties should be involved in the siting process.**
2. **Seek consensus**
 - **Attempts should be made to address the values, concerns, and the potential needs and wants of the interested parties.**
 - **Reaching a consensus on all issues is unlikely but a commitment to seek it will help dispel charges of unfairness.**
3. **Work to develop trust**
 - **Lack of trust is a barrier to reaching consensus.**
 - **Demonstrations of responsible facility management elsewhere are an effective way of building trust.**
4. **Seek acceptable sites through a volunteer process**

- In seeking volunteers, it is important to point out that the commitment to host the facility is reversible.
 - The potential benefit packages that are provided for hosting the facility should also be outlined.
5. Consider a competitive siting process
 - This is important if several volunteer sites are found.
 6. Set realistic timetables
 - This will allow the affected parties enough time to consider the full range of options and weigh the technical evidence.
 7. Keep multiple options open at all times
 - There should be more than one potential site at every stage of the siting process.

The workshop illustrated that a siting process will be most successful when the community feels the facility design is appropriate and their needs are satisfied. Public participation is an important process variable particularly if the view that the facility meets the community needs is encouraged (Kunreuther, Fitzgerald and Aarts, 1993).

The task then becomes to devise a siting procedure that incorporates Kasperson's principles and the Credo while remaining sensitive to the complex political, economic, technical and social contexts of the surrounding community (Mazmanian and Morrell, 1994).

2.4 VOLUNTEER SITING

A siting process where communities volunteer to host the facility is an approach that meets most of the criteria laid out by Kaspersen or the Credo. This volunteer process is an alternative to the traditional siting process. It was developed in Alberta in the early 1980s by the task force responsible for siting the province's hazardous waste treatment and disposal facility. The process focuses on finding a willing host community in which there is at least one technically feasible site. An agreement is then made with the community that limits the possible risks to an acceptable level. This often involves the monitoring and control of risks as well as compensation for any unmanageable risks. An important feature of this process, and one that distinguishes it from the traditional siting process, is its emphasis on public participation throughout the entire siting process. This helps to build trust between the proponents and the potential host communities (Pushchak and Rocha, 1998).

There are six steps in the volunteer siting process (see Table 3). First, the candidate areas are defined. This is the same as the first step in the traditional siting process. Important characteristics here include where the waste is generated, whether there are limits on how far the waste can be transported and whether there are any physical or political boundaries across which the waste cannot be transported. The process differs from the traditional siting process from the second step onwards. In the second step, regional information meetings are held. These meetings are to inform the local communities about the characteristics of the proposed facility and the nature of the siting process. Third, community information meetings are held. The communities that expressed an interest in hosting the facility receive more detailed information about the project. In the fourth step, community site appraisal takes place. This involves the search

for potentially suitable sites within the community. If a suitable site is found then community approval is needed to go any further. This is usually accomplished by holding a referendum. If no suitable site is found then the community must drop out of the siting process. In the fifth step, the remaining communities become potential hosts. In the final and sixth step, the best site is selected from among the remaining communities (Maclaren, 1995).

TABLE 3: The Volunteer Siting Process

1. Define Candidate Area
 2. Regional Information Meetings
 3. Community Information Meetings
 4. Community Site Appraisal
 5. Community Offers Best Site
 6. Best Site Selected
-

Why would a community volunteer to host a facility especially when NIMBY attitudes are thought to be so prevalent? It occurs mainly because a community feels the benefits of hosting the facility far outweigh the costs. Often volunteer communities are offered incentives to host the site. These are usually economic incentives such as monetary compensation for possible losses in property values or the lure of employment for the construction and operation of the facility. These economic benefits may be especially attractive to communities with a declining economic base (Opulach et al, 1993).

The psychosocial factors affecting NIMBY as described by Edelstein (1988) are somewhat circumvented by this approach. Part of the reasons behind NIMBY attitudes is the feeling of lack of control on the part of the host community. With this process, the community now has control over its fate because its citizens vote on hosting the facility

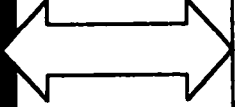
instead of it being imposed on them. The volunteer process does not reduce the health or environmental effects associated with the facility but the level of perceived risk is lower because the risks are assumed voluntarily (Munton, 1996). Also, compensation and mitigation is a large part of siting and these may help to alleviate the stress and economic disinvestment that may come with the facility (Castle and Munton, 1996).

The volunteer process is not without its problems. There is no guarantee that any community will volunteer to host the facility. If this occurs then the traditional siting process comes into play. Also, the dominant principle behind this process is finding a site that is socially acceptable. This may, however, come at the expense of the natural environment. In addition, some members of the host community will experience more negative impacts than other members of the community because the facility is literally in their backyard. Although, this group may be opposed to hosting the facility, the rest of the community may be in favour of it because the perceived positive impacts on the community as a whole outweighs the costs that the smaller minority of the community may bear. Finally, there is an ethical issue involved with the process. It is mainly those communities with the greatest need for the economic benefits of the facilities that are likely to volunteer to host the facility. Ultimately, the poorest communities will be asked to bear the burden for wastes that are created elsewhere (Opulach et al, 1993).

2.5 OVERVIEW OF THE TRADITIONAL AND VOLUNTEER PROCESSES

Table 4 gives a concise comparison of the two processes. The volunteer siting process is decidedly different from the traditional siting process. It is directed toward public consensus instead of public acceptance. The volunteer siting process represents a switch from a top-down, technocratic model to a more co-operative, consensual model. Technical criteria are not dismissed but rather the authority of technical experts has been downplayed to increase the importance of public input. The public now has a say in what the alternatives to siting will be, what criteria to consider, how much weight to give to these criteria and whether the benefits make the costs bearable. Planners have become facilitators and collaborators in a process where the decision making power is shared among all interested parties.

TABLE 4: A Comparison of the Traditional and the Volunteer Siting Processes

Traditional Siting Process		Volunteer Siting Process
<ul style="list-style-type: none">• Centralized decision making• Planning “for” the public• Formalized process with rigidly defined rules• Formal interpersonal relationships• Technical experts centrally locate• Reliance on positivist mode of inquiry • Adversarial• Win-lose situation with emphasis on minimizing cost• Planner as plan-maker and bureaucratic manager		<ul style="list-style-type: none">• Decentralized decision making• Planning “with” the public• Flexible, adaptive process with rules jointly defined• Informal interpersonal relationships• Citizens centrally locate• Incorporation of phenomenological mode of inquiry• Consensual• Win-win situations with emphasis on maximizing joint gains• Planner as facilitator and collaborator

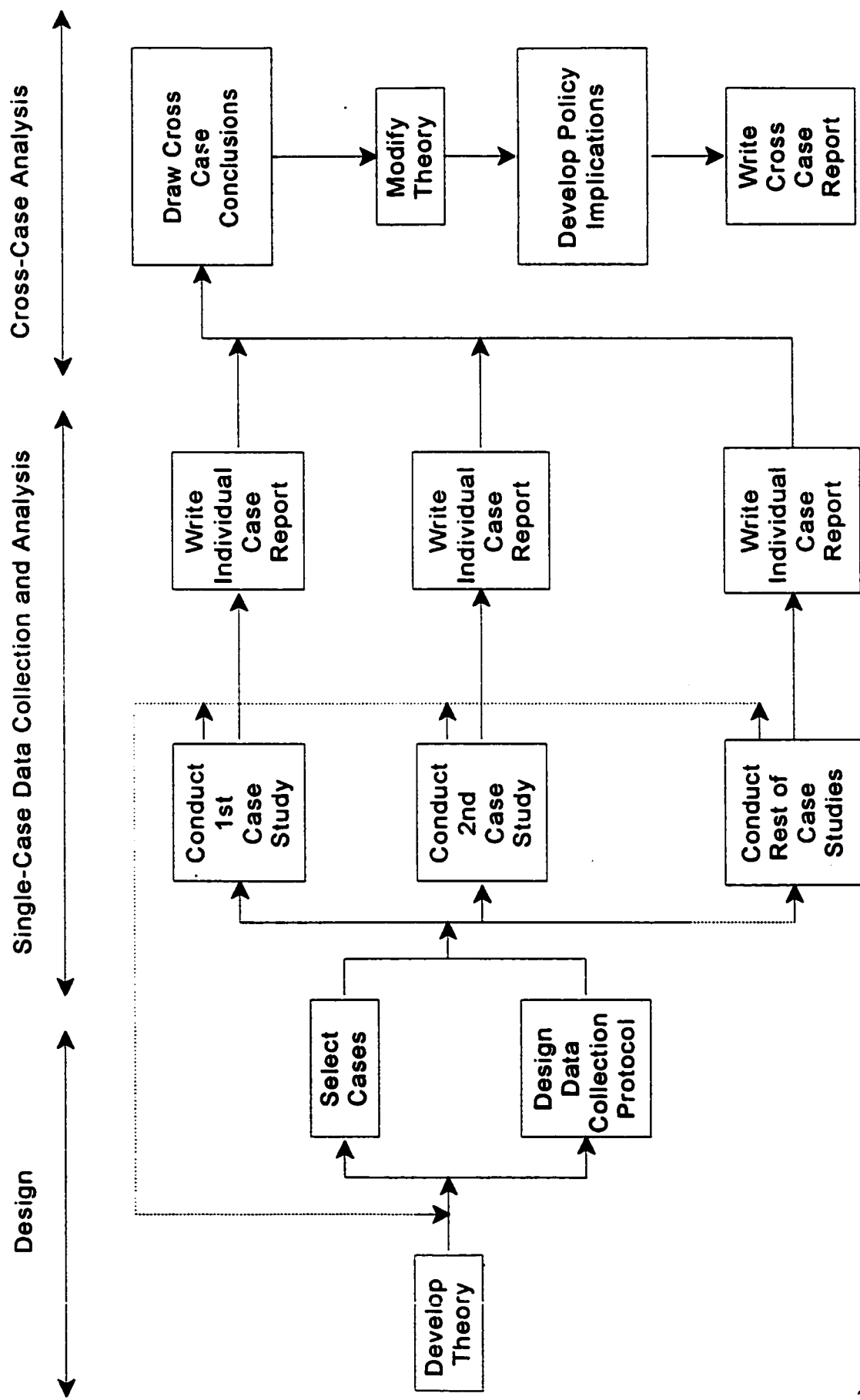
Source: Armour (1992)

The volunteer method appears to offer a way to minimise NIMBY attitudes. The process, however, is not over once the facility has been sited. How the facility is managed and operated will impact attempts to site future facilities. Also, any promises made by the proponents when trying to convince the community to accept a facility must be kept. The Credo correctly points out that demonstrations of responsible management elsewhere are an effective way of gaining trust. Trust between the community and the proponents are essential when siting a facility (Kunreuther, Fitzgerald and Aarts, 1993).

3 METHODOLOGY

The purpose of the thesis is to evaluate a variety of volunteer siting cases from across Canada to determine if this siting process is a viable alternative to the traditional siting process. There have only been five incidences of volunteer siting in Canada. The small number of cases and the qualitative nature of the data make a case study approach applicable. Yin (1984: 23) defines a case study as an “empirical inquiry that: investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomena and context are not clearly evident; and in which multiple sources of evidence are used”. This thesis will examine each incidence of volunteer siting in Canada and consequently the research will conform to a multiple case study approach. The data will be organised by specific cases that will allow an in-depth analysis of them. The cases will then be examined for similar and/or contrasting results.

Figure 1 illustrates how the thesis research will be organised. There are three broad sections. In the first section (design), a theoretical framework for the study is developed. The cases are then selected and a data collection procedure is designed. In the second section of the model (single-case data collection and analysis), the data is collected and summarised into individual case reports. In the final section (cross-case analysis), the individual case studies are compared and contrasted to draw cross-case conclusions. These conclusions are then used to modify the theory and develop policy implications.



Source: Yin, 1984

FIGURE 1: CASE STUDY MODEL

4 DESIGN

Studies on waste facility siting often assess what is wrong with a particular siting method and what needs to be done to improve it. From these studies, two propositions can be formed. They are:

1. Siting is a dynamic process that requires great flexibility within certain parameters.
2. Voluntary siting is an example of a flexible approach that leads to effective siting.

A set of principles was developed, mainly from Kasperson (1986) and the Credo, to test these propositions. These "principles of effective siting" will be applied to each case in the cross-case analysis. The degree to which each case conforms to these principles will determine the effectiveness of the siting process. These principles of effective siting are as follows:

1. Extensive public participation throughout the entire siting process.

The lack of extensive public participation has often been cited as a reason for the ineffectiveness of the traditional process. NIMBY attitudes arise out of this lack of involvement in the siting process. The public should be given ample time and opportunity to actively participate in a non-confrontational decision making process. Some public involvement should also occur after the facility has been sited. This ensures continual involvement in the monitoring and maintenance of the facility.

2. The impacts of the facility should be widely shared.

One of the principal reasons behind NIMBY is the inequity of the traditional siting process. The facility is imposed upon a minority, which is asked

to bear the burden for the majority. An effective siting process should spread the waste management burden widely, thereby minimising any perceived inequities in associated costs and risks. This can be achieved by restricting the flow of waste between communities, the creation of regional storage facilities to spread out the waste and, above all, there should be a commitment to waste reduction and recycling.

3. An independent siting entity should be created.

The creation of an independent siting entity will allow the siting to take place with minimal hidden agendas. The entity created will be in charge of the siting process and should be made up of representatives of all relevant stakeholders. It should be able to communicate effectively with all affected parties and should be adequately staffed with knowledgeable people. This will ensure a more credible and equitable siting process.

4. Compensation should be provided to those most affected by the facility.

It is inevitable that those nearest to the facility will assume most of the costs associated with hosting it. To this end, siting proponents should offer compensation to offset these costs.

The cases on which the principles will be tested are the hazardous waste treatment plants in Cache Creek, British Columbia; Swan Hills, Alberta; Montcalm, Manitoba; and the low level radioactive waste treatment plant in Deep River, Ontario; as well as the Adams Mine landfill near Kirkland Lake, Ontario. These were selected because they were the only cases within Canada in which the volunteer siting process was used.

The data for these case studies are mostly from secondary sources, with the exception of Adams Mine, where some primary sources of data are used. Secondary sources are used mainly because of the timing of many of these cases. Most of them began and ended in the 1980s and thus difficulty arises when trying to acquire primary data.

5 CASE STUDIES

In this section, the five individual case studies will be discussed. This will be done in chronological order from the earliest case to the latest one.

5.1 SWAN HILLS

The Swan Hills, Alberta experience has been widely used in Canada as an example of a positive siting experience. This was accomplished using the volunteer siting method. In 1984, the announcement was made that a provincial hazardous waste treatment and disposal plant was to be built 15 kilometres north-east of Swan Hills within a large tract of provincially owned land. The decision to build near Swan Hills marked the first time that social acceptability had been used as a primary criterion for determining site location for a hazardous waste facility. The province proposed the facility as a response to the growing need for an integrated hazardous waste management facility in Alberta. It was meant to handle the more than 100,000 tonnes of industrial and hazardous waste that was produced in the province each year (McQuaid-Cook and Simpson, 1986).

The petrochemical firms and oil refineries near Edmonton created much of this hazardous waste. The rapid expansion of these industries and the resulting toxic waste brought the issue of proper disposal to the forefront in the 1970s. An attempt by a private firm to site an incineration plant for hazardous waste in Fort Saskatchewan, 30 kilometres north-west of Edmonton, was met with much opposition. A community organisation, the Responsible Disposal Action Committee, mobilised to fight the proposal. As a result of this objection, the provincial government withdrew its support of the proposal and subsequently, the facility was not sited. Another attempt to site a facility in Two Hills, Alberta also met with great objection (Castle, 1992).

In 1979, a moratorium was put on the establishment of off-site waste disposal facilities pending further study of the problem. Two studies were then commissioned by the provincial environmental ministry to make recommendations on how to proceed with siting a hazardous waste facility. For the first study, a hazardous waste management committee (HWMC), made up of government officials and members of the general public, was formed to make recommendations on how to manage the province's hazardous waste in a safe and acceptable manner. The HWMC recommended that the facility should be jointly owned and operated by the government and private industry. Also, they recommended that Alberta revise their laws and policies to facilitate effective waste management and to create a comprehensive public involvement program. A report with these and other recommendations was submitted to the environmental ministry for review. The job of review fell to the Environmental Council of Alberta (ECA) (MacKenzie, 1984).

The ECA, a body whose purpose was to conduct independent assessments of environmental needs and programs in the province, held public hearings during 1980 to gauge the public's view on the report delivered by the HWMC. It also studied the amounts and types of waste produced in the province as well as the disposal or treatment options available. One of the public's main concerns was the issue of transportation. To this end, the ECA recommended that any hazardous waste facility should be sited within 100 kilometres of the Calgary-Edmonton corridor for environmental and economic reasons. Since this was the area where most of the waste was generated, transportation distances and costs could be minimised. So too could the risk of accidents during transport. The ECA also recommended that a Crown Corporation be established to guide

the siting process but that the plant should be built and operated by a private enterprise (McQuaid-Cook and Simpson, 1986).

The environmental ministry, following the recommendations handed down by the ECA, established two bodies. There was a Hazardous Waste Team, made up of members of the public, and a Hazardous Waste Task Force of members from within the environmental ministry. The Task Force took the lead in the site selection process by developing strategy and directing the public participation process. (McQuaid-Cook and Simpson, 1986).

The search for a site began in 1981 and the Task Force had until March 1982 to compile a short list of candidate sites. The Task Force felt that it would be unlikely that a facility could be sited within any urban areas so they disregarded the ECA's recommendation to site the facility within 100 kilometres of the Calgary-Edmonton corridor. Since the focus was now on rural areas and small communities, the Task Force enlisted the services of Alberta's Rural Education and Development Association (REDA) who had experience in dealing with rural communities. The Task Force also decided that communities would be allowed to volunteer to host the hazardous waste facility. A community could only be involved in the process if its municipal council or a prominent community group such as a chamber of commerce initiated it. Also, a plebiscite was necessary before the final siting decision could be made (Castle, 1992).

Throughout 1981, every municipal and local government administration in Alberta received a briefing on the siting process. This resulted in over 120 community meetings. The administrations were given the option of going no further in the siting process or allowing their community to undergo detailed regional analysis. Since opting out of the process at any time was possible, local councils took advantage of the free

regional assessments mainly because the information generated could be used for purposes other than siting a hazardous waste facility. Fifty-two of a possible seventy communities chose to go further in the process (Castle, 1992).

The results of the detailed regional analyses were presented at public meetings. In this second phase, the basic requirements for an integrated facility for waste treatment and control were outlined. If there was any public opposition, the community was dropped from the process. Environmental constraints limited other areas from going any further in the process. Twelve communities requested further consideration as potential host communities. Those communities were then asked to identify three possible sites within the community to undergo more detailed assessment. Many of the communities remaining in the process were there for economic reasons although there were no explicit offers of compensation other than the promise of new jobs and possibly tax breaks (Castle and Munton, 1996).

Further screening of the potential sites eliminated seven of the remaining twelve communities. Public support was mandatory and referendums were held in each community to gauge this. The first community to go to a vote was Beaver County. This was also the Task Force's first choice for host community. REDA was responsible for conducting workshops and drumming up support for the facility in the community. This was unsuccessful and early in 1982 the Task Force organised a series of town hall style meetings to answer the questions of the community. Opposition to the facility was apparent at the meeting. A local opposition group, the Bruce-Viking Agricultural Protection Association, asked a variety of pointed questions and even brought in Lois Gibbs, the person who had become famous for publicising the Love Canal disaster. The opposition group also picketed the meeting hall and organised a boycott of those

merchants who supported the proposal. As a result of this very organised resistance, eighty percent of those who voted rejected the facility (Castle, 1992).

This resounding defeat led to the reorganisation of the public consultation process. Instead of the large town-hall style meetings, seminars were held in the remaining communities. At the Cabinet level, the environmental minister gave the Task Force more time and resources to finish the process and find an acceptable site. These new steps lessened the potential for conflict (Castle, 1992).

The seminars employed by the Task Force in the remaining candidate communities were used to clarify a variety of issues including: the background of the proposal; the reason for the facility; the technology involved; and the characteristics of the proposed facility. After further lobbying in the remaining communities, the Task Force organised plebiscites. The Village of Ryley, with ninety-five percent voter turnout, voted seventy-seven percent in favour of hosting the facility. Swan Hills experienced eighty percent voter turnout, the largest ever voter turnout in the community, and voted seventy-nine percent in favour of hosting the facility. A third community, Veteran, also voted overwhelmingly (seventy percent in favour) to host the facility (Castle, 1992).

The decision on which community should host the facility fell to the Alberta Cabinet. The Task Force had indicated that their order of preference was Ryley, Swan Hills and then Veteran but the Cabinet chose Swan Hills as the preferred site. In reaching its decision, the provincial cabinet pointed out the strong presence of public support and the proven environmental suitability of the site. The site was in a remote area with no important wildlife or bird habitat. There was no surface water adjacent to the facility nor was there a flood plain potential. Most importantly, however, was its hydrogeology. The natural containment barrier would be effective against contamination from any potential

leaks or spills from the plant or the adjacent landfill. In September 1987, the Alberta Hazardous Waste Management Facility began operating (Castle, 1992).

While Swan Hills has been touted as a positive siting experience, it still has had its share of problems. One of the overriding reasons the community accepted the facility was because of the commitment to restrict the importing of waste from outside of Alberta. In 1995, this commitment was breached when the facility began accepting waste from outside of the province in order to generate sufficient revenues to meet the costs of the facility. Further problems arose when it was discovered that the possible contamination of groundwater because of waste leaks from the site was being kept from the public (Pushchak and Rocha, 1998). Future siting agreements in the province or elsewhere may have been jeopardised because of the loss of trust created when the siting commitment was broken.

5.2 CACHE CREEK

In the 1980's British Columbia did not have a comprehensive hazardous waste management policy. This is especially important because the province ranked third only behind Ontario and Quebec in terms of the volumes of hazardous waste produced. They had no advanced treatment facilities and depended on exports to the United States, on-site disposal or illegal dumping. Most of the waste that was illegally dumped went into municipal sewers or landfills (Rabe, 1994).

In 1979, the province formed the Hazardous Waste Advisory Committee to tackle the growing problem of hazardous waste. A report tabled in 1981 called for the province to create a public hazardous waste corporation to handle the issue. However, the 1982 provincial Waste Management Act stated that the management of hazardous waste should remain a private affair. The province followed this direction and solicited proposals from private firms in the United States and Canada (Rabe, 1994).

In September 1983, the province endorsed an application by Genstar Conservation Systems and IT Corporation and assumed that they would be able to site a comprehensive hazardous waste facility in the province. In July 1984, however, the consortium withdrew their proposal. In doing so, they claimed that capital costs were excessively high and the amount of waste that would flow to the facility was not reliable. The latter of the two reasons was more prevalent. British Columbia had a history of lax regulatory standards in comparison to other provinces in Canada. The consortium was concerned that environmental regulations would not be sufficiently enforced, therefore, hazardous waste producers would have no reason to pay to send their wastes to the treatment plants when they could dump them in a landfill or sewer at no cost. In fact, the consortium estimated that there would only be 15,500 tonnes of waste per year available to them even though

the province generates almost one million tonnes of hazardous waste per year. Also, the province had a “zero net flow” policy with regards to the import and export of hazardous waste. More than likely, this meant the consortium would not be able to import waste from outside the province to operate the facility at capacity (Rabe, 1994).

Following the consortium’s withdrawal, the province altered its siting strategy by expanding the provincial role. In 1987, the province again solicited proposals from private firms to construct and operate a comprehensive hazardous waste management facility. By January 1988, the province had settled on the Envirochem Group, a consortium of four waste management firms (two from British Columbia and one each from Quebec and Arkansas). The province then adopted a voluntary approach to finding a site. It sent letters to communities across the province requesting a host community. By May 1988, eight communities expressed an interest in hosting the facility. The province, however, decided to focus its search on three sites in the Ashcroft-Cache Creek area (Rabe, 1994).

This area has a combined population of 2500 and is located 300 kilometres northeast of Vancouver. The community is situated near the Trans-Canada Highway and as a result has benefited from the flow of traffic from Vancouver to north and eastern British Columbia and also from traffic going to and from Alberta. In 1986, however, a new highway opened farther east and this reduced the flow of traffic going through the community. Also, the Greyhound Bus Terminal and its sixty jobs moved away from the community and closer to the new highway. This led to a significant economic slump in the area. Hosting the hazardous waste facility was therefore seen as a way to offset some of the economic hardships brought on by the new highway (Castle and Munton, 1996).

A referendum was held in May 1988 and both the communities of Ashcroft and Cache Creek voted sixty percent in favour of continuing with the siting process. After that, however, opposition towards the proposal mounted, with the Hazardous Waste Management Coalition (HWMC) leading the way. The HWMC was formed in 1980 to protest an earlier siting attempt by a private firm in the province but they resurfaced with this proposal. Opposition, led by the HWMC, was mounted by boycotting local merchants who supported the facility, door to door canvassing and a petition drive. Also joining in the fight were individuals from neighbouring communities, such as farmers and tourist facility managers, who were not allowed to vote in the initial referendum. It was also shown that there were many residents that did not get a chance to vote because they were not listed on the voting list that was used for the referendum. After the first public hearing was held in November 1988, the strong show of local opposition led the Ashcroft-Cache Creek area to remove itself from contention to host the facility (Rabe, 1994).

Castle and Munton (1996: 76) argue that the reason for the failure to site the facility was “due to the collapse in credibility on the part of the proponents, unnecessary secrecy, and a fast tracked process [which] led to the evaporation of trust and support that had initially developed”. A series of newspaper articles in early 1988 compounded the fears of the residents of the communities. For example, some of these articles stated that the company who manufactured the incinerator to be used at the facility had a poor record and that the incidence of Lou Gehrig’s disease near a facility operated by the Arkansas company was above normal. The elected officials also lost credibility with the residents of the community. In a televised forum in November 1988, the environment minister displayed a lack of knowledge of the issue. The municipal councils and a citizen’s

committee in the area supported the facility but were viewed as being too pro-development and as a result lost support from other members of the community (Castle and Munton, 1996).

The shortness of the process also led to its failure. Only eleven months went by from the endorsement of the Envirochem Group in January 1988 to the withdrawal of the proposal in November 1988. In fact, only six months was made available for the Ashcroft-Cache Creek communities to garner support for the facility. Even more glaring was that the referendum in the community was held only three weeks before the Cabinet imposed deadline to find a host community. According to Rabe (1994: 41), "both the province and Envirochem were so eager to seize upon communities where elected leaders expressed some possible interest in siting that they moved at an extremely rapid pace and never established the type of prolonged public dialogue so crucial in other siting agreements".

After two unsuccessful attempts to site a comprehensive hazardous waste facility, the province has re-focussed their efforts. Unfortunately, however, even attempts to site small waste storage and recycling facilities have met with opposition. At present, the province is still relying on the disposal methods employed in the 1980's (Lawrence, 1996).

5.3 MONTCALM

Manitoba, like many other Canadian provinces, took a lax approach to managing hazardous waste before the 1980s. Much of the hazardous waste was disposed of in sewers, landfills or stored on-site. To a lesser degree, some of this waste was also exported. Some of the waste was also dumped directly into major waterways such as the Red and Assiniboine Rivers. These rivers pass through Winnipeg, the capital and largest city, which produces more than half of the province's hazardous waste (Rabe, 1994).

In the 1980s, the province began to pay more attention to proper hazardous waste management. Attempts to attract a private firm to establish a treatment or disposal facility in the province failed. Also, the chance that Manitoba would be able to export some of their waste to the Alberta facility fizzled when it was discovered that the Alberta facility would not be accepting out-of-province waste. Thus, to deal with their own waste, the Manitoba Hazardous Waste Management Corporation (MHWMC) was formed in August 1987. Their mandate was to "establish, operate and maintain a hazardous waste management system in the province" (Castle, 1993: 963). To this point, the province only had commercial storage and transfer facilities but not any treatment facilities. The process used to locate the hazardous waste plant in the province was modelled after the Swan Hills procedure. That is, the emphasis was on finding a physically acceptable site within a volunteer community. By building support within a host community before choosing an acceptable site, the MHWMC addressed many of the concerns that had led to unsuccessful siting in the past.

Site investigations were only made in communities that responded to the invitations for a host community. If an acceptable level of support was not maintained in the community, then it was dropped from consideration. The MHWMC created a list of

exclusionary and inclusionary criteria to screen potential host communities. Informational open houses were held in twenty-four communities starting in January 1989. These open houses were kept small to avoid the confrontational tendencies evident in large 'town hall' style meetings. This way the public was allowed more of a chance to be active participants in the process. At this initial stage of investigations, communities that were geologically unsuitable or were experiencing strong objections to the proposal were dropped from future consideration. In 1990, the MHWMC focused their attention on five communities in the province. These included the communities of Hamiota, Montcalm, Pinawa, Rosburn and Winnipeg (Castle, 1993).

Questionnaires were used to gauge support in the communities and they ranged from 62 percent support in Rosburn to over ninety percent in Winnipeg. A Community Advisory Committee was formed in each community with the purpose of studying the proposal in detail and hazardous waste issues in general. The committees were also active in the physical studies being conducted in its communities and made recommendations to their fellow citizens. They were also asked to suggest any conditions that may be tied to the community's acceptance of the facility (Castle, 1993).

Inadequate support in referendums in Hamiota and Rosburn resulted in those communities being dropped from the process. The MHWMC also dropped Pinawa from further consideration because of the inadequacy of the site chosen by the community. The site did not have the requisite deep clay soils necessary to prevent leachate contamination. Pinawa, however, had a highly skilled workforce and it eventually became the centre for developing, installing and operating a comprehensive monitoring system for the eventual host community. This left only the communities of Winnipeg and Montcalm in the running to host the facility (Rabe, 1994).

Winnipeg was the source of over eighty percent of the hazardous waste produced in the province. The mayor, most of the city councillors, and several environmental organisations in the city supported the idea that Winnipeg should be responsible for the waste that it produced. This support was also a result of the risk of transporting the hazardous waste from the point of origin (Winnipeg) to an alternate disposal site. There was, however, opposition from residents of the districts closest to the potential site. Also, disputes within the Winnipeg Advisory Committee and lobbying by some provincial political figures delayed the siting process. This led the MHWMC to turn toward the community of Montcalm (Castle and Munton, 1996).

The Rural Municipality of Montcalm is located eighty kilometres south of Winnipeg near the United States border. It is made up of the three unincorporated villages of St. Jean Baptiste, St. Joseph and Letellier. Agriculture was the main industry in this area. At the time of the siting process, Montcalm was struggling economically. Crop prices had fallen because of increased international competition and this resulted in few employment opportunities. This economic slump led to the development of task forces within the communities to promote economic diversification. Hosting the province's hazardous waste facility was one such proposal. The Montcalm Advisory Committee was formed in May 1990 to explore the possibility of the community hosting the facility. The first sign of opposition towards the facility came in October 1990. A community group against the proposal, Concerned Citizens for Ecology & Environment, collected 450 signatures (one-third of eligible voters) on a petition calling for an end to site investigations in the community. The validity of the petition was immediately in doubt. It was discovered that many residents signed the petition under pressure. As a result of the scepticism surrounding the petition, it was not taken seriously by the municipal council.

Another poll in March 1991, however, garnered support for the facility. Of the 202 people who responded to the poll, seventy-four percent supported the facility. This led to an official referendum on September 25, 1991 that asked the question, "Do you support the location of a hazardous waste management facility by the Manitoba Hazardous Waste Management Corporation in the Rural Municipality of Montcalm?" Of the 921 respondents (seventy-five percent of eligible voters), sixty-seven percent said yes. Thus, on February 28, 1992 the MHWMC announced that they would seek approval for a license for the hazardous waste facility to be sited in Montcalm (Castle and Munton, 1996).

Following the selection of the host community, the Montcalm Advisory Committee was disbanded and a Terms and Conditions Negotiations Committee and an Environmental Impact Assessment Committee were formed. The Negotiations Committee met with the MHWMC on several occasions and developed a co-management agreement. This co-management agreement includes elements pertaining to community protection programs, the operation of the facility, community benefits and arbitration. It is meant to be an effective model for addressing community concerns about health and safety. The community also signed an agreement with the Manitoba government that stated that the province would always own the land on which the facility is located even if the facility were privatised. Therefore, the province is responsible for any liabilities associated with the land (Castle, 1993). With these elements in place, the Manitoba Environmental Centre was opened in 1994 (Pushchak and Rocha, 1998).

5.4 ONTARIO LOW-LEVEL RADIOACTIVE WASTE

The disposal of radioactive waste probably causes more of a stir than hazardous waste or municipal solid waste. This is because the risk to humans or the environment from radioactive waste can be extremely high. One needs only to think back to Chernobyl. This extreme risk makes the siting of storage and disposal facilities for radioactive wastes extremely important. There are two types of radioactive waste. Low-level radioactive waste (LLRW), the focus of this case study, is defined as "all those radioactive wastes, other than spent fuel, arising from the mining, milling, refining or use of materials containing [radioactive elements]" (Siting Process Task Force, 1987, p.14). In contrast, both solid and liquid spent fuel from nuclear reactors would be characterised as high-level radioactive waste.

The Atomic Energy Act, enacted in 1946, established the basic framework for dealing with radioactive waste. This led to the creation of Atomic Energy Control Board (AECB), which is responsible for licensing and regulating the nuclear industry. Most of the LLRW in Canada is generated in Ontario, which also houses sixteen of the nation's eighteen largest power plants. Most of the waste is stored or disposed of at or near the point of generation. One such point of generation is the community of Port Hope (Rabe, Gunderson and Harbage, 1996).

Port Hope has become the Canadian version of Love Canal in the United States. The build-up of LLRW actually precedes the development of the nuclear industry in Canada. Between 1933 and 1948, these wastes were generated and deposited in the community by various military activities. In 1975, a contamination problem surfaced. Radioactive soil was found throughout the community, radioactive waste was found in Port Hope Harbour and even some buildings were constructed using radioactive

materials. In 1980, the AECB commissioned a private firm to design and site a disposal facility in Port Hope. By August of that year, the firm had found two sites in the area and was intending to do some geological work on them before choosing a preferred site. The first chance of public involvement came during the federal environmental assessment process after the preferred site had been chosen (Rabe, Gunderson and Harbage, 1996).

In response to the intense public opposition over the preferred site, the federal government suspended the siting process and in December 1986, convened an independent Siting Process Task Force (SPTF) in December 1986. Their purpose was to design a less confrontational process to site a disposal facility, mainly for the waste in the Port Hope area. In a report tabled in 1987, the SPTF criticised the AECB for letting technical considerations rule previous siting attempts and not consulting sufficiently with the public until late in the siting process. They also criticised the AECB for believing that permanent disposal was the only acceptable method of dealing with LLRWs. This limited the options available for handling LLRW by inhibiting the search for simpler solutions such as long-term storage. Permanent disposal involves isolating the wastes in a permanent facility until they have decayed to a safe level. There has been great opposition to this by the general public and the scientific community alike. With these criticisms in mind, the SPTF recommended that any future siting process should encompass the following principles:

- The community should volunteer and have the right to opt out of the siting process at any time, rather than being selected by the project sponsor at its discretion.
- The community should be a partner in problem-solving and decision-making throughout the siting process.
- The community should receive compensation to offset unmitigable impacts and to enhance local benefits.

- The community should have the right to select from given technical options and impact management measures; the ones that are acceptable to it.
- The Siting Task Force responsible for the implementation of the Process must ensure that the safety of the environment and human health are not compromised for any reason. (Siting Process Task Force, 1987)

The SPTF cautioned that, when using a volunteer siting process, certain safeguards are necessary or else the accusation of locational opportunism may occur. Locational opportunism refers to the attempt to exploit an economically disadvantaged community.

These safeguards are:

- An explicit, up-front impact management policy will be used to ensure that all communities are aware of the range of options available to them.
- Community-hired advisors will be employed to ensure that local interests are protected in the process of joint fact-finding and problem-solving.
- Thorough site and technology assessments, designed jointly by the community, the Siting Task Force, and technical experts will be carried out to ensure that decisions are based on full information.
- A broadly-based Community Liaison Group will be established to work with the Siting Task Force and local officials.
- Funding will be provided to allow for community participation in the Process. (Siting Process Task Force, 1987)

A new Siting Task Force (STF) was commissioned by the Minister of Energy, Mines and Resources in September 1988 to implement the first three phases of the co-operative siting process recommended by the SPTF. The STF had twenty-three months to report back to the Minister its findings regarding volunteer communities, recommended disposal options, proposals for the terms of reference for negotiations with the volunteer communities, and the detailed cost implications of implementing the defined options with

the communities (Siting Task Force, 1990). The siting process used by the STF is outlined below.

Phase 1: Establishing guidelines – This involved establishing guidelines for impact management, criteria and procedures used to eliminate unsuitable areas/sites from further consideration, and the steps involved in appointing a Community Liaison Group (CLG).

The STF believed that all communities should be provided with impact management options at the outset of the siting process. An impact management workshop held in February 1989, established the guidelines that defined examples of measures that would be available to the participating communities. This involved mitigation, compensation, contingency and community relations measures. These measures identified examples that had been applied to other siting situations and, where possible, contacts and their addresses (Siting Task Force, 1990).

In March 1989, the STF developed two levels of elimination criteria. Level one was absolute elimination criteria. If these were to occur then the site would be automatically excluded from further consideration. Level one criteria included federal or provincial parks and areas of natural and scientific interests. Level two criteria were less stringent and allowed for the exercise of judgement. Land would only be eliminated depending on its significance or the extent of the constraint posed as determined by the community. After a series of public meetings, each CLG produced its own definitive set of elimination criteria which was tailored to their specific community. They did this by adding to the level one criteria and/or changing the level two criteria (Siting Task Force, 1990).

CLGs were established in every interested community to facilitate community involvement and to ensure that decisions made in the siting process reflected the needs of the community. Three types of communities would be involved in the siting process: volunteer, source and access route. The volunteer community is where the facility would be located. The source community is where the wastes are now located. Those communities that the waste must pass through on the way to the disposal facility are the access route communities. CLGs for volunteer and source communities would be formed during the third phase while CLGs for the access route communities would be left until phase four after potential host communities have been identified (Siting Task Force, 1990).

Phase 2: Regional information sessions – In November 1988, letters were sent to 850 communities across Ontario describing the siting process. Later in February 1989, an invitation was sent to these communities requesting two representatives to attend one of eight regional information sessions being held throughout the province. Federal and provincial members of parliament were also informed of these sessions. The purpose of these sessions was to inform the representatives about the siting process and the need for improved management of LLRW. The STF was also quick to point out that attending the sessions were voluntary and in no way constituted a commitment. Following the sessions, twenty-six communities expressed an interest in continuing in the process (Siting Task Force, 1990).

Phase 3: Community information and consultation – Before this stage began, five of the twenty-six communities that expressed an interest in hosting the facility withdrew from the process. This phase was conducted in two stages. In the first stage, the STF provided

interested communities with information on the necessity of improved management of LLRW all in order to help them decide whether they wanted to go further in the process. If this was the case, then municipal council must pass a resolution and establish a CLG in the community. At this point, fourteen CLGs were formed representing seventeen communities (four communities had requested that they be represented by one CLG).

In the second stage, the STF assisted the CLGs with developing and implementing an information gathering and consultation program specific to their community. In the end, each CLG was expected to prepare a report for their municipal council, recommending whether or not to go further in the siting process. Of the seventeen interested communities remaining after stage one of this phase, only four decided to proceed into the fourth phase of the process. One of these communities was not considered a viable candidate by the STF so in reality only three potential volunteer communities proceeded to the fourth phase. They were the communities of Deep River, Geraldton and Hornepayne (Siting Task Force, 1990).

Phase 4: Project assessment – A new task force was convened to carry out the remaining phases. In the first stage of this process, the remaining communities had to find a suitable site and technology. If no suitable site could be found within the community, then the community must opt out of the process. Deep River announced their two preferred sites on July 20, 1994. Geraldton withdrew from the process before a scheduled November 1994 referendum. The land that the CLG had identified within the community had to be annexed. The Ontario Municipal Board approved this but not after much delay. As a result, the CLG and local Council had only eight months to complete the necessary technical studies before the referendum. Since the time to complete the technical studies

was insufficient, the CLG recommended that Council opt out of the process. Hornepayne also ran into difficulties so it too opted out of the process (Rabe, Gunderson and Harbage, 1996).

In the second stage, detailed environmental assessments and site/technology characterisation were implemented. Also, impact management guidelines and an equity compensation package were finalised. Following this, a binding referendum was used to judge community acceptance then a Council resolution accepting or rejecting the proposed facility was passed (Siting Process Task Force, 1987; Rabe, Gunderson and Harbage, 1996).

Phase 5: Implementation – This phase involved community negotiations on specific impact measures, followed by a recommendation to Cabinet and a Cabinet decision. Once a decision as to the final host community was made, a Board of Directors would be established to oversee the final design, construction and operation of the facility (Siting Process Task Force, 1987; Rabe, Gunderson and Harbage, 1996).

Deep River was the community chosen to host the LLRW facility. This is a community with strong ties to the nuclear industry and it was promised continued employment for 2300 workers at the nearby Chalk River nuclear research station as an incentive to host the facility. According to Pushchak and Rocha (1998), the threat of economic decline was a strong reason for the community to accept the facility but it casts doubt on the residents of Deep River as true willing hosts. An agreement was to have been signed by January 1, 1997 but the federal government failed to guarantee continued employment as promised and the agreement lapsed. So after about eight years of a siting process, no new facility has been sited for the storage and disposal of LLRW in Ontario.

5.5 ADAMS MINE

Since 1986, the Greater Toronto Area (GTA) of Ontario has undertaken a number of studies to site a landfill to handle their waste. These include: the Solid Waste Environmental Assessment Plan; the Solid Waste Interim Steering Committee; the Interim Waste Authority; and the Metro Willing Host Site Search.

Solid Waste Environmental Assessment Plan (SWEAP)

Metro Toronto initiated the SWEAP in 1986. Its purpose was to develop a long-term waste management master plan for the GTA region. This included a landfill site search, which involved three phases. The first phase involved a systematic search for sites within Metro Toronto. In the second phase, the rest of Ontario was subjected to a willing host site search. Finally, in the third phase, a systematic site search was conducted in the rest of Ontario. Each subsequent phase was initiated if the preceding phase was unsuccessful in finding an acceptable site. Once a long list of candidate sites (10-20 sites) was generated, evaluation criteria would be used to compare these sites to produce a short list before the preferred site was chosen (Senes Consultants Limited, 1993).

Phase one of SWEAP failed to yield a sufficient number of sites. In fact, only three sites within all of Metro Toronto were found to be suitable. Suitability was judged using hydrogeologic, natural environment, surface water, agriculture, land use and social factors. Since an insufficient number of sites were found, phase two was initiated (Senes Consultants Limited, 1993).

Willing hosts were recruited by placing advertisements in forty-four daily newspapers and sending letters to 830 municipalities across Ontario. Thirty-seven responses were received for a total of forty-nine candidate sites. These sites were

evaluated using the same criteria as in phase one. The defining criterion, however, was capacity. Only those sites offering at least a 12 M tonnes capacity were included in the long list (Senes Consultants Limited, 1993).

Phase three was not necessary because combining the sites found in the first two phases, the thirteen candidate sites were sufficient as per the criteria laid out before the search began. The SWEAP process, however, was suspended in 1990 when the responsibility for locating landfill sites within the GTA became the responsibility of the provincial government (Senes Consultants Limited, 1993).

Solid Waste Interim Steering Committee (SWISC)

In March 1989, representatives from the Province and the GTA (Metro Toronto and the Regions of Durham, Halton, Peel and York) established SWISC. Its purpose was to find a long-term waste management plan for the GTA. In late 1989, SWISC advertised nationally and internationally for any interested bodies that would develop or manage any component of the waste management system. The waste management system was to include a 3Rs system, waste processing facilities, transportation systems, waste disposal facilities, transfer stations and research facilities. SWISC received eighty-six submissions in response to the request. In 1990, however, landfill site searches under SWISC was terminated by the provincial government (Senes Consultants Limited, 1993).

Interim Waste Authority (IWA)

In 1991, the IWA was created by the provincial government to find a landfill site for the waste remaining after an enhanced diversion program. Metro was requested to cease its landfill search and hand over all documents to the province. Also, SWEAP and

SWISC were discontinued just prior to the establishment of the IWA. The provincial government announced that wastes must be handled close to the point of generation so sites had to be found within the boundaries of the GTA. Three landfill sites were to be established within the region. The steps undertaken in the site selection process was similar to those outlined in the traditional siting process (Senes Consultants Limited, 1993). At the end of the required EA process in November 1993, the preferred sites in the region were announced amidst great public opposition. The EA was then referred to the Environmental Assessment Board (EAB)². In 1995, however, before the hearing could be completed, the new provincial government disbanded the IWA (Notre Development Corporation, 1996).

Metro Willing Host Site Search

This approach was initiated by Metro to complement the IWA process. Metro defined a willing host as:

1. a willing jurisdiction responsible for solid waste management (i.e. county, region) if different from the local municipal council. (If the nominated site is located on provincial crown land or in areas without municipal organisation, a resolution is required from neighbouring municipalities as may be deemed appropriate by the provincial government) ; and
2. a willing local municipal council; and

² The Environmental Assessment Board functions much like the Joint Board in that it is a quasi-judicial body responsible for deciding whether an environmental assessment should be approved. The main difference between this Board and the Joint Board is that only the *Environmental Assessment Act* is applicable in this case.

3. a willing landowner, which may be either a municipality or private landowner (in conjunction with municipalities), prepared to sell his or her own land (Senes Consultants Limited, 1995).

This process would ensure that a broader range of sites would be examined. Also, the addition of the willing host site search to the IWA systematic (or traditional) site search, ensured that the issue of social equity would be examined. The IWA concentrated on the GTA while the willing host site search would concentrate on the rest of Ontario. The candidate sites identified by the willing host site search would then be subjected to the same evaluation criteria used in the IWA process. A systematic site search such as the IWA process had to be included because it is required by the EAA, an Act to which all public sector landfills in Ontario are subject (Senes Consultants Limited, 1995). The site search included five steps.

Step 1: Issue request for willing hosts – In November 1993, Metro contacted 803 municipalities and all First Nations in Ontario by letter to advertise that it was searching for a site to host their landfill. Advertisements were also placed in several newspapers. Any willing hosts that were identified in the SWEAP process were re-contacted directly by mail. The letter and advertisement outlined the site search being undertaken by Metro, the potential benefits to the host community, the minimum size and capacity needed, opportunities for public input, criteria that a willing host must meet to be considered such, opportunities for public input, and where to get more information (Senes Consultants Limited, 1993).

Step 2: Receive letter of interest from landowners and/or municipalities – Any interested municipality or landowner had until March 15, 1994 to submit a letter of interest to Metro identifying a potential site and proving that it meets the approval of the local council. They also had to show that the site met steps 1, 2 and 3 of the IWA process (primary and secondary constraint analysis, and identification of candidate site boundaries) (Senes Consultants Limited, 1993).

Step 3: Preliminary review of applications – The applications were reviewed by Metro to determine if they met the criteria of a willing host, the requirements of the first three steps in the IWA process and the minimum size/capacity requirements (Senes Consultants Limited, 1993).

Step 4: Rank Order the candidate sites using IWA step 5 approach and criteria – If less than two candidate sites are available for consideration then these sites will be evaluated using step 6 of the IWA process (comparative evaluation of short list to identify preferred site). If there are three or more sites, however, then step 5 will be used (comparative evaluation of long list to identify a short list of sites) to rank order the sites (Senes Consultants Limited, 1993).

Step 5: Compare site(s) with IWA preferred site using IWA step 6 approach and criteria
Here the potential willing host site will be compared to the preferred site from the IWA process. If the willing host site ranks above the IWA site then the council of the municipality will have to pass a resolution confirming willingness (Senes Consultants Limited, 1993).

The one site that made it through the entire willing host process was the Adams Mine site. The Adams Mine site is located in the District of Timiskaming, 10 kilometers southeast of the Town of Kirkland Lake within the unorganised Township of Boston. All of the previous processes, with the exception of the IWA process, included a willing host component. The Adams Mine site was chosen as the preferred site from these processes. In fact, Adams Mine was the only site that complied with the willing host criterion. The Notre Development Corporation (Notre) purchased the abandoned mine site after consultation with local municipal governments. The governments of Kirkland Lake, Larder Lake and Englehart supported the completion of an EA on the site and thus Notre purchased the site and submitted it as a potential landfill during the SWISC process. Metro approached Notre at that time and signed an option to buy the site from them. The potential host communities of Kirkland Lake, Larder Lake and Englehart also signed an agreement with Metro in 1990 during the SWISC process. In 1992, however, the provincial government introduced legislation requiring municipalities to dispose of waste within their own borders (Senes Consultants Limited, 1995).

Adams Mine was again identified as a potential landfill site during the Metro Willing Host Site Search. Soon thereafter, the communities of Kirkland Lake, Larder Lake and Englehart reaffirmed their willingness to host the facility pending environmental approval. Therefore, in February 1994, following the reaffirmation of willingness by the host communities, Metro commenced the Adams Mine Site Assessment Project. This was essentially the same as stage 5 of the willing host site search where the Adams Mine site was compared to the preferred site from the IWA process. Since the IWA was disbanded by the provincial government in 1995, its preferred site was no longer a viable option but was still used for comparison purposes

because the site specific information about the site was completed prior to the IWA being disbanded. The Adams Mine site proved to be better than the IWA site on all but one evaluation criteria. As a result, it was concluded that the site could be safely designed and operated as a landfill site with little effect on the environment and with substantial benefits to the local economy (Senes Consultants Limited, 1995).

In December 1995, Metro council voted to abandon work on the site because of economic concerns, thereby ending its contract with Notre to buy the site. In 1996, Notre commenced an EA process to seek approval to operate the site as a private landfill. This EA was submitted to the Ministry of the Environment in December 1996 (Ministry of Environment, 1997). In December 1997, the EA was referred to the EAB for a decision. A hearing was initiated which focussed on the issue of hydraulic containment. The EA received a conditional approval from the EAB in June 1998 and from the Ontario Cabinet in August 1998. The approval by the EAB was granted subject to twenty-six conditions, under the following themes: Monitoring/Operating and Remedial Action & Contingency Plans; Contaminating Lifespan; Financial Assurance; and Community Consultation and Participation (Environmental Assessment Board, June 1998).

In September 1998, the Adams Mine Intervention Coalition (AMIC) launched a judicial review thereby sending the case to Ontario Divisional Court. AMIC, a coalition of local residents, farmers and environmental groups in Northern Ontario, is challenging the conditional approval granted by the EAB. As a pre-condition to approval, the EAB ordered additional testing of the site but left final approval to the Ministry of the Environment. According to AMIC, this is against the law, hence their appeal to Divisional Court to have both the EAB's and Cabinet's approval overturned (Adams Mine Intervention Coalition, 1998).

6 CROSS-CASE ANALYSIS

The four principles of effective siting identified in the "Design" section of the thesis will be used to compare the case studies. These principles are public participation, burden sharing, independent siting entity, and compensation. Each case will be individually evaluated against these four principles. At the end of the section, a matrix illustrating how each case adheres to the above principles will be presented. This will determine the effectiveness of the volunteer siting process in each situation.

6.1 PUBLIC PARTICIPATION

6.1.1 Swan Hills

This is the first case in which the volunteer siting process was used. Public participation played a very integral part in the successful siting of the hazardous waste facility. The Hazardous Waste Management Committee used a variety of techniques to encourage public involvement. These included referendums and information seminars that focused on the nature of the hazardous waste problem in the province and the type of facility that would be needed to handle it. The information seminars were used to build support that was then gauged by the referendums. There was extensive public dialogue that led to the creation of openness and, subsequently, trust that had been missing in the two previous siting attempts in Fort Saskatchewan and Two Hills. A number of committees were created by the province with the intention of fostering interaction among the public, provincial representatives, the crown corporation and private corporations throughout the entire siting process. Prior to the siting process, two studies were commissioned by the Ministry of the Environment to decide how to proceed with handling the hazardous waste problem. The first of these led to recommendations that

were then presented and evaluated in the second study using public surveys. Then, in the beginning of the siting process, 120 community meetings were held across the province to inform the public about the proposal. The communities that expressed an interest in continuing further in the process continued to have access to the siting officials and to hazardous waste management data (McQuaid-Cook and Simpson, 1986).

A problem occurred because of the usage of 'town hall' style meetings. These meetings did not allow for much public involvement in that those who wanted to speak usually did not get a chance to do so. Also, those opposed to the facility dominated the town hall style meetings. This may have made supporters of the proposal reluctant to speak. It was, therefore, difficult to generate support for the facility in the community. This resulted in the loss of Beaver County as a potential host. This problem led to the reworking of the siting process. The 'town hall' style meetings were replaced with smaller meetings where the public could play a greater participatory role (Castle, 1992).

The influence of local politicians played a role in building trust in the siting process being used and support for the facility. In the attempt to site the facility in Two Hills, government officials held meetings with site proponents behind closed doors and this alienated the public. This time, however, everything was out in the open and the public had ample information and opportunity to get involved in the process. Citizen's committees were formed in the five potential host communities before referendums were held. In Swan Hills, for example, meetings were held every week for twelve weeks. All the residents of the community were encouraged to attend at least two of these meetings. Present at these meetings were all relevant provincial and local officials to answer any questions that the residents may have had (Castle, 1992).

Siting does not end once the facility has found a home. This was illustrated by the fact that Swan Hills maintained a liaison committee, which is financially supported in part by the province. The committee, made up of local residents that are not employed by the facility, have been successful in representing local interests. The committee usually meets at least once a month, except when a controversy arises, when they then meet more often. Also, a member of the committee reports regularly to the town council and also writes a regular column for the local newspaper (Castle, 1992).

6.1.2 Montcalm

The Manitoba government built on the lessons learned from both the Swan Hills and the OWMC cases. To this end, they dismissed the top-down approach used by the OWMC and instead opted for the volunteer approach adopted so successfully in Swan Hills. The MHWMC employed a variety of techniques to involve the public in the siting process. These included educational materials such as brochures, displays at shopping malls and informational videos. They also sponsored over 500 informational meetings throughout the province. A pair of open houses was held in November 1989 in the eventual host community of Montcalm but the turnout was poor. The MHWMC then hired high school students to contact every household in the community and invite them to additional open houses held in February 1990. This deliberate attempt to involve the public is virtually unheard of in a traditional siting process (Rabe, 1994).

Local advisory committees were formed in the communities that were in the running to host the facility. Support in the communities was encouraged through conducting tours of similar facilities across North America. Included in this was a tour of the Swan Hills facility (Castle, 1993).

Involving the public did not stop once the facility was sited. The Montcalm council appointed an independent liaison committee to oversee the plant's environmental performance. Members of the community chosen by the Crown Corporation and not town council filled the positions on this committee. This way it cannot be argued that any committee member had been appointed to serve a particular political interest. A co-management committee was also formed to deal with ongoing plant activities. Other programs implemented included measures to protect land and agricultural product values, employee training, environmental monitoring and emergency response. These programs were developed jointly with the corporation and the community (Castle, 1993).

6.1.3 Ontario LLRW

The public participation program used in this case was extensive and also based on the principle of volunteerism. One of the primary recommendations of the SPTF was that the community should be a partner in problem solving and decision-making throughout the entire siting process. In the first phase of the siting process, the communities were presented with impact management options such as mitigation, compensation and contingency measures. Liaison groups were formed in each interested community and they were initially given the task of developing site elimination criteria specific to their community. The events leading up to the selection of the host community were geared toward public involvement. In the second stage, regional information meetings were held around the province to inform community representatives about the need for improved management of LLRW and also about the procedure that would be needed to site a facility that would handle the waste (Siting Task Force, 1990).

During the siting process three types of communities were identified and allowed to participate. These included source and access-route communities in addition to the before mentioned volunteer community. Residents of the source communities were informed about the range of waste management options available to them, such as on-site management and waste removal. If waste removal was required, the amount of waste requiring transport to the disposal facility had to be determined, a factor that would affect the size of the facility needed in the volunteer community. Access-route communities were established once the host community was chosen. These are the communities burdened with the transportation of waste to the disposal facility. These communities are to be active in developing transportation impact management plans. The involvement of residents of these two communities, and not just the volunteer host community, exemplifies the lengths taken to involve the public in the siting process (Siting Task Force, 1990).

6.1.4 Cache Creek

The volunteer siting process is founded on the principle of extensive public participation. This case, however, involved minimal public participation. In a period of five months (January to May 1988), the British Columbia government sent out letters to communities across the province requesting a host community, received responses from eight interested communities, decided to focus its attention on three sites in the Ashcroft-Cache Creek area, and held a non-binding referendum to gauge support for the facility. Shortly following the referendum, a site was approved and handed over to Envirochem Group (the private consortium that was chosen to construct and run the facility), which entered into negotiations with the host community. There was little time to launch an

extensive public education or information campaign. This led to an intensive opposition campaign by the Hazardous Waste Management Coalition, which argued that the majority of the residents in the community were opposed to the facility and that many residents in neighbouring communities were not allowed to vote. Also, the voting list that was used was outdated. Public hearings were not held until November 1988 and the opposition from the community was so strong that the Ashcroft-Cache Creek area was removed from the siting process. In fact, because no other potential communities were identified, the siting process broke down at that point. Siting officials later admitted that the public was not well informed. This was mainly because of a lack of communication between provincial officials and the proponent (Envirochem). They both thought the other would keep the public informed (Rabe, 1994).

6.1.5 Adams Mine

The public participation process in this case was a bit tricky because there were two parts to it. There was consultation when Metro was the proponent and then again when Notre took over as the proponent. The two processes, however, were not seamless. In other words, Notre did not continue what Metro had started. In the successful siting cases the host community was chosen after extensive public consultation. Here it was the reverse. The main reason for this was that when Metro sent out letters requesting a willing host, Notre, with the communities of Kirkland Lake, Larder Lake and Englehart, was the only volunteer. Therefore, there was no reason to build support in a variety of communities before choosing the best site (Senes Consultants Limited, 1995).

The public participation process actually started with Notre and the SWEAP process, which was outlined earlier. The second phase of the SWEAP process involved a

willing host site search in Ontario (excluding the GTA) and Notre responded to that request. In order to do that, they needed permission from the eventual host communities. The critical thing about the Adams Mine site is that it is located within the unorganised Township of Boston. That means there is no municipal government and therefore, it has been argued, no host community (Griffin, 1996). The host communities of Kirkland Lake, Larder Lake and Englehart are those communities that are closest to the site that possessed a municipal government. Some public involvement took place at that point because resolutions were passed in all three communities identifying them as host communities (Notre Development Corporation, 1996).

When Metro commenced its willing host site search in 1993, Notre again surfaced as a volunteer. It was not until March 1995 when Metro council approved the detailed study of the site, that Metro began their public consultation activities. Between this time (March 1995) and December 1995 (when Metro withdrew from the process), a variety of meetings were held in the host region. The first meeting was held the week of April 24, 1995 and over 500 people attended. Several concerns were raised at this meeting including: the willing host process; the need for public representation and the opportunity for input; and the landfill's impact on the environment and property values. The public consultation zone included the host communities and residents in other areas surrounding the site. Metro states that it surpassed the normal consultation zone of 0.5 kilometres to 1.5 kilometres by extending the consultation zone approximately to 60 kilometres in the north/south and west/east directions (Notre Development Corporation, 1996).

In addition to creating a public liaison committee (PLC) in the host region, Metro formed a regional consultation forum (RCF) made up of groups from outside the initial consultation zone and also a steering committee that was the formal linkage between the

northern and southern components of the project. The general public was also given a chance to be involved in the process. All the meetings of the PLC were advertised and open to the public. Newsletters, fact sheets and newspaper advertisements were also used to keep the public informed (Senes Consultants Limited, 1995). These all came to an end, though, when Notre took over as the proponent and commenced its own public consultation process.

Metro withdrew from the process in December 1995 and Notre took over. The proposal was designated under the EAA because it is standard that all proponents of private sector waste proposals servicing more than 1500 persons be subject to the Act (Ministry of the Environment, 1997). Public consultation is a required part of the EAA, therefore, Notre had to review the public consultation process undertaken by Metro and make changes as necessary. Notre identified four main consultation partners: site neighbours; interested parties such as the general public and First Nations; local municipal governments; and government agencies and ministries. The consultation methods employed by Notre included: open houses at the site; the establishment of the Adams Mine Advisory Working Group (composed of residents from around the site); the establishment of a Peer Review Process Committee; and consultation with local municipal governments. Information was made available to the public by way of mailouts, presentations at council meetings and school and through responses to letters and newspaper articles. Notre also retained one of the peer reviewers that Metro had hired to provide feedback on technical issues such as hydrogeology and surface water hydrology. Notre has also stated that if approval to proceed with the project were granted, it would establish a site advisory committee to keep the public involved in the operation of the facility only if necessary (Notre Development Corporation, 1996). This is in

contrast to the efforts made in Alberta and Manitoba who created liaison committees to be watchdogs for the facility whether there was a need or not.

There have been criticisms about Notre's public consultation process. For example, the members of the Adams Mine Advisory Group came from a very small area surrounding the site and their meetings, as well as those by the Peer Review Process Committee, were closed to both the public and the press. Also, there were complaints from municipalities outside the host region that they did not get a chance to be part of the Regional Municipalities Working Group despite their requests. Another criticism was that the open houses were held at the facility, which was highly inconvenient, and that only one technical expert was on hand to answer questions. There were also complaints that Notre disbanded the PLC and peer reviewers that had been created by Metro. Therefore, there was no follow-up of any concerns that had arisen when Metro was in charge (Griffin, 1996).

6.2 BURDEN SHARING

6.2.1 Swan Hills

The communities involved in the latter stages of the siting process were reassured that the siting of the facility was only a part of the overall waste management system that the province planned to put in place. These involved measures such as import control, regional storage facilities and a commitment to waste recycling and reduction.

Alberta, like many provinces across Canada, exported a lot of their hazardous waste. The desire to manage its own waste led to the proposal for the development of a comprehensive treatment and disposal facility. Developing its own facility, however, may lead to the opening up of Alberta to waste from other communities. The Alberta

government recognised that asking a community to bear responsibility for waste from inside the province was one thing, but to ask them to accept waste from elsewhere was not acceptable. This led the Alberta government to impose a ban on the import of any hazardous waste from outside the province. Whether the waste was domestic or imported was an important factor to any community that volunteered to host the facility. This helped the communities realise the need of the facility to solve a local (provincial) problem and not another province's or even another country's problem (Castle, 1992). This negative stance on waste import, however, came to an end with the expansion of the facility in 1993. With the expansion of the facility, the province has started to accept hazardous waste from other parts of Canada in order to operate the facility at capacity. Thus, the environmental ministry changed from an 'Alberta-only' policy to an 'Alberta-first' policy (Rabe, 1994)

Communities with regional storage facilities also shared the waste management burden. The communities hosting these regional collection and storage facilities also volunteered to do so. Waste storage stations were located in Nisku, 8 kilometres south of Edmonton, Ryley (which was in the running to host the facility with Swan Hills until the very end) and Calgary. Both Calgary and Nisku already had some form of waste management facility, so expanding them to handle hazardous waste was an easy feat. The Town of Ryley commissioned a private firm to establish a waste storage station and a small landfill for inorganic waste in the community. The Edmonton suburb of Morinville had also expressed an interest in hosting a regional facility. This changed to opposition, however, when the community was not made fully aware of the types of wastes that would be involved (Rabe, 1994).

The commitment to waste recycling and reduction was also an integral part of the burden sharing process. The province encouraged reduction and recycling where possible to help minimise the hazardous waste problem. This attempt to minimise the amount of waste needing disposal also helped in a community's decision to volunteer to host the facility. This demonstrated that the province was taking an active role in waste minimisation and not leaving the host community to handle the waste by itself. Two examples of this emphasis on minimising waste were the creation of the Alberta Special Waste Services Association (ASWSA) and the Alberta Waste Materials Exchange (AWME). The ASWSA was in charge of informing the public about hazardous waste management and encouraging residents to bring their hazardous waste to the regional storage facilities. Since 1984, the AWME has provided a mechanism where hazardous material which is waste to one industry can be reused productively by another. Other measures employed by the province include the establishment of depots for a variety of hazardous wastes including agricultural chemical containers and waste oil (Rabe, 1994).

6.2.2 Montcalm

The burden sharing measures employed by Manitoba are similar to those used in Alberta. The first of these was import control. Manitoba did not take the same stance as Alberta and ban all waste import. From the very beginning, it was made clear that the province was willing to consider accepting waste from outside the province. This was a factor that disrupted the otherwise strong support for the facility in Pinawa, one of the forerunners to host the facility. The facility in Manitoba would not include an incinerator and was smaller than the one in Alberta. This meant that the facility would not be able to handle all the kinds of hazardous waste generated in the province. These wastes would

have to be shipped elsewhere and the province was willing to accept another community's waste in exchange for accepting their waste. This importing of waste, however, was intended to be limited in scope. In the co-management agreement between Montcalm and the province, there is a clause that leaves open the option of not accepting any out of province waste (Rabe, 1994).

Manitoba also employed the practice of siting regional storage facilities like Alberta did. This was, however, pursued more vigorously than in Alberta. From the outset of the process, the MHWMC stated that regional storage facilities would be part of the siting process. As in Alberta, communities that were not selected to host the central facility were evaluated to gauge their potential for hosting a regional facility. This commitment to burden sharing was exemplified by the fact that before the central facility was even sited, two storage facilities were sited. In 1988, a facility in Gimli, 35 kilometres north of Winnipeg, was upgraded and in 1989, a year round hazardous waste collection depot was sited in Winnipeg. Other facilities were sited around the province to provide convenient drop-off points. The hazardous waste would then be collected from these drop-off points and transported to Montcalm. Throughout the siting process, the MHWMC emphasised the widespread nature of the hazardous waste problem and that no one community should have to deal with all the waste. The creation of regional storage facilities and drop-off centres exemplifies the attempt to make this a reality (Rabe, 1994).

To further reduce the burden on the residents of Montcalm, the province also encouraged waste recycling and reduction. Many of these measures were in place before Montcalm was even chosen as the host community. This helped to create more broad-based support for the facility. Some of the measures employed by the province included: free technical advice to businesses on a confidential basis; the development of a system

for waste audits; establishing the Manitoba Waste Exchange, a non-profit centre, to help find markets for wastes that potentially could be reused; and educational materials that explain waste reduction and recycling options for both industries and consumers alike (Rabe, 1994).

6.2.3 Ontario LLRW

Waste import was a major issue in Alberta and Manitoba but not so in Ontario. Ontario generates most of the LLRW produced in the country so there is little threat of exploitation from the rest of Canada. Officials did state, however, that the facility would not accept waste from outside Canada. The issue of regional storage facilities was also slightly different in this case. Because of the high degree of danger posed by the LLRW, no storage facilities similar to the ones in Alberta and Manitoba could be developed. The waste was stored on-site until transported to the disposal facility. The third aspect of burden sharing, waste recycling and reduction, was not an integral part of this siting process (Rabe, Gunderson and Harbage, 1996).

6.2.4 Cache Creek

In both Swan Hills and Montcalm, burden sharing was discussed early in the siting process. This reassured the host communities that they were not alone in solving the province's hazardous waste problem. In Cache Creek, however, no such thing was done. Even though the process had progressed to the point of identifying a host community, burden sharing had not been introduced to the host community. Part of the vociferous opposition to the proposal was because of the inequity of the siting process. Introducing burden sharing measures may have reduced this opposition (Castle and Munton, 1996).

6.2.5 Adams Mine

Burden sharing was not a major component in this case. The main reason for that is because of the nature of the waste. In all the previous volunteer siting cases (Cache Creek included), the source of the waste was the entire province, whereas in this case it is a particular community. The waste being sent to Adams Mine was originally supposed to be from Metro Toronto but now could come from any other community. In the other cases, the potential volunteer communities were reassured from the beginning that no waste would be accepted from outside the province (or at least it would be limited). That means the province would take care of the province's waste. In this case, however, the host communities will have to handle another community's waste problem.

Regional storage facilities, and waste reduction and recycling were not an integral part of the siting process. The communities that would be sending their waste to Adams Mine have not yet been finalised, so it is not possible to know the other waste management options (regional storage facilities, waste reduction/recycling) that would be involved. Notre has always stated that it wanted Metro Toronto's waste, but this has not been finalised. It can be assumed, however, that any community that sends its waste to Adams Mine would have regional storage facilities within its own boundaries. Such facilities are necessary, not for reducing the burden on the host communities as in the other cases, but because the waste has to be stored somewhere before it is transported to Adams Mine. Also, it is assumed that the community or communities will have waste reduction and waste recycling measures in place.

6.3 INDEPENDENT SITING ENTITY

6.3.1 Swan Hills

The first thing the Alberta government did was create a crown corporation to handle the siting of the hazardous waste facility. The Alberta Special Waste Management Corporation (ASWMC) was independent of all other provincial agencies. There are multiple departments - environment, natural resources, planning, transportation - that have jurisdiction in waste management, and often conflicting policies. Integrating these different departments was the job of the ASWMC and this limited the jurisdictional problems. The ASWMC was also independent of political affiliations; thus, a change in government would not affect its direction and mandate. One of its primary functions was to ensure proper public involvement. The ASWMC took the often highly technical documents that the siting proponents created and transformed them into a format that the general public could understand (McQuaid-Cook and Simpson, 1986).

6.3.2 Montcalm

Like Alberta, Manitoba created a crown corporation (MHWMC) to tackle the problem of hazardous waste. This corporation was also created to stand apart from other regulatory bodies in the province. The MHWMC left open the possibility that it may take over full ownership of the facility. There was considerable turmoil in the Manitoban government and the stand-alone nature of the MHWMC allowed it to gain the trust of the public that is vital for any siting attempt. This also allowed it to devise and implement its own approach to siting instead of toeing a particular political party or department line. The MHWMC's wish was to maintain an informal and small-scale focus. It thus took steps to hire staff that had considerable professional experience in risk communication.

The staff was used to disseminate information to the public in plain language. The intent was to avoid using some of the overly technical language that is often used in the traditional process (Castle, 1993).

6.3.3 Ontario LLRW

Following the failure to site a facility in Port Hope in the early 1980s, a task force (SPTF) was convened to study the issue of siting an LLRW facility. This is similar to the Hazardous Waste Management Committee in Alberta that studied the issue of hazardous waste siting before the actual siting process began. Once the SPTF handed down its recommendations, another task force (STF) was convened to control the siting process. This was similar to the crown corporations developed in both Alberta and Manitoba. The STF was also independent of any particular political party and had the autonomy to create and implement its own policies. Because of this, it managed to regain the trust that had been lost from previous siting attempts (Siting Task Force, 1990).

6.3.4 Cache Creek

In Alberta and Manitoba the creation of crown corporations to handle the siting process eliminated biases and created the element of trust that is necessary for successful siting. In this case, however, the British Columbia government did not establish a crown corporation. Instead, the provincial environmental ministry was in charge of the siting process. As the siting process wore on, the ministry siting officials lost credibility with the residents of the Cache Creek, mainly for their lack of knowledge of the issues. After the failure to site the facility, however, the province decided to adopt more of the process employed so successfully in other volunteer siting cases by establishing a crown

corporation to explore siting alternatives (Rabe, 1994). This crown corporation will take charge of the entire siting process and hopefully be more effective.

6.3.5 Adams Mine

As in the other volunteer cases (with the exception of Cache Creek), a crown corporation was created to handle the siting process. This crown corporation was independent of any political party and was free to implement its own policies. The IWA was the closest concept to a crown corporation in this case. The IWA, however, was created by one government (political party) and then disbanded by another. Moreover, this crown corporation was to deal with solid waste, which is considered to be a municipal, not a provincial problem whereas hazardous waste and radioactive waste are. By creating a crown corporation to handle the solid waste of one municipality (or in this case, the group of municipalities that made up Metro Toronto), the provincial government would be seen as not being impartial. Notre, being a private developer, makes the creation of an independent siting entity difficult if not impossible. With the crown corporations in Alberta, Manitoba and Ontario LLRW, their work was done in the best interests of the provinces' population. The crown corporations can be made up of representatives of all affected parties but this would not be the same for a private development. Here it is more likely that the representatives would serve the interests of the private developer and not necessarily the interests of the community in which its facility is located. This was clearly evident in the Adams Mine case.

6.4 COMPENSATION

An important part of any siting process (traditional or volunteer) is compensation. In the voluntary siting cases outlined earlier, compensation was not a contributory force to the success or failure of any siting attempt.

Opaluch et al (1993) argued that a community volunteers to host a facility because the benefits outweigh the costs. From this, it can be argued that if the economic benefits (i.e. compensation) are increased, then the number of communities willing to host the facility will also increase. In most of these siting cases, there was no explicit nor finalised economic package offered to the potential hosts at the beginning of the siting process. After all, the compensation package has to be tailored to each community. Also, compensation is not a panacea for siting opposition. That is, compensation alone does not lead to community acceptance. The Adams Mine site can illustrate this. Even though the host communities were offered an attractive compensation package, it was not enough to overcome the objections to the facility. Technically, it could be argued that perhaps the communities were not offered enough compensation. However, this cannot be determined here without further research. The objection to the Adams Mine site was mainly to do with hydraulic containment and the containment of leachate. Would this be less of a concern if more compensation were offered? This researcher would like to think not, but there is no data to back this up.

It is unlikely that a community will volunteer to host a facility unless some form of compensation is involved. This was no different in these voluntary cases. However, the compensatory benefits outlined below came after the host communities were chosen.

6.4.1 Swan Hills

A host of potential compensatory benefits and safety protections were outlined early in the siting process though no explicit offers of compensation were made. With the siting of the facility in Swan Hills, more than ninety full-time jobs have been created, which contribute \$6 million to the economy each year. Between 1978 and 1988, total personal income, trading area income and retail trade has grown well above both inflation and the overall Canadian economy. In 1986, just before the opening of the facility, Swan Hill's unemployment was at seven percent, one of the lowest in the province. Also, its household income at \$44,023 was well above the provincial average. The input of permanent jobs has also stabilised the housing industry. The population of Swan Hills was usually highly transient and the input of permanent jobs led to the construction and renovation of many houses in the community. The town has also been successful in attracting government and corporation support as part of its compensation package. Tourism has also increased. This was an area that did not have a tourism industry to speak of before the facility was built. Now people are coming to the area not only to ski, hunt and golf but also to visit and study the facility. Being the first comprehensive hazardous disposal and treatment facility to be sited in North America using the volunteer process has led to visits by officials from around the continent. The facility has brought a renewed stability to the town. It has often been argued that a community will accept a noxious facility only if it is adequately compensated. In the case of Swan Hills, however, it is not entirely accurate. Because the facility is located outside the town boundaries, fees and tax payments for the facility go to a regional development authority and not to Swan Hills. Despite not gaining the fees and tax revenues directly, the community still volunteered to host the facility (Castle and Munton, 1996).

6.4.2 Montcalm

In 1988, the unemployment rate of Montcalm stood at 4.1 percent, well below the provincial average of 7.8 percent. The community was, however, looking to diversify its economy and viewed hosting the facility as a way to accomplish that. Unlike Swan Hills, Montcalm was able to secure a portion of the tax base from the facility. During the construction phase this ranged from \$145,000 to \$160,000 a year, but decreased after the facility was completed. The construction of the facility created at least thirty jobs with most of those going to local residents. The corporation in charge of the facility has also contributed funds to civic affairs such as supporting local sports teams, helping to preserve an historic building that was slated for demolition and constructing a community centre (Castle and Munton, 1996).

6.4.3 Ontario LLRW

The STF was open to exploring a range of compensation packages. In the source community of Port Hope, compensation was tied to the clean up of the community. An example of this is harbour dredging which would benefit the community both environmentally and economically (Rabe, 1994). Also, Deep River, the community chosen to host the facility, was promised continued employment at the nearby Chalk River nuclear research station as an incentive to host the facility. This, however, did not occur and the contract between the province and the community lapsed and the facility was not sited (Pushchak and Rocha, 1998).

6.4.4 Cache Creek

This case did not progress to the point where compensation could be discussed.

6.4.5 Adams Mine

The three host communities of Kirkland Lake, Larder Lake and Englehart initially signed economic agreements with the Metro, initial proponent. When Metro dropped out and Notre took over, the communities reaffirmed their interest in hosting the facility. Therefore, it is the compensation package offered by Notre that is applicable here. The host communities were offered free waste disposal for the twenty-year life span of the site. Based on 1995 disposal figures, this would result in annual savings of \$159,700 for Kirkland Lake, \$35,000 for Larder Lake and \$18,600 for Englehart. There would also be a \$40,000,000 site development expenditure for capital infrastructure. Eighty-two direct jobs would be created to operate the landfill. Jobs would also be created during the expected eighteen-month construction period. This would result in a labour expenditure of \$3,153,500. The result would be increased employee spending that will have a positive economic effect on the local and surrounding communities. Notre is also planning to give annual payments of \$9,133,083 over the twenty-year operating period to the host communities and immediate neighbours in the form of royalties, grants in lieu of taxes and contributing to a recycling/environmental fund. This would give Kirkland Lake \$6,454,411, Larder Lake \$585,067, Englehart \$1,030,690 and the immediate site neighbour area (ISNA) \$1,062,915. INSA refers to the residents immediately surrounding the host communities (Dane Road, Boston Creek, portions of Highway 112 and the Round Lake area). This compensation would be distributed through the Adams Mine Neighbourhood Improvement Fund. A research and development fund would also be established. This would amount to \$250,000 a year and will be used to: create sustainable employment in the North Timiskaming area; stimulate industry related to the project through training, environmental and business incentives; and conduct market research for

both potential recycling opportunities and backhaul opportunities for the railroad (Notre Development Corporation, 1996). According to Notre (1996: p. K-11.1) “the increased stability which would be afforded the local municipalities through the Notre payments will enable the infrastructure priorities of each municipality to be addressed”. Despite the compensatory benefits offered by Notre, however, there was continued opposition to the facility both in and outside the host communities.

6.5 APPLICABILITY OF PRINCIPLES TO CASE STUDIES

For ease of comparison the preceding cross-case analyses have been synthesised in Table 5. Each case is evaluated to determine how well it adheres to the principles of effective siting outlined earlier in the thesis. The cases are evaluated on a three-point scale. “++” means that this principle is strongly evident in the case; “+” means that the principle is somewhat evident; and “-” means that the principle is not evident in that particular case.

From the table it is easy to see that Swan Hills and Montcalm had perfect scores. These were effective siting cases. Cache Creek had mostly negative scores so that was an example of ineffective siting. Ontario LLRW and Adams Mine were borderline cases. As will be illustrated in the “Discussion” section (section 7), it will be argued that Ontario LLRW was an example of effective siting while Adams Mine was not.

TABLE 5: Applicability of principles to case studies

PRINCIPLES	CASES	DEGREE OF APPLICABILITY
PUBLIC PARTICIPATION	Swan Hills	++
	Montcalm	++
	Ontario LLRW	++
	Cache Creek	+
	Adams Mine	+
BURDEN SHARING	Swan Hills	++
	Montcalm	++
	Ontario LLRW	+
	Cache Creek	-
	Adams Mine	-
INDEPENDENT SITING ENTITY	Swan Hills	++
	Montcalm	++
	Ontario LLRW	++
	Cache Creek	-
	Adams Mine	-
COMPENSATION	Swan Hills	++
	Montcalm	++
	Ontario LLRW	+
	Cache Creek	-
	Adams Mine	++

7 DISCUSSION

The aim of this thesis was to determine if the volunteer siting process was a viable alternative to the traditional siting process. As a background, the traditional process was outlined. The issue of NIMBY, widely seen as a reason for the failure of the traditional process, was also discussed. Some factors that were thought to contribute to effective siting were also outlined. The volunteer siting process was introduced as a process that limits NIMBYism and in turn leads to 'effective' siting. To test its viability as an alternative to traditional siting, a case study analysis of five volunteer siting cases from across Canada was undertaken.

Two propositions stemming from the literature review were given. They were:

1. waste facility siting is a dynamic process requiring flexibility; and 2. volunteer siting an example of a flexible siting approach that leads to effective siting. Four principles of effective siting were identified and used to test these propositions. These principles were 1. public participation, 2. burden sharing, 3. independent siting entity, and 4. compensation. Each case was evaluated in turn to determine if the siting process used was effective.

The cross-case analysis illustrated that the presence and development of the four principles, as in the case of Swan Hills, Montcalm and Ontario LLRW, led to effective siting. Although the Ontario LLRW facility was not built, a host community was identified. The reason for the failure to build the facility was not the siting process used but the lapsing of the contract between the government and the host community after the community was identified as a host. The four principles were either not present or not well developed in the Cache Creek and Adams Mine cases. Although the Adams Mine site received approval from the required agencies, it was not an example of effective

siting. This is mainly because the willing host process was seen as being flawed, and therefore, generated sustained public opposition during and even after the siting of the facility

7.1 EVALUATING THE PROPOSITIONS

7.1.1 Proposition 1

The volunteer cases illustrated the dynamic nature of waste facility siting. The steps involved in the volunteer siting process were outlined earlier in the thesis but even there, some flexibility is required. The process cannot be applied as is to every siting situation. Flexibility is needed because of the nature of the wastes to be disposed of and the make-up of the community.

The nature of the wastes to be disposed of partly accounts for the success or failure of the volunteer process. The process worked well for hazardous and radioactive wastes but has limited applicability for municipal solid waste. Even though the process failed in Cache Creek, that was not the failure of the volunteer process but the failure of the siting officials to implement the process as it was used in Swan Hills. As was mentioned previously, hazardous and radioactive wastes are provincial rather than local concerns (i.e. not limited to any particular municipality). It is easier to get volunteers to take care of their own wastes than to ask one community to handle the waste of an entirely different community as would be the case when siting a landfill voluntarily. This has to do with the issue of import control, which has been identified as an important aspect of the successful volunteer siting cases. Residents of the prospective volunteer communities were reluctant to host a facility that would accept waste from outside the province. Also, landfills are sited more often than hazardous or radioactive waste

facilities. To use a volunteer process to site a landfill could result in a maze of volunteer host communities (every community handling another community's waste and not their own). This would not necessarily be a problem except that probably only larger communities would be able to invest the time and resources to site its landfill voluntarily.

The make-up of the community is also important. The facilities that were sited voluntarily were all in relatively small communities. It has been argued that economically disadvantaged communities are more likely to volunteer to host a facility (Opulach et al, 1993). In the cases outlined in this thesis, the communities that eventually volunteered to host the facilities cannot be described as such. In the case of Swan Hills and Montcalm, they had better than the provincial average in terms of unemployment rates and average household incomes. These communities were, however, rural and that means they had a relatively small population. This increases the per capita monetary benefits. It would then be logical to assume that the per capita costs are also increased because of the smaller population. The costs-benefits ratio in a smaller community, however, is smaller than in a larger community. In a larger community, the costs would most likely be concentrated in a certain part of the community but the benefits would extend to the community as a whole. So, perhaps it is not really its economic state nor the total amount of compensation the community receives as a whole that make it more likely to accept a facility but the per capita benefits.

7.1.2 Proposition 2

This proposition states that the volunteer process is an example of a flexible approach that leads to effective siting. The successful siting of previously difficult to site facilities emphasises the potential of the volunteer siting process. Despite its success,

however, it has only been used in five cases across Canada. There have been two failures, Cache Creek and Adams Mine. The failure of the British Columbia government to site a hazardous waste facility in Cache Creek was mainly because it did not implement the volunteer process as it was used in Swan Hills. The Adams Mine case also did not follow the process used in the successful siting cases. The failure of this case, however, was more extensive.

Adams Mine, and to a lesser extent Cache Creek, illustrated some important points of contention with the volunteer process. First of all, an extensive public participation process is necessary. This is true whether the siting process used is voluntary or traditional. Dealing specifically with the volunteer process, however, several flaws were exhibited. First, the definition of host community was not uniform. Since the process is relatively new (even though it's been around for 15 years it has only been used in a handful of cases), there is no established and widely used definition of host community. This is a problem because the potential negative effects of a facility can extend outside the boundaries of the host community, especially if there is a watershed involved. Those outside the host community did not volunteer to host the facility yet they could suffer the ill effects of it but not share in the benefits. This is the case with Adams Mine where any potential environmental problem could extend beyond the host region because of the nearby watershed. In the Adams Mine case there is controversy surrounding whether or not there is a true willing host. In this case, the site is located in an unorganised area, which means that there is no municipal government. According to Metro's definition of willing host, "if the nominated site is located ... in areas without municipal organisation, a resolution is required from neighbouring municipalities as may be deemed appropriate by the provincial government" (Senes Consultants Limited, 1993).

Notre signed agreements with the three neighbouring communities of Kirkland Lake, Larder Lake and Englehart and resolutions were subsequently passed in those communities. That should have been the end of the controversy because the guideline set by Metro had been met. This, however, was not the case. The problem stems from the choosing of these communities. According to Notre, these communities constituted the catchment area for the miners previously employed at Adams Mine. The opening of the landfill was intended to offset some of the economic losses that occurred when the mine closed (Notre Development Corporation, 1996). Issue was taken with this because many in the other surrounding communities felt that the host communities should have been those affected by the facility (Griffin, 1996).

It is no coincidence then that the successful siting cases were in relatively small communities. It is doubtful whether a large southern Ontario community, for example, would volunteer to host a waste facility. The definition of community should involve some area dimensions but that would be difficult and would depend on the density and land uses surrounding the potential host site. Again, the Adams Mine case clearly illustrates this. Proximity to the site was another determination of the host community. The fact is that there are communities with municipal governments closer to the site that were not chosen to be a part of the host region (Griffin, 1996). It seems as if communities were discarded until they agreed to be a host community. In other words, communities closer to the site may have been asked and when they did not agree Notre moved on to the next community. The fact is that Notre could have stopped searching for host communities after Kirkland Lake. Also included in Metro's definition of willing host is "a willing jurisdiction responsible for solid waste management..." (Senes Consultants Limited, 1993). Kirkland Lake is responsible for the solid waste in this area and they are

also the community that is closest to the site. The problem is that the communities that will potentially be affected by the landfill are not just those that signed the host agreement. Since the waste will have to be transported from the point of generation there is some associated risks to those communities along the transportation route as well.

Another issue with the volunteer process is the method of determining community acceptance. In all of the volunteer siting cases a referendum was used to gauge public acceptance. This presents two problems - the question posed on the referendum and the acceptable level of approval. In the Adams Mine case, the referendum question asked if the citizens wanted an environmental assessment of the proposed facility conducted. The positive response was then used as the basis for the resolutions that the host communities signed entering into an agreement with Notre. The residents, however, did not say they wanted the facility in their community. In fact, unofficial surveys were conducted in the host communities as well as the neighbouring communities and the results were overwhelmingly against hosting the facility (Griffin, 1996). In the past volunteer siting cases, intense public opposition disqualified a community from going any further in the process but this did not happen in this case.

Another problem is what constitutes a positive response? Does a sixty-five percent vote mean residents are in favour while a sixty percent vote means they are not? Or is 50.1 percent the universally accepted level of approval? This is a figure that should be set before the referendum is held. But who sets this figure? Getting communities to volunteer to host the facility is also important. As was pointed out earlier, if no communities volunteer then the traditional process comes into play. This was almost the case for Adams Mine because it was the only site that emerged from Metro Toronto's Willing Host Site Search. The difficulty with having only one site is that the voluntary process

allows a community to opt out of the process. Therefore, if a community opts out, there will be no potential hosts left and the volunteer process is no longer applicable.

7.2 OVERVIEW OF THE VOLUNTEER PROCESS

The volunteer process has its salient points. When used properly it does appear to overcome some of the reasons behind NIMBYism. More specifically, the volunteer process affords the public a greater role in the siting process than does the traditional approach. This lack of public involvement contributes greatly to NIMBYism. There is, however, limited applicability to landfills. The process is also limited by where the facility can be sited. Other problems involve the definition of host community and the method used to gauge community acceptance. In view of these problems, proposition two should be modified to: the volunteer process is an example of a flexible approach that leads to effective siting 'within certain parameters'. Despite its shortcomings, the volunteer approach shows potential. The important thing is that the problems with the traditional process have been brought to the surface and that there are attempts to alleviate some of these by adopting a more flexible process.

The case study analysis has pointed out that despite the process used, involving the public as early as possible in the siting process is important. This can help to foster trust between the potential host communities and the siting proponents. As was pointed out in the facility siting credo, establishing trust in the siting process is a pre-requisite for successful siting. Early public involvement is one way to accomplish that. The fact still remains that united we site, divided we fail.

7.3 TOWARDS THE FUTURE

Further research is needed to determine ways to improve the volunteer process. Since it has only been used in a handful of cases, this will be difficult. Further research is necessary because of some of the problems associated with the traditional process. Depending on the nature of the waste and how the public views its responsibility regarding its disposal, the volunteer process creates the potential for minimal conflict and thus, effective siting. Further research on volunteer siting should focus on the following areas:

1. The definition of host community

It is the host community who volunteers to accept a facility. Defining this host community, as was illustrated with the Adams Mine case, is difficult. This is mainly because the effects of the proposed facility may be felt outside of the host community.

2. Determining community acceptance

In all of the volunteer cases, a referendum was used to gauge public acceptance of the facility. The question asked on this referendum, however, was not uniform. This needs to be corrected. Also, once this referendum is posed what is the acceptable level of approval? In a democratic society such as Canada, 50.1 percent is a majority but for something as volatile as facility siting perhaps this percent needs to be higher.

3. Effect of compensation of a community's willingness to volunteer

Siting cannot take place without compensation. In the cases outlined in this thesis, compensation was discussed close to the time when the eventual host community was chosen. If the compensatory benefits were outlined in the beginning of the process would this lead to more volunteers?

4. Applicability to landfills

Landfills are the waste facility sited most often and, therefore, present more of an opportunity for conflict. A siting process that can possibly minimize this conflict would be welcome.

These are the areas needing follow-up. Until these factors are resolved, they may become a source of conflict and thus impede the volunteer siting process.

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