PSYCHOSOCIAL IMPACTS OF THE LANDFILL SITING PROCESS

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IN TWO SOUTHERN ONTARIO COMMUNITIES

By

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ABSTRACT

In the context of siting waste disposal facilities, recent research suggests that the well-being of individuals and communities is impacted as much by the siting process as the outcome itself. The study results presented here stem from an ongoing, two-stage quantitative/ qualitative investigation of impacts of the environmental assessment process on individual and community well-being. This research uses a parallel case-study design to investigate two proposed landfill sites in Southern Ontario. Qualitative approaches (in-depth interviews (n=36) and media analysis) were used to address the following objectives: to explore the meaning of the landfill siting process by examining resident concerns; to examine the effects of the siting process by documenting psychosocial effects, coping responses, and perceptions of effects on community; and to examine the role of various information sources in influencing risk perception, effects, and coping. Results indicate substantial impacts on individual and community well-being, including reports of stress, hostility, and divisions within the community. The experience of psychosocial impacts, as well as the effectiveness of both action and emotion-focussed coping strategies, appear to be influenced by perceptions of uncertainty, intensity of concern, and exposure to information sources. Further, the media analysis revealed that impacts were exacerbated by the nature of reporting in the local print media. These findings have implications for the recently revised environmental assessment process in Ontario.

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CHAPTER 1

INTRODUCTION

1.1 The Research Problem

Finding solutions to issues in waste disposal is becoming increasingly difficult. The process of siting a waste disposal facility, even for non-hazardous waste, creates uncertainty, anxiety, and unrest in the surrounding communities. This can lead to adverse psychosocial effects (defined as the complex of distress, dysfunction and disability, manifested in a wide range of psychological, social, and behavioral outcomes in individuals, groups, and communities as a consequence of actual or perceived contamination) which can, in turn, have long term consequences for the health of individuals and communities (Taylor et al., 1991). Local populations are becoming increasingly opposed to facilities which they perceive may threaten their environment and their health. There is some indication that this opposition is due more to the uncertainty and other factors embedded in the process of siting a landfill, rather than in the landfill itself (see Elliott et al., 1993 and 1997). This indicates a need to identify and better understand the factors in the landfill siting/ environmental assessment process which contribute to psychosocial effects.

1.2 Research Context

This research is one component of an ongoing, multi-stage research programme which employs a combination of quantitative and qualitative approaches to investigate the effects of the waste facility siting process on individuals and communities. The communities surrounding two proposed landfill sites were selected for study: the Taro Aggregate/Philip Environmental West Quarry site in Stoney Creek, and the Steetley/Redland Quarry Products site in Greensville. These two sites have similar physical characteristics, involve similar types of proposed facilities, and are geographically proximate (indicating similar overall cultural and historical patterns). The siting processes in these communities occurred within the same legislative context and in relatively the same time period. This research uses a parallel case-study design to investigate similarities and differences between the siting processes which occurred at the two sites. The results of research at the two sites are, however, presented together in order to avoid repetition.

1.3 Objectives of This Research

This research explores experiences of the process of siting a non-hazardous waste facility in two communities in Southern Ontario by addressing three objectives:

1) To uncover what the landfill siting process means to individuals

This research identifies and explores residents' concerns about proposed landfill sites and the landfill siting process in their communities, in order to understand the context of these concerns. Particular attention is paid to the role of uncertainty in risk perception, and to

individual perceptions of other key stakeholders (e.g. industry) in the process.

2) To explore the effects of the siting process on individuals and communities

This study investigates individual psychosocial effects and coping responses. In addition, residents' perceptions of the effects of the siting process on different elements of their community, and on the community as a whole, are explored. Previous research has shown that psychosocial effects cannot be divorced from the wider community context in which they occur (Buttel, 1987; Edelstein, 1988) - this indicates that *place* is an important factor in both the development and mitigation of effects.

3) To examine the role of various information sources in influencing perception

In this research, the sources from which residents obtained information about the landfill site proposal are determined, but more importantly the ways in which individuals used that information will be explored. Particular attention is paid to differences in the ways information is regarded and interpreted, and the relative importance of different sources of information to different individuals. How media coverage of these siting processes influences the perception of the process is specifically investigated.

1.4 Contributions of This Research

This research contributes to our understanding of the relationships between events which predicate environmental stress and the process of psychosocial effects. In particular, it provides insight into the role of the environmental assessment *process* in the development

of psychosocial effects, the use and usefulness of different coping strategies, and the function of information sources. The results of this study will be used to help validate and corroborate the results of the associated quantitative research, and to inform the development of a modified quantitative instrument for a follow-up study. This research will also be compared to the results of other qualitative studies which examined existing landfill sites, as well as to the theoretical literature, to identify similarities and differences between experiences and conceptions of psychosocial impacts.

This study examines two of the last complete siting processes taking place before a new process came into effect in Ontario. As such, this research takes advantage of a unique opportunity to study the previous process, in order to identify strengths and weaknesses of the former approach and to inform future alterations to the landfill siting process.

1.5 Chapter Outline

This thesis consists of five additional chapters. In **Chapter 2**, literature relating to the psychosocial impacts of landfill sites is reviewed. The chapter begins by locating this research within geographical, interpretive, and health perspectives. This is followed by reviews of specific areas of theory, namely environmental risk perception, environmental stress and coping, the "risk society", and the role of information sources in risk perception.

The two communities under study are profiled in **Chapter 3**. First, the two Southern Ontario communities, Stoney Creek and Greensville, are chronicled according to socio-demographic statistics, community contexts, and the histories of the proposed landfill sites and the site's proponents in both locations. Next, an overview of the legislative and political

frameworks in which the landfill siting process operated in these two communities is given.

Chapter 4 describes the design and methodology of this research. After a brief introduction, the study design is discussed (Section 4.2). Next, issues surrounding the choice of methods are discussed, including the use of qualitative methods, grounded theory, and qualitative software. Section 4.4 details the depth interview research process, then the methods of media analysis are elaborated in Section 4.5.

In Chapter 5, the results of this research are detailed. First, reactions to the proposed site itself are catalogued, investigating concerns about, as well as possible benefits of, the proposal. Then, perceptions of the siting process, as separate from the site, are investigated. The next section examines the role of information sources in this process, by looking at the amount and foci of media coverage, and the perception of media and other sources of information sources by the respondents. Next, the effects of the whole of the siting process on the lives of the respondents are examined. Finally, coping strategies used by the respondents are investigated.

A discussion of the results of this research, in which the major findings are reviewed and compared with other related research, is included in Chapter 6. The implications of these findings are also discussed, particularly with respect to contributions made to the literature. This thesis ends with a discussion of the policy implications of this research, and suggestions for further research.

CHAPTER 2

THEORETICAL PERSPECTIVES ON THE PSYCHOSOCIAL IMPACTS

OF PERCEIVED ENVIRONMENTAL CONTAMINATION

2.1 Theoretical Context

2.1.1 Interpretive Frameworks

This study takes Berger and Luckman's (1966) theory of the social construction of reality as a starting point. They propose that the social world is constantly created and re-created by humans, but is subsequently experienced by them as objective. This theoretical framework is widely used in the study of health since, according to many researchers, 'illness' is a social construct which does not exist independent of human perception (Eyles and Donovan, 1990; Jones and Moon, 1987; Kearns, 1993). Building on this concept, this study draws primarily on environmental stress theory and several models of communication to flesh out how environmental risk may be constructed in modern, media-literate society.

It should be noted here that although social constructionism advances the view that "reality" is intersubjectively constructed, the risk from environmental contamination, specifically from landfill sites, should not be *reduced* to perception. Many forms of contamination are invisible, and therefore are often left undetected until physical health effects are seen, and sometimes long after that (Meade et al., 1988; Vyner, 1988). Conversely, the

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risk perceived by individuals and communities surrounding a landfill may be significantly greater than the "objective" (quantitative) risk that has been identified. However, this does not indicate that perceived risk is not "real", for two reasons. First, quantitative risk assessment is as much a social construct as individually perceived risk, albeit shrouded in scientific legitimacy (Brown, 1992). Second, perceived risk plays a definite role in the production of psychosocial impacts; that is, if the situation is defined as "real", it will be real in its consequences. In the case of communities in proximity to waste facilities, for example, perceived risk has led to measurable impacts on health and well-being (Elliott et al., 1993; Elliott et al., 1997). More research is needed to elaborate the relationships between quantifiable risk, risk communication, perceived risk, and psychosocial effects.

2.1.2 Health Perspectives

For the purpose of this research, health is defined broadly, following the example of the World Health Organization which in 1986 defined health as the "extent to which an individual or group is able, on the one hand, to realize aspirations and satisfy needs and, on the other hand, to change or cope with the environment" (in Epp, J., 1986). This definition recognizes the need to account for a wide variety of factors in judging "health", not just the presence or absence of physiological illness. It goes beyond the traditional "biomedical model" of health, which assumes that all disease has a specific, traceable, biological cause which medical science can only treat effectively through bodily intervention (Eyles and Woods, 1983; Jones and Moon, 1987). A more inclusive health framework is necessary to explain the reality of health and illness (Eyles and Woods, 1983; Donovan, 1988; Evans and

Stodart, 1990), particularly to demonstrate the connections between the landfill siting process and psychosocial health.

This research is based in a socio-ecological model of health, based on the assumption that illness consists of subjectively defined illness states in addition to disease processes: while disease processes are biological, illness states are behavioural changes associated with disease or the belief that disease is present (White 1987). This model of health allows for the presence of psychosocial effects on health even when exposure to a disease-causing contaminant has not occurred, and does not minimize the importance of subjective experience, including the experience of "stress".

2.1.3 Medical Geography

A primary area of study within geography is the relationship between humans and their environment. In this context, medical geography investigates the influence of this relationship on human health. Medical geography also helps to bring together the various social and physical sciences by using "the concepts and techniques of the discipline of geography to investigate health-related topics" (Meade et al., 1988, 3).

Early medical geography focussed on quantitative, spatial pursuits such as tracking the spread of disease and studying health care utilization (Jones and Moon, 1987): however, medical geography has always recognized the importance of context in studying health, as May (1950) illustrates:

> "...disease is a multiple phenomenon which occurs only if various factors coincide in time and space. The focus of interest widens to encompass the relationship between various factors of this complex and their respective

geographic environments. This can be called 'medical geography'." (9)

Recently, there has been a reassertion of the role of place in shaping health within medical geography (Kearns, 1993; Jones and Moon, 1993; Gesler, 1992), underscored by a broadened view of health as embedded in socio-political processes and lived environments (Kearns and Joseph, 1993). Contemporary medical geography recognizes the role of social and environmental processes in shaping health, and reflects an interest in how place and space relate to socio-environmental phenomenon (Stokols, 1996). Human-environment interactions are enabled and constrained in time and place-specific ways, contingent on social and institutional structures (Dyck, 1995). The task of the medical geographer is to "unravel the complex locale into its constituent elements and processes" (Wolch and Dear, 1989, 7) in relation to health and the impacts of environmental processes on health.

2.1.4 Hazards and Environmental Contamination Research

Hazards research is another traditional area of geographic study, again because it investigates the relationship between humans and their environment. Hazards can be defined as "a range of natural events, manufactured systems, and people that threaten our lives and life support systems, our emotional security, our property, and the functioning of our societies" (Mitchell, 1989, 410). Within geography, hazards research has tended to focus on natural hazards, such as tornadoes and earthquakes. More recently, increasing attention has been paid to technological hazards, such as exposure to hazardous waste (Baxter, 1997). Attention by medical geographers to the impacts of technological hazards on psychosocial health is relatively recent (e.g. Taylor et al., 1989, Baxter et al., 1992, Elliott et al., 1993).

This study will build upon (and add to) the emerging body of literature connecting technological hazards, psychosocial effects, and coping strategies.

2.2 Environmental Stress and Coping

2.2.1 Environmental Stress

Environmental stress theory has been criticized because of its unclear conception of "stress", which obscures the description of relationships between stressful events and specific outcomes (Taylor et al., 1989). However, the environmental stress concept is useful in examining psychosocial effects, particularly where the emphasis is on identifying the process of these effects rather than the outcomes alone. Baum et al. (1985) define environmental stress as "a process by which environmental events threaten, harm, or challenge an organism's existence or well-being, and by which the organism responds to that threat" (186). This is a useful definition, as stress is seen not only as an outcome of a threatening situation, but as an integral part of the process of evaluating and coping with that threat.

The nature of an environmental stressor can influence the development of psychosocial impacts. Evans and Cohen (1987) classify environmental stresses as cataclysmic (disaster events, natural or technological, which demand major adaption), ambient (continuous and relatively stable, e.g. air pollution), life events (major changes in personal situation), or daily hassles (situations which produce short-term irritation). In addition, stress events can be categorized according to six additional criteria (adapted from Evans and Cohen, 1987) often used in this field (e.g. Slovic, 1987; Hallman and Wandersman, 1992): sensibility (the degree to which stresses are consciously noticeable); value/necessity (the costs vs.

benefits of the event); control/capacity for action (how much control the individual has to alter or remove the source of stress); predictability (the degree of uncertainty surrounding the event); responsibility (whether blame can be assigned for the event); and duration. In general, events are thought more stressful when they are noticeable[1], have high costs and few if any benefits to the individual, are not under the control of the individual, and are not predictable (i.e. are uncertain). In addition, more stress is thought to be experienced when a responsible agent can be identified, and when the event is of medium duration (Evans and Cohen, 1987).

Individual differences can also mediate the experience of psychosocial effects. Stressful events are subjectively perceived by individuals; the same event, therefore, may be perceived differently by different individuals. In addition, individuals' emotional (e.g. self-esteem) and material resources differ, and these differences may influence the nature and degree of impact (Pearlin and Schooler, 1978).

Characteristics of individuals' social support networks, as well as of the wider community system, can also influence the experience of psychosocial effects. Individuals who report a supportive social network experience fewer negative psychosocial impacts (Edelstein, 1988; Fleming et al., 1982). At the wider community level, the ability of individuals to learn about events, share their perceptions of events with others, and influence the course of these events, are all important (Eyles et al., 1990; Sandman et al., 1987; Freudenberg, 1991). Information transfer, particularly through the mass media, is a key component of the community system (Eyles et al., 1990), since the volume and quality of information an

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[1]

Although Vyner (1988) alternatively suggests that invisible rather than noticeable threats cause the most stress.

individual is exposed to can influence the experience of stress and the selection of coping strategies. The perceived trustworthiness of the "official" agencies and/or institutions within the wider community system in regards to an event is another important mediator of psychosocial impacts (Kasperson et al., 1992; Checkoway, 1981). Perceived unfairness in the siting process can play a key role in the development of concern around a site (Lober, 1995). As Edelstein (1993) notes, distrust reflects the dynamics of siting, not inherent qualities of the site (see also Baxter, 1997). This means that the avoidance or reduction of community distrust could result in an important decrease in psychosocial impacts in the effected community. More research is needed in this area, however, to determine how trust is created, destroyed, and re-established by different actions and in different contexts.

The experience of psychosocial effects, then, can be mediated by characteristics of the stressor, the individual, their social support networks and the wider community system. These factors interact with one another and with the experience of psychosocial impacts **(Figure 2.1)**, allowing the context in which an event occurs to shape the experience of psychosocial impacts.

2.2.2 The Siting Process, Risk Perception and Environmental Stress

Most research into the psychosocial impacts of waste disposal facilities has focussed on sites which are already operational (e.g. Elliott, 1992; Taylor et al., 1991). However, recent research indicates that there is greater evidence of psychosocial effects during the siting process itself (Elliott et al., 1993 and 1997). In this study, the environmental stressor is a proposed land use, not an existing one. This means that the resulting impacts (and

FIGURE 2.1

Interactions Between Contaminant, Individual, Social Network, and Community
Characteristics and Psychosocial Impacts

CHARACTERISTICS OF THE
CONTAMINANT SOURCE

CHARACTERISTICS OF
THE INDIVIDUAL

PSYCHOSOCIAL IMPACTS

CHARACTERISTICS OF
THE SOCIAL NETWORK

CHARACTERISTICS OF THE
WIDER COMMUNITY SYSTEM
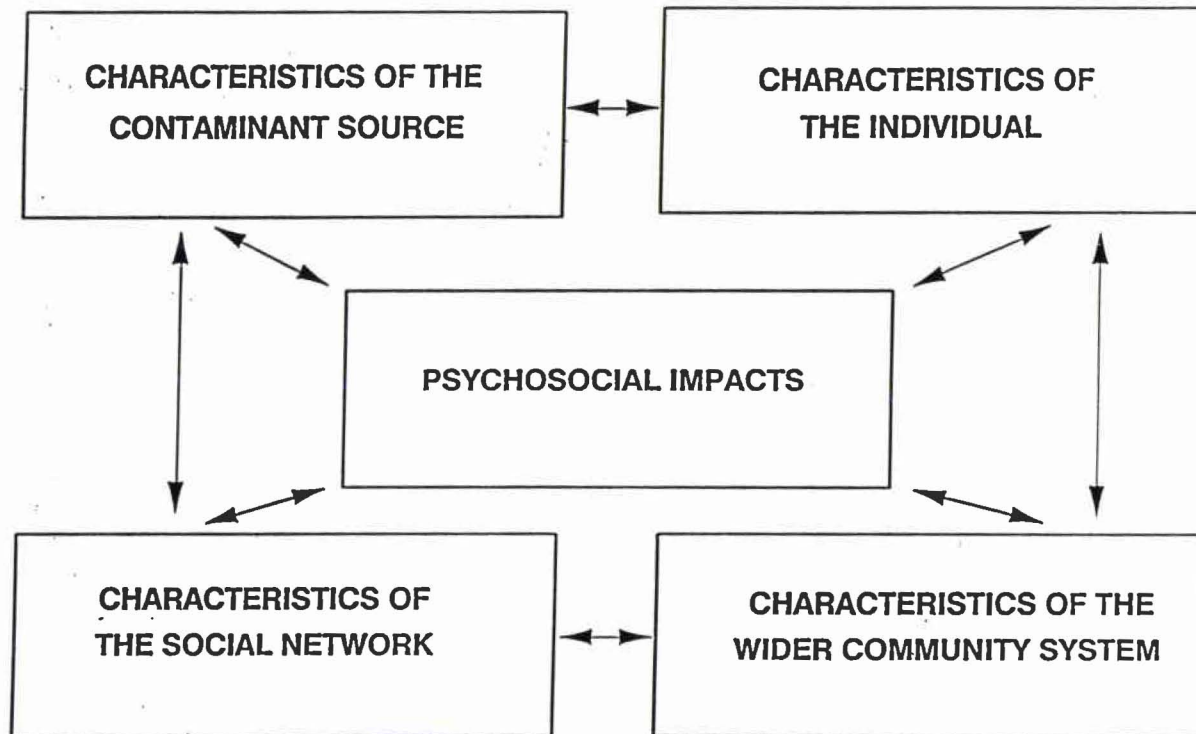
consequent psychosocial effects) are related to the perception of risk rather than "actual" exposure" to an environmental contaminant which could cause harm. The literature concerning risk assessment, perception, and management therefore provides some conceptual guidance in this area. A distinction is often made in this literature between "actual" (i.e. "biometric" or quantitative) risk and perceived risk (Kahneman et al., 1982; Slovic, 1987; Elliott et al., 1993). Differences between perceived and "actual" risk stem from the incorporation of qualitative factors (such as dread, unfamiliarity, and catastrophic potential) into the risk assessments of the general public (Fischhoff et al., 1987). This can lead to a gap between the risk evaluations of experts and those of lay-people, which in turn can cause considerable strife between professional "risk managers" and the public. In this context, the communication of risk messages and, therefore, the system of information transfer within the wider community, is important because the promotion of differing conceptions of risk can either reduce or increase impacts.

2.2.3 Stress Responses

A significant body of literature examines the nature of people's reactions to stress. Some recent research investigates the effects of non-hazardous waste sites (Elliott et al., 1993; Eyles, et al., 1993; Baxter, 1997): however, the vast majority of this literature deals with the impact of hazardous waste disposal. At these sites, significant emotional effects have been reported, including depression, helplessness, anger, fear, guilt and a feeling of losing control of their own lives. These effects can be accompanied by panic, nightmares, insomnia and disturbances of memory and cognitive function (Coulter and Noss, 1988).

These individual-level effects are often accompanied by effects at the level of social networks and the community. More family worries, worries about personal health and children's health, and a loss of trust in others have been reported (Unger et al., 1992; Edelstein, 1988). People may experience interpersonal conflicts as a result of exposure to a hazard (Edelstein, 1988), either directly (because of disagreement about the nature or intensity of the problem) or indirectly (because of the effect of the process of dealing with the hazard on other aspects of life). Tensions often emerge between different elements in a community because of conflicting assessments of the risk posed by a potential or actual hazard (Levine and Stone, 1986; Edelstein, 1988; Brown and Mikkelson, 1990). The stress placed on the community may also exacerbate existing tensions, such as the distinctions between younger residents who see their tenure in the community as limited and older, established families who never intend(ed) to relocate (Fowlkes and Miller, 1982). Effects are variable, however, and are not consistently negative: for example, increased social cohesion has been observed as a positive effect of stressful events on social networks (Sorensen et al., 1987), and research in the Toronto area has indicated that community members and groups often pull together in the face of a possible or actual hazard, despite substantial differences in social class and length of residency within the community (Walker, 1995).

2.2.4 Coping Strategies

Certain ways of coping with stress are thought to influence psychosocial processes. Lazarus and Folkman (1984; also Folkman and Lazarus, 1988) identify two stages in coping response: primary appraisal and secondary appraisal. Primary appraisal occurs when an

individual identifies an environmental stressor as a threat, harm, or challenge. Secondary appraisal takes place when the individual determines a course of action. Coping is an ongoing process: reappraisal of the stressor may take place at any time during or after an event. Follow-up appraisal of an event, situation, or process may occur because of any number of stimuli, including access to new information, a new event (related or unrelated to the original), or changes in individual lifestyle or position (Cohen et al., 1986).

Of particular interest to this research is the use of different coping strategies to deal with the stress of the landfill siting process. Coping strategies are commonly divided into two categories: emotion-focussed coping responses, which include strategies such as minimization of risk and wishful thinking; and problem-focussed coping responses - for example, talking about the problem, getting more information about the problem, developing a plan of action, generating solutions, or joining an opposition group (Lazarus and Folkman, 1984). Factors which are thought to influence the adoption of coping strategies include individual style, social support such as friends, family, neighbours, community organizations, etc., and whether or not the situation is seen as alterable (Elliott, 1992; Hallman and Wandersman, 1992). The use of emotion-focussed or action-focussed coping strategies is thought to be linked to the successful minimization of psychosocial effects, although the impacts of the use of either strategy are not consistent in the literature on environmental hazards (Unger et al., 1992). However, the use of problem-focussed coping strategies has been linked with greater involvement in the community (Bachrach and Zautra, 1985; Elliott et al., 1993). It is important to note that coping strategies are not always successful, and the process of coping with a stressor may have its own damaging effects (Cohen et al., 1986).

For example, the use of "effortful" or exhaustive coping can lead to fatigue, while smoking to reduce stress is physically damaging (Cohen et al., 1986).

Other frameworks can assist in categorizing coping responses. A system developed by Anthony Giddens (1990) is particularly relevant here, since it pinpoints coping responses which are particularly likely to be present in the "risk society" (a concept discussed further in Section 2.3). Giddens identifies four "adaptive reactions" which stem from the perception of modern risks. 'Pragmatic acceptance' is characterized by a "numbness" towards the issue and a withdrawal into everyday life: Beck calls this "turning inwards" (1992b). 'Sustained optimism' is marked by a "continued faith in providential reason", and therefore by ongoing trust in the pronouncements of scientists and "experts", regardless of their credibility. 'Cynical pessimism' leads to the use of black humour as a protective mechanism, while 'radical engagement' involves the practical contestation of social and institutional systems which have led to the development of these risks, and is the root of social movements.

2.3 The Risk Society

To some, perception of environmental risk, and the consequent experience of stress, is not a localized, site-specific occurrence. Certain authors, particularly Ulrich Beck and Anthony Giddens, have asserted that the pervasiveness of concern about risks in Western societies signals a fundamental shift in the way individuals and societies see and interact with the world. They postulate that modern risks differ from past risks in several important areas. First, modern risks represent the "dark side of progress"; that is, they are the products of techno-economic decision-making, rather than "natural" and therefore unavoidable risk

(Beck, 1992a; Giddens, 1990). These risks are based on causal interpretations of the actions of individuals and institutions, and as a result are no longer seen as unavoidable "acts of God".

Second, modern risk is invisible, and therefore "private control over the means of perception is overthrown" (Beck, 1987, 155). This means that individuals must rely on centralized information (Beck, 1987), and must place trust in expert systems (Giddens, 1990). These systems are "opaque", in that most members of society are no longer aware of how they work - for example, few people understand the inner workings of an "engineered landfill". As a result, risks are often hidden within these systems (Giddens, 1990). Truth becomes fluid in this situation because information, rather than direct sensory perception, becomes "reality" (Beck, 1987). This means that information access and management are extremely important in the process of defining risk.

Third, modern risks are irreversible, catastrophic, and global in scale (Beck, 1992b). Beck (1992b) asserts that modern risks are therefore "democratic", since all members of society would eventually feel the effects of an environmental catastrophe such as global warming or ozone depletion. However, he concedes that, at least at present, individuals are differentially burdened with these new risks. In addition, the global nature of the new risks add to the increasing detachment of space and time in modern society (Giddens, 1990): that is, the intimate and distant become more directly connected (Beck, 1987), while local occurrences begin to lose relevance.

Finally, modern risks are the product of a new way of looking at the world, which both Beck and Giddens term "reflexive modernization". Reflexive modernization describes

the self-conscious investigation and criticism of things once taken for granted by society, including the structure of modern society itself. The concept of "progress" and of scientific rationality have been particular victims of this critique, which is paradoxically rooted in the successes of science in promoting a rationalist and sceptical worldview. This has resulted in a de-mystification of science and progress, and a recognition of the basic uncertainty of scientific inquiry. The resulting decline of trust in science and technology, along with the removal of the material needs that led to the acceptance of risk in modern western society, has meant that technological risks have become less tolerable or justified, and as a result the production of these risks has been redefined as a political, rather that techno-economic decisions (Beck, 1992b).

The prevalence of this new conception of risk in modern society has several consequences. Giddens (1990) postulates that recognition of/experience with modern risks can lead to a breach in individuals' "ontological security"; that is, their confidence in the reliability of persons and things which prevents them from being paralysed by 'existential angst' could be compromised. This security, or "protective cocoon", is maintained by the use of routines, which help to 'bracket out' unpleasant or unnerving areas of life. Facing modern risks can lead to the destruction of this sense of security, the loss of which culminates in a "fateful moment" where individuals find themselves at the "crossroads of existence", unable to turn back. Beck hypothesises a similar moment of realization, which he terms the "anthropological shock" (Beck, 1987). For Beck, this is often the moment when security (implying safety) becomes probable security (implying risk).

Several criticisms have been made of the risk society theory. Leiss (1994) and

Roberts (1992) both fault Beck in particular for the lack of detail and example in his work, and feel that this body of theory has been overstated in its significance. Certainly, this theory is limited by its exclusive focus on modern western society, and is not convincing in its claims that this construction of risk is entirely new and truly independent of social class. Several questions also need to be addressed, including the role of non-global, non-catastrophic risk in the risk society[2], and the dynamics of the development of "risk appreciation" (i.e. environmental worry) in the risk society. However, there are some important insights to be gained from this work, particularly with regards to the role of expert systems, science and information in the development of risk, and also the relevance of the "fateful moment"/ "anthropological shock" concept to the stress and coping literature.

2.4 The Role of Information Sources

2.4.1 Introduction

Although it is often assumed that the media and other social networks play a large role in meditating psychosocial impacts, research in the area of environmental stress rarely elaborates on the nature of this relationship. Indeed, a simplistic relationship between (for example) quantity of newspaper articles and increased concern is often assumed (e.g. Norman, 1994; Coleman, 1995). There is little evidence, however, that this conception of the role of the media is an accurate reflection of the nature of this relationship. In fact, much of

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Mol and Spaargaren (1992) state that regional problems and therefore risks are quite different from high consequence risks and therefore should not be connected to global risks and the hypotheses of the risk society. However, this claim has yet to be critically examined fully (see Baxter et al., 1997).

the current research into the effects of media messages on individuals indicates that this relationship is much more complex than previously thought (see Rosengren et al., 1985, Liberman and Chaiken, 1992, and McCarron et al., 1994). Theories of the role of the media in society, drawn from the mass communication literature, provide useful frameworks for more complex analysis of the dynamics of information exchange in the landfill siting process.

2.4.2 *The Social Amplification of Risk*

The theory of the social amplification of risk builds on the idea that "what human beings perceive as threats to their well-being... are less a question of predicted physical outcomes than of values, attitudes, social influences, and cultural identity" (Renn et al., 1992, 138). Kasperson et al. (1988) assert that events interact with personal, social, institutional, and cultural processes in ways that can heighten or attenuate individual and social perceptions of risk, which can in turn shape behaviour (see **Figure 2.2**). According to Renn (1991), the process of social amplification begins with an event (e.g. the proposal of a landfill) or the recognition of an adverse impact (such as groundwater contamination). Individuals or groups then select specific characteristics of, or information concerning, these events and interpret them according to their own perceptions and mental schemes. These interpretations are made into a message, which gets communicated to others. In essence, as individuals and groups collect and respond to information about risks, they act as "amplification stations" through which specific types and parts of risk messages are transmitted. Transmission of these messages causes a "ripple effect" which can spread specific conceptions of risk throughout the social system, adding to the possibility of certain societal outcomes, such as litigation

FIGURE 2.2

Social Amplification of Risk

| Hazard Event | Selection of Event Characteristics | Information Flow | Interpretation and Behavioral Response | Spread of Impacts (Rippling) | Type of Societal Impacts |
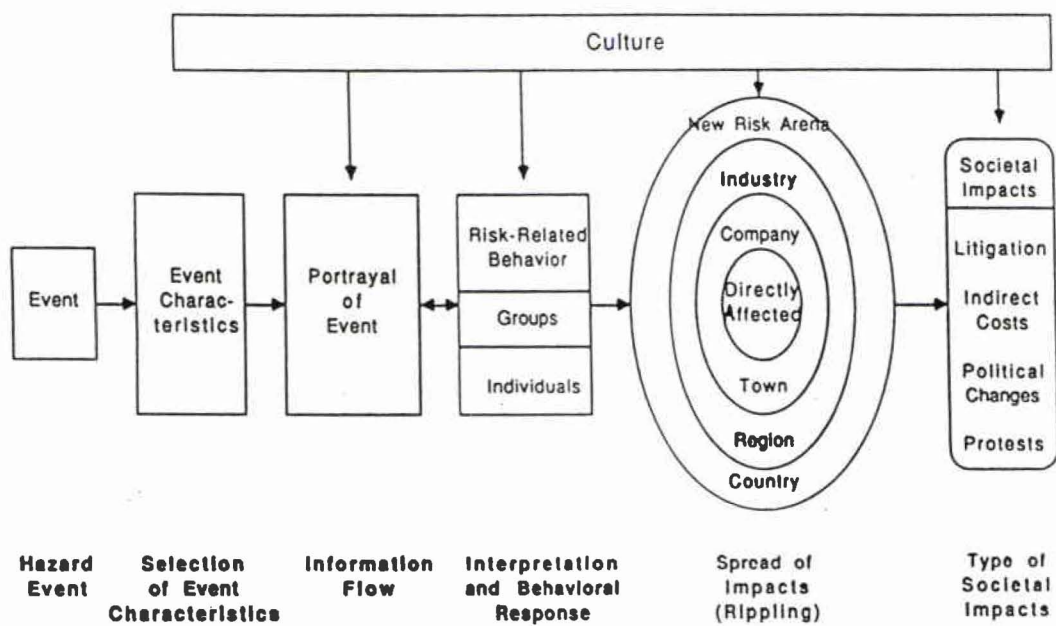
Source: Renn et al., 1992

(Renn et al., 1992).

This model highlights the importance of information sources, but does not deny the role of information interpretation and representation/reconstruction on the part of individuals and groups within society. It therefore provides a useful framework for understanding the role of information sources in risk perception and the development of psychosocial impacts.

2.4.3 *The Uses and Gratifications Model*

According to this perspective, media are *used* by their audiences to achieve certain ends: to gather information, to entertain, to release tension, to develop personal identity and interpersonal relationships (Severin and Tankard, 1988). The media competes with other sources of need satisfaction (Rosengren et al., 1985), and individuals select the articles they read and the programs they watch based on interest (Severin and Tankard, 1988). The audience, therefore, is not composed of passive receivers of information, but active consumers of media goods which are offered in response to their demands (Lowery and DeFleur, 1988).

At the same time, media messages which threaten the achievement of certain goals may be purposely avoided or selectively interpreted (Sandman, Weinstein, and Klotz, 1987; Liberman and Chaiken, 1992; Wiegman et al., 1992). This means that individuals may choose to ignore messages which they feel would disrupt their lifestyle (such as concerns about the impacts of a landfill).

Although there is some evidence to support this conception of the media's role, the uses and gratifications model does not adequately explain why individuals may process

information in a way that may have negative impacts on their health (for example, by overestimating personal risk, thereby causing stress-related impacts on health). For example, in a study of messages concerning residential radon, Sandman, Weinstein, and Klotz (1987) found that 20% of their sample showed considerably more concern about radon than was expected or considered warranted given low "quantitative" risk: this reaction to media messages cannot be accounted for using a "uses and gratifications" model.

2.4.4 The Agenda Setting Hypothesis

According to the agenda-setting hypothesis (e.g. **Figure 2.3**), the media does not tell people what to think, but it does tell them what to think *about*. One researcher sums up this postulate in reference to news coverage of health issues:

> Through their [the media's] selection… they set the agenda for public policy.
> Through their disclosure of medical discoveries they affect personal behavior.
> Through their style of presentation they lay the foundation for public attitudes
> and actions. (Nelkin, 1985, 643).

The media play an active role in defining certain situations as problems: they authenticate the facts considered in the formation of public opinion, legitimate viewpoints, and prioritize issues (Faupel et al, 1991). The media also dictate what issues are in the public mind: according to the "coverage attitude hypothesis", a rise in the quantity of coverage about an issue results in both the overestimation of the frequency of certain events and the increase in public reaction to these events (Mazur, 1981). This, combined with findings that the amount of media attention to a hazard appears to be unrelated to its "objective" importance (Ader, 1995; Singer and Endreny, 1987) but is instead concerned with an event's "newsworthiness"

FIGURE 2.3

A Hypothetical Case of Agenda-Setting

Time 1	Time 2	Time 3
Public's Agenda	(Media run a series of stories on local polluting sites)	Public's Agenda
1. "The debt"		1. Pollution
2. Unemployment		2. "The debt"
3. Crime		3. Unemployment
4. Pollution		4. Crime
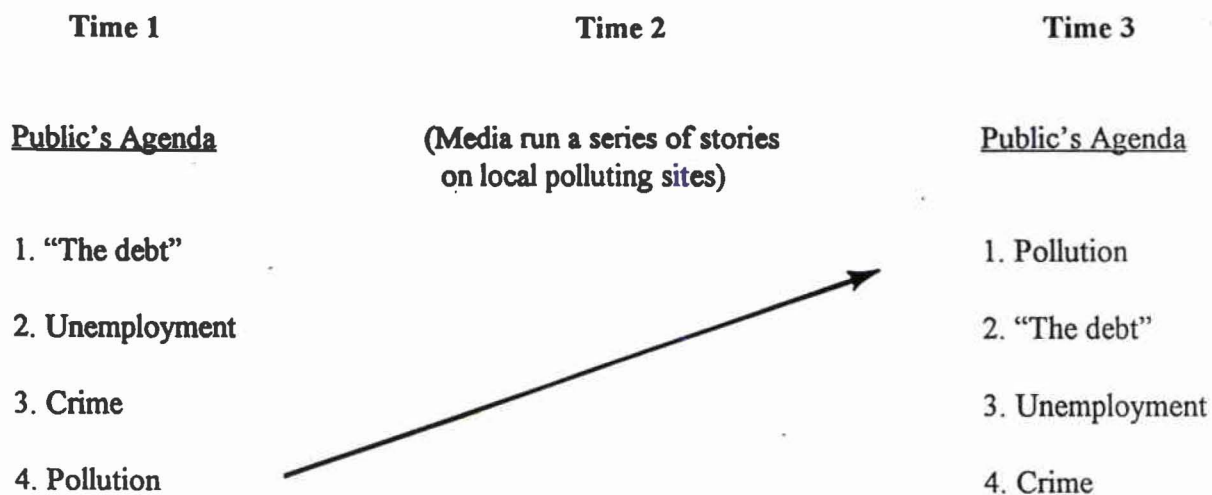
With continued exposure to media messages, the public is convinced of the importance of certain issues over others.

Adapted from Severin, W.J. and J.W. Tankard. 1988. Communications Theories: Origins, Methods, Uses. (2nd ed.) New York: Longman.

(Spencer and Triche, 1994; Singer and Endreny, 1987), leads to the assertion that the media has considerable power in setting the public agenda. In addition to selectively presenting issues to the public, the media 'frames' events in certain ways that help to define occurrences as particular kinds of events (Spencer and Triche, 1994). This 'framing' influences the way in which people construct events: for example, by polarizing issues (Faupel, 1991) and by constructing and reinforcing dualisms such as 'progress vs. the Neo-Luddites' (Ganson and Modigliani, 1989), natural vs. technological (Spencer and Triche, 1994) or jobs vs. the environment. In addition, the media serves to legitimate authority through the use of 'official' sources (Coleman, 1995). These observations of the ability of the media to indirectly affect the content of public debate are worthy of further study.

2.4.5 The Importance of Context in Interpreting Media Messages

These models of communication identify possible mechanisms by which information communicated about the landfill siting process may influence individuals and communities. However, the assertion that the content presented in the media can alone cause certain behaviours should be rejected, since this ignores the complex patterns and interactions of people's lives (Anderson and Meyer, 1988; Jensen, 1995). Instead, interpretations of media messages are viewed as embedded in personal histories and contexts. No single, true meaning can be derived from the content itself, because meanings are constructed (Anderson and Meyer, 1988). The communication of risk messages is particularly variable, because the information being communicated is complex, technical, uncertain, and often contradictory. In addition, the sources of risk information often lack credibility; and strong public beliefs are

resistant to change (Loomis and duVair, 1993). In these circumstances, many other factors besides the message itself come into play. For example, Copley (1992) found that, although media were the most widely mentioned source of info, other forms of communication, particularly face-to-face contact with 'officials', provided what was perceived as more trusted and useful information. The setting in which the communication of information about potential and actual hazards takes place is vital. Eyles (1990) makes this point in the context of "social marketing", highlighting the importance of context in understanding responses to competing messages.

2.5 Summary

This chapter began by providing the theoretical context of this research, detailing a number of relevant models, frameworks, and approaches including social constructionism, conceptions of health, medical geography, and hazard research. This review has concentrated on concepts which are particularly useful in relation to this research: for the most part, the frameworks most suited to this research accept the tenets of social constructionism, working under the assumption that the creation of "reality" is a fluid, ongoing, and participatory process.

The characteristics of environmental stressors, individuals, social networks, and communities which influence the development of psychosocial effects were reviewed. A wide range of potential factors in the development of these effects were reported, many of which may be relevant for this research. Potential effects and coping strategies were also documented: again, a wide variety of effects (at both the individual and community level) and

strategies have been reported in the literature. However, there is a lack of consistency regarding the utility of emotion versus action focussed coping strategies in previous research.

Although the literature on coping with environmental stress is quite extensive, it fails to adequately address two important issues. First, the literature primarily deals with the effects of environmental stress and the process of coping at the individual level. Although some research looks at the links between stress, interpersonal relationships, and coping (e.g. Elliott, 1992; Unger, 1992), few studies address this at other levels of analysis (for example, at the level of the community). Second, the nature of coping strategies, and the links between stressor/individual/societal characteristics, coping responses and the prevalence and nature of psychosocial effects, are not well documented in the literature. This research adds to existing work by exploring coping strategies, their usefulness, and their relationships to psychosocial impacts in more detail.

The 'risk society' literature was also reviewed, to determine the relevance of Beck and Giddens' conceptions of the effects of global, invisible, and catastrophic technological risk on society to this research. The assertion in this literature that there is a growing mistrust of technology in modern society, and that this concern may culminate in one "fateful moment", is of particular interest here, as is the hypothesis that risk is "democratic".

Finally, various theories of the role of information sources were reviewed. The premise that risk messages are amplified and attenuated by societal actors, the conception of individuals as intelligent and active consumers of information, and the hypothesis that the media plays a role in determining key issues within society are particularly pertinent. However, certain gaps in the media and communication literature have been identified. There

has been little investigation of the ways in which media and other messages are interpreted in varying contexts. This is in part due to the difficulty inherent in determining how messages, or parts of messages, have been incorporated into people's daily lives. Separating media effects from wider social effects is difficult, as is attempting to understand how these variables actually interact (Anderson and Meyer, 1988). Investigation of these relationships, however, is necessary given the hypothesized importance of information as a mediating factor in the experience of psychosocial effects. This research attempts to overcome some of the difficulties in this area of study by combining traditional methods of media investigation (e.g. content analysis) with in-depth interviews in which individual responses to media and other messages are explored.

CHAPTER 3

COMMUNITY PROFILES

3.1 Introduction

In order to address the research objectives (**Section 1.3**), the communities surrounding two proposed landfill sites were selected for study: the Taro Aggregate/Philip Environmental West Quarry site in Stoney Creek, and the Steetley/ Redland Quarry Products site in Greensville. The proposed facilities and their "host" communities are in geographical proximity (**Figure 3.1**) and so share an overall environmental, social and legislative context. However, there are a number of important differences between the sites and the communities in which they are situated. The two sites are compared in detail in the following sections, focussing on the physical characteristics of the sites and on the socio-demographic and historical characteristics of the communities. The sites are compared and contrasted, rather than discussed separately, in order to more effectively describe similarities and differences between the sites. The major actors involved in the decision-making processes, the processes themselves, and the outcomes of these processes are also outlined and compared, in relation to the overall legislative framework in which these processes have taken place.

30

FIGURE 3.1

Study Site Locations
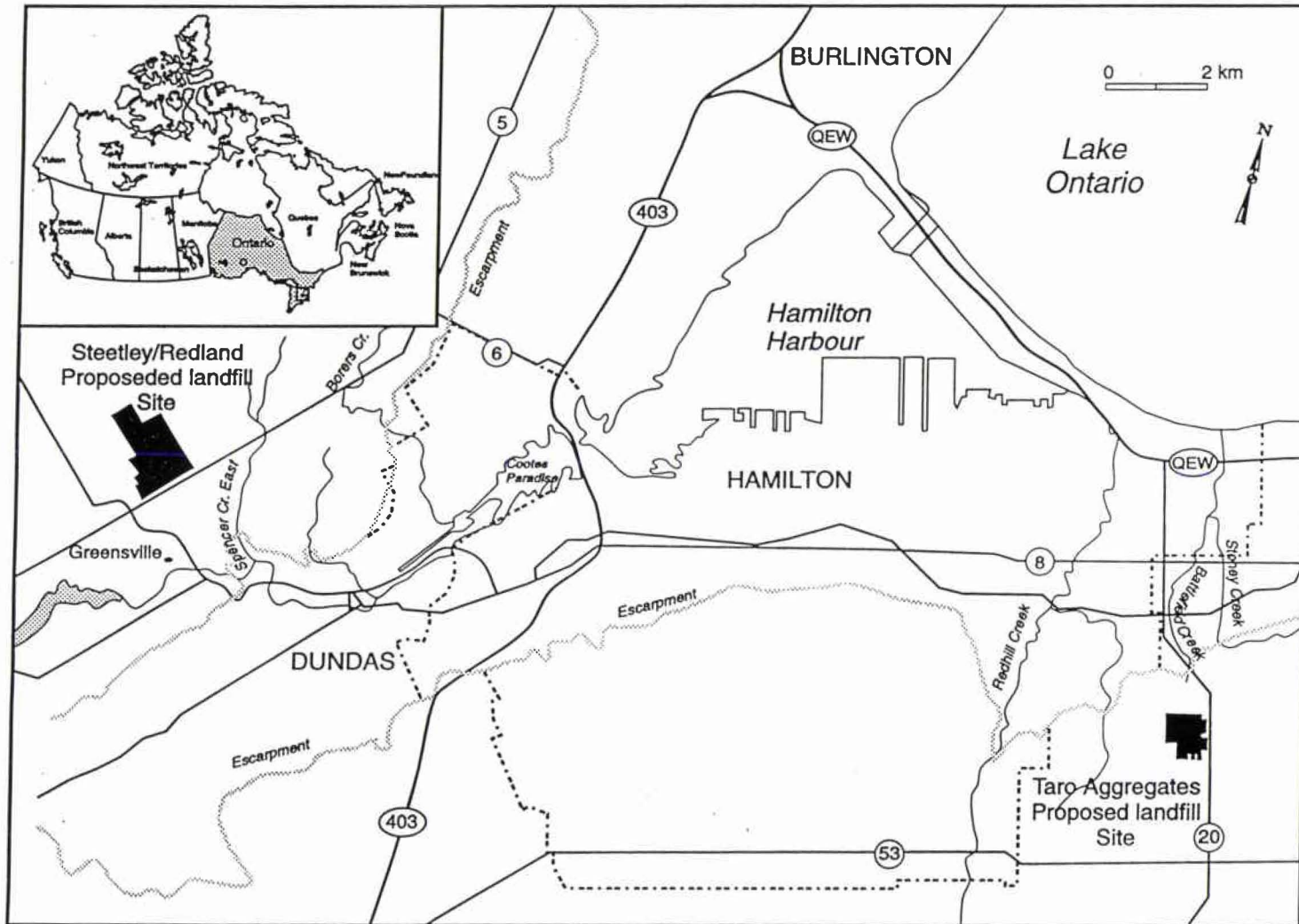
3.2 The Communities

3.2.1 Community Histories and Contexts

The community of Greensville is located at t'   ੩ Niagara Escarpment to the

west of Hamilton, just above the town of Dund   This area was first settled in

approximately 1797, when one of the r℮⸍   was constructed in the area

(Jackson, 1950; Crozier, McNair ℯ   ҙ prospered for the next fifty

years, due to the access tc   numerous industries) and,

eventually, an important r   letion of the Great Western

Railway line betweer   ɾough Hamilton, bypassing

ance as an industrial and

ı 1875, Greensville was

ɔal Atlas, 1971). This

ievelopment has taken

houses on large lots,

ıew highways and

ɾeensville/Bullocks

ɪsville has maintained

of municipal services

ate wells for household

' as by the large number

of   ɔ ɾalls) in the area. The population

of th   ъminiistrative area within which Greensville is located,

FIGURE 3.2

Steetley/Redland Proposed Landfill Site in Greensville*
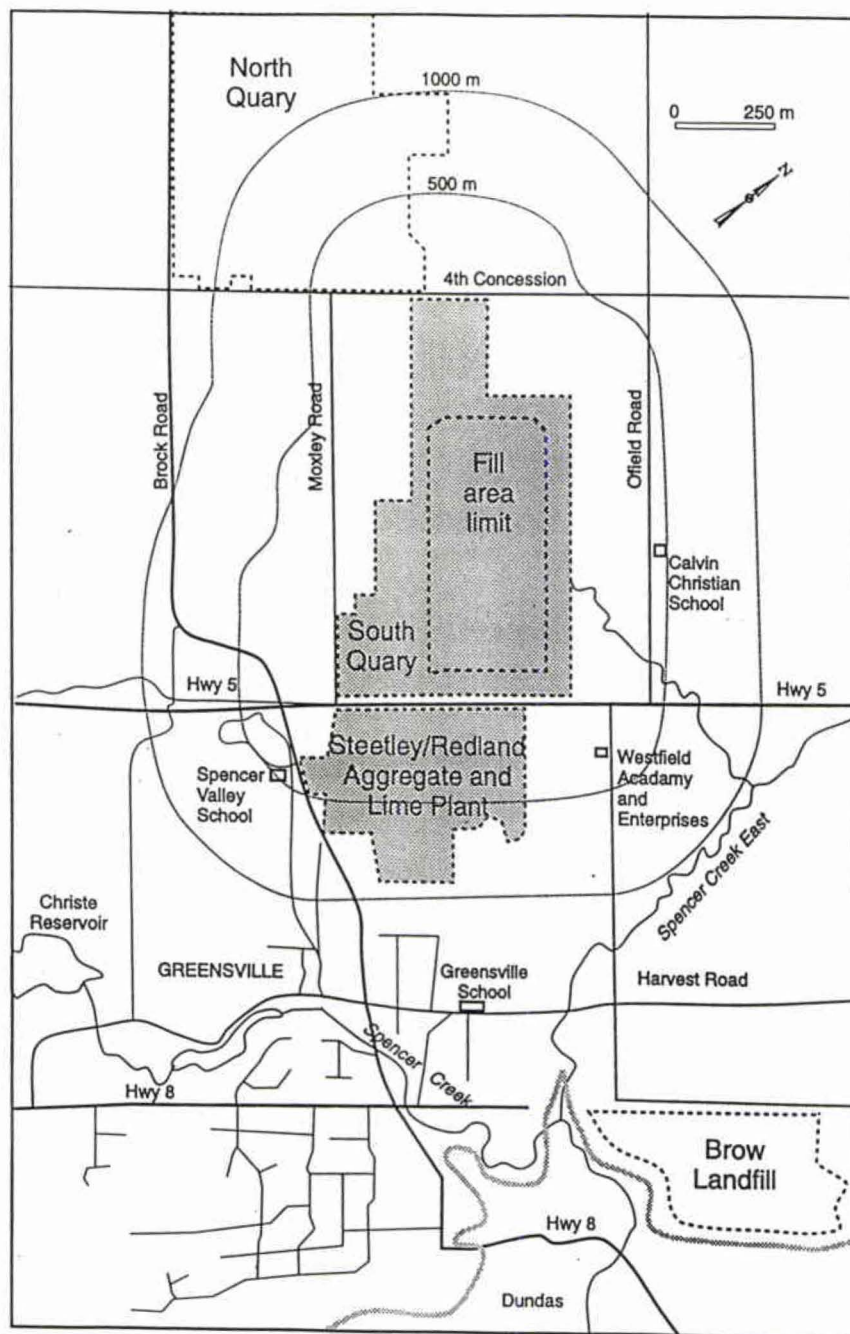
* concentric circles indicate distance from the site in metres

is projected to increase to from 29,615 in 1991 to 52,925 by 2021(Hamilton-Wentworth Planning and Development Department, 1992). However, Greensville is considered a rural settlement according to the Regional Municipality of Hamilton-Wentworth Official Plan (1990). This means that development in this area is limited to infilling where possible, and cannot increase the demand for services (e.g. exceed the capacity of the environment with regards to septic tanks). In practice, this will ensure that Greensville remains a small, rural community. Greensville is primarily zoned as residential, with a small number of commercial and institutional sites (Town of Flamborough, 1988).

The Stoney Creek community under study is also located above the Niagara escarpment, in this case to the east of the City of Hamilton, directly above the "downtown" area of Stoney Creek (**Figure 3.3**). Because of the geographical proximity of the two sites, their early history in many ways is very similar - as noted by an observer in 1872:

> In each township there was the same monotony of forest and swamp,
> the same climate, and the same number of wild beasts. The early
> settlers in the different townships belonged to the same class of people,
> and went about their work in much the same way. One was as far from
> the civilized world as the other, and there was with all of them the
> never changing monotony of hard work and poverty. Suffice it to say
> as regards to these townships, that they grew much the same as the
> others (Illustrated Historical Atlas of the County of Wentworth, 1971).

However, the area of Stoney Creek above the escarpment was never heavily populated or industrialized - this area remained predominantly farmland until about 25 years ago, when new residential development turned many of the farms into subdivisions. This community has grown remarkably in the past few decades, and continued population growth and residential development for the area is planned: when development is completed, the population of this

FIGURE 3.3

Taro Aggregate Proposed Landfill Site in Stoney Creek*
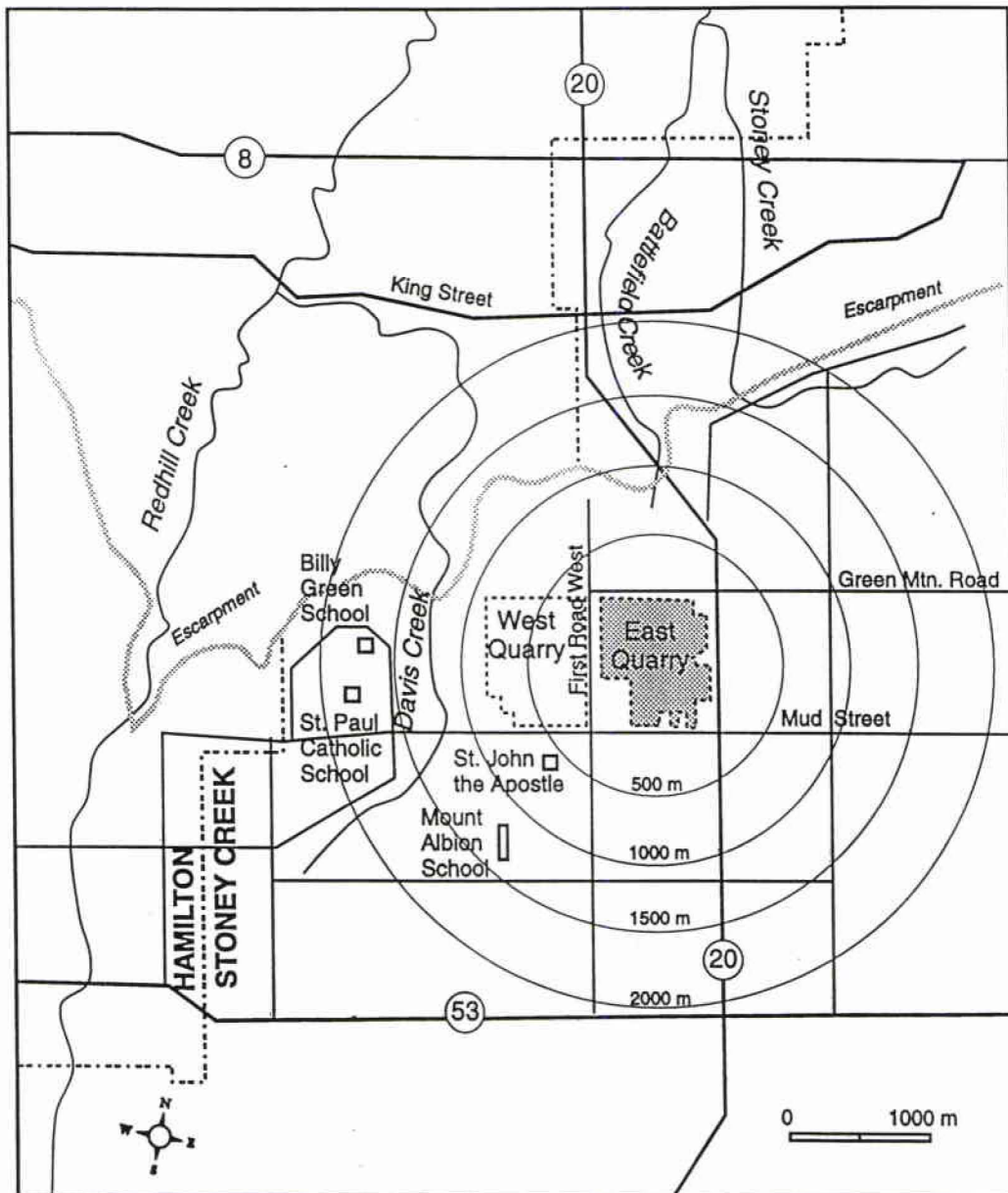
* concentric circles indicate distance from the site in metres

area is expected to triple (**Table 3.1**). This area is now perhaps best characterised as a new suburb of Hamilton, which has access to municipal water supplies and various other services, but which lacks a historical "centre" to give focus to the new development. The area around the proposed landfill site is zoned for a mix of low, medium and high density housing, with a few areas zoned 'commercial', 'institutional', and 'open space' (City of Stoney Creek, 1994). However, many vestiges of the area's rural past remain, including a number of working farms, and protected natural areas (including conservation areas). Residents who are aware of the area's history are proud to note that the family of local 1812 war hero Billy Green[3] lived and farmed in their area. In addition, the community (similar to Greensville) lacks certain services such as a professional fire department and a "shopping plaza".

3.2.2 Community Organization

The Regional Municipality of Hamilton-Wentworth was established by the Region of Hamilton-Wentworth Act in 1973 as the central planning authority for physical, social, and economic planning and development (Hamilton-Wentworth Economic Development Department, 1995). It is responsible for all waterworks, sewage and waste disposal, policing, roads and drainage, transit, social services, health, planning and economic development within its boundaries. It is controlled by Regional Council, made up of a directly elected regional chair, the mayors of the 6 constituent municipalities, all 16 members of Hamilton City

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[3]

A local youth who led British troops to the site of what would become known as the "Battle of Stoney Creek" under the cover of night to surprise the advancing American army (Evans, 1970).

TABLE 3.1

Population Projections for the Stoney Creek Study Area

Residential Density	Existing Estimated Population	Estimated Population Increase	Total Estimated Population
Low Density	5470	9790	15260*
Medium Density	1163	8583	9746
Medium/High Density	920	1671	2591
Total	**7553**	**20044**	**27597**

* by the year 2010

Source: City of Stoney Creek, **Stoney Creek Official Plan**, 1994

Council, and 1 additional representative from each other municipality, for a total of 28 (Whynott, 1994).

The local municipalities are responsible for local planning, local streets and sidewalks, solid waste collection, fire protection, parks and recreation, and a number of other local responsibilities (Hamilton-Wentworth Economic Development Department, 1995). In Stoney Creek, the local Council consists of 9 seats (including the mayor and deputy mayor), one of which represents upper Stoney Creek where the site is located. Greensville is a part of the Township of Flamborough, and so has an elected representative on that Council (1 of 9 including the mayor and deputy mayor).

3.2.3 Community Demographics

The populations of the communities under study share certain characteristics, according to the 1991 Census. As shown in **Table 3.2**, both communities have higher than average percentages of English-speakers, and lower than average percentages of landed immigrants, indicating that these communities are relatively ethnically homogeneous. Residents report similar levels of education, although upper Stoney Creek has a slightly lower percentage of people with university degrees (9% as opposed to 11%) but also a lower percentage of people with less than Grade 9 educations (7% vs. 9%). Home ownership rates are the same in both communities (89%), which is considerably higher than the Hamilton, Ontario and national averages (all around 65%). Unemployment rates are quite low in both communities (7% in Stoney Creek and 5% in Greensville) compared to Hamilton and the rest of Canada (around 10%).

TABLE 3.2

Selected Socio-Demographic Characteristics of the Study Communities

	Stoney Creek	Greensville	Hamilton CMA Averages
% Mother Tongue English only[1]	84	88	82
% Landed Immigrants	16	16	23
% Children (under 14 yrs.)	30	21	20
% Younger adults (25-44 yrs.)	40	29	33
% Seniors (over 65 yrs.)	4	10	13
% Less than Grade 9 education	7	9	12
% with University Degree	9	11	11
% Home Owners	89	89	65
% Moved in the last 5 years	47	33	45
Avg. value of dwelling ($)	195 913.00	225 445.00	192 018.00
Unemployment rate (%)	7	5	9
% Low income households[2]	10	5	15
%Household income $70 000+	30	36	22

Source: Statistics Canada, 1991 Census.

1. English (single response) / total (single response)

2. As defined by Statistics Canada, 1991.

There are some important differences between the communities under study as well. The upper Stoney Creek community has a 10 % higher proportion of children and of adults between the ages of 25 and 44 than Greensville, indicating that this is a community in which young families have a greater presence. In Greensville, 33% of the population has moved in the last five years, considerably less than the percentage in the Stoney Creek study area and in the rest of Canada (around 47%), indicating that Greensville is a relatively stable community with a higher proportion of longer-term residents. The average dwelling value in Greensville is $30,000.00 more than in upper Stoney Creek (and well above the Hamilton, provincial, and national averages), and there is a lower percentage of low income households, and a higher percentage of households with annual incomes above $70,000.00, than in the Stoney Creek community. This indicates that the Greensville community is more economically privileged than this area of Stoney Creek. However, using these same indicators, both of these neighbourhoods are more economically privileged than the rest of Hamilton.

3.2.4 Community Amenities and Interest Groups

The municipalities of Flamborough and Stoney Creek offer a wide variety of amenities for residents (Table 3.3). Both have facilities for a large number of sports, including hockey, tennis, baseball, golf, and soccer. They also have outdoor swimming pools and a large number of parks for recreation, as well as community centres and social (club) facilities. Other amenities vary between the municipalities. Flamborough has several amenities associated with rural land uses, such as a race track, speedway, fairground, and campsites.

TABLE 3.3

Amenities in the Study Communities

Amenity Type	Stoney Creek	Flamborough
Conservation Area	2	7
Arena (hockey)	2	3
Baseball diamond	26	49
Golf course	1	7
Outdoor pool	2	10
Soccer field	5	22
Parks	29	26
Tennis court	12	15
Clubs	2	9
Community centre/hall	4	9
Other	9	22

Stoney Creek, however, has more "arts" facilities, including the Little Theatre Group of Stoney Creek, several heritage sites and museums, and even a drive-in movie theatre (Hamilton-Wentworth Economic Development Department, 1995).

Hamilton-Wentworth is host to over ninety self-help and support groups, most of which are based in downtown Hamilton (Community Information Service of Hamilton-Wentworth, 1994b). These organizations provide a variety of support and counselling services. In addition, a number of service clubs (e.g. the Lions and Rotary Clubs) have chapters in the Region. Ten of these are located in Stoney Creek. Only one is located in Greensville per se (an Optimist's Club) but eighteen more are found in the remainder of Flamborough (Community Information Service of Hamilton-Wentworth, 1994c).

Approximately 160 citizens' organizations and community groups are based in Hamilton-Wentworth (**Table 3.4**). About one quarter of these are political organizations/riding chapters. A relatively large number of organizations are related to environmental issues: of these organizations, the only listings for Stoney Creek and Greensville are the landfill opposition groups. Indeed, the landfill opposition group is the only community organization listed for Greensville. In Stoney Creek, however, there are ten other groups listed: they include business associations (2), community and social action groups (3), health issues groups (2), historical conservation societies (2) and political organizations (2) (Community Information Service of Hamilton-Wentworth, 1994a).

3.2.5 *Community Access to Information*

Within the municipality of Hamilton-Wentworth, residents have access to a variety of

TABLE 3.4

Citizens Organizations and Community Groups in Hamilton-Wentworth

Type of Organization	Number*
Community Association	16
Environmental Control and Protection	21
Historical Conservation	12
Business Association	15
Political Organization	42
Civil and Human Rights	6
Consumer Education and Protection	2
Health Issues	6
Home Schooling	3
International Affairs, Development, and Relief	4
Labour/ Worker's Rights	3
Landlord and Tenant Rights	4
Peace Movement/ Mundialism	8
Anti-Crime	3
Women's Association	2
Anti-Poverty	3
Social Action	7
Other	2
Total	**159**

* includes each chapter separately

Source: (compiled from) Community Information Service of Hamilton-Wentworth,
  Citizen's Organizations and Community Groups in Hamilton-Wentworth,
  1994.

media. There is a regional daily newspaper, the *Hamilton Spectator*, as well as a number of local weeklies including the *Stoney Creek News* and *Flamborough Review*. Other weekly papers include the *Dundas Star*, the *Ancaster News*, and the *Hamilton Mountain News*. Several specialty weeklies are also printed in the region, including the *Golden Horseshoe Business Journal*, the *Heritage News*, *Recorder Promotions*, and *Romanian Voice News*. There are also 5 magazines published in Hamilton: *Hamilton This Month, Business Quarterly Report, Visitors' Magazine, Interiors*, and *New Hamilton Weekly* (Hamilton-Wentworth Economic Development Department, 1995).

The residents of the study communities also have access to a number of non-print media. There are 7 local radio stations: 820 CHAM, 900 CHML, 1150 Oldies, CHML 95.3, CHMR 91.7, KLITE FM 102.1, and CFMU 93.3. Two of these (CFMU and CHMR) are college/university stations. There are also two local television stations, CHCH and Cable 14. Residents also have access to more than 50 television channels through a number of cable companies (Hamilton-Wentworth Economic Development Department, 1995).

3.2.6 Characteristics of the Proposed Landfill Sites

The physical characteristics of the two proposed sites are fairly similar. Both are fully exploited quarries in fractured limestone bedrock. These sites have little natural ability to contain waste water, or leachate, and so require the construction of an engineered "liner" system. Both sites are located in what are considered environmentally important and sensitive lands adjacent to the Niagara Escarpment. The Niagara Escarpment has been designated as an Area of Natural and Scientific Interest (ANSI) by the national government

and a United Nations Bio-Reserve, and is maintained and protected by the Niagara Escarpment Commission, an independent government body mandated to monitor land use.

In Greensville, the proposed landfill site (**Figure 3.2**) would have created a landfill that would accept all types of non-hazardous waste, including municipal (household) waste and waste from outside the local area and possibly outside of the province (Steetley Quarry Products, 1990). Because of the organic component of municipal waste, landfills which accept this waste can be troubled by pests such as seagulls and rats. In addition, it is difficult to monitor what enters the municipal waste stream, and it can contain a wide variety of materials, including small quantities of various domestic hazardous wastes (such as domestic pesticides and household cleaning products) which can add to the toxicity of the leachate from the landfill. This proposal served the combined purpose of rehabilitating the quarry to comply with the requirements of the Pit and Quarries Control Act while also providing a vehicle for the continuation of the corporation's waste management activities after the closure of their current operating waste disposal site known as the "Brow Landfill" (**Figure 3.2**) (Steetley Quarry Products, 1990). The "Brow Landfill" has been the cause of much controversy in the community because of problems with methane fires, possible PCB contamination, and extended closure deadlines. The proposed landfill would have been the largest private landfill in Canada, with a capacity of 26 million tonnes. This is considerably larger than the 10 million tonne capacity landfill proposed by Taro Aggregates in upper Stoney Creek.

The landfill proposed by Taro Aggregates in Stoney Creek (**Figure 3.3**) would accept only non-hazardous industrial waste which had been processed by Philip Environmental (Taro Aggregates parent company) in Hamilton (Taro Aggregates, 1995). This meant that the

waste would be, at some level, "local" waste, although some materials processed by Philip would come from outside the Region. The industrial waste the landfill would collect was inorganic, consisting primarily of steel slag and other residues of the steel-making process from the Hamilton steel mills (primarily Dofasco). This meant that seagulls and other pests would not be problematic, but raised concerns about the possibility of leachate from the landfill containing contaminant by-products of industrial processes, such as heavy metals. The landfill proposed by Taro Aggregates would also replace an existing operation - the "West Quarry Landfill" **(Figure 3.3)**. This landfill also had some difficulties with methane escaping from the site, but had few other problems.

3.3 Legislative Framework

Environmental assessment in Ontario occurs within the framework of the Environmental Assessment (EA) Act. The stated purpose of the Act is "the betterment of the people... by providing for the protection, conservation, and wise management in Ontario of the environment" (RSO, 1990). The primary intent of the Act is to ensure that all aspects of environment are considered through a sound environmental planning process, that reasonable alternatives to development are considered, and that the alternative with the least effect on the environment is pursued (M.O.E., 1992). The legislation defines environment broadly, including natural, social, technical and cultural conditions that influence the life of individuals or the community as a whole. This statute is primarily a planning tool, designed to facilitate environmentally sound planning and development; the day-to-day operations of facilities are monitored under the Environmental Protection Act. Although the Environmental Assessment

legislation primarily applies to public works, most private sector waste management undertakings, including the two investigated here, are *designated* by the Minister as subject to the Environmental Assessment Act (RSO, 1990). The environmental assessment legislation in Ontario was substantially amended in 1997 by a newly elected conservative provincial government, and so has been altered significantly in the past two years (Environmental Assessment and Consultation Improvement Act, 1996; MOEE, 1996). However, the environmental assessments investigated in this research took place prior to the legislative changes, and so the following paragraphs describe the process as it existed before 1997.

The EA Act (RSO, 1990) outlines steps to be followed by a proponent (that is, the entity proposing the undertaking). Essentially, the proponent must ensure that the environmental assessment evaluates all aspects of the potentially affected environment, including the natural, social, economic, cultural, and technical environments. Decisions related to the preferred site and/or design of the undertaking are based on the net environmental effects, determined through systematic evaluation of the criteria involved (e.g. hydrogeological impacts, social impacts). In so doing, the proponent is obliged to consider alternatives to the undertaking (including the "do nothing" alternative) as well as alternative methods of carrying out the undertaking. It has also become standard (due to precedent set by the Environmental Assessment Hearing Board) to consider whether the proposed undertaking is necessary (i.e. that there is a realistic need for the project to go ahead). The end result is an Environmental Assessment document which summarizes the decision-making process. These documents are generally long and complex, and include language (due to the nature of the criteria being investigated) that is highly technical, and therefore difficult for lay

readers to understand. The environmental assessment document next becomes subject to a systematic review by government ministries, agencies, and the public. The (Ontario) Ministry of Environment and Energy (MOEE) reviews and comments on the proposal, based on the completeness (as laid out in subsection 5 (3) of the Environmental Assessment Act, and summarized in **Figure 3.4)** and technical quality of the information provided. Next, the Environment Minister, after a 30-day public comment period, decides which of three decision-making routes should be followed **(Figure 3.5)**. If a hearing is called, it takes place in front of an independent board, which is designed to operate at arm's length from the Ministry. At the end of the hearing, the board decides whether to accept or reject the proposal, although this decision is subject to the final approval of the Minister of the Environment and the Ontario cabinet. The public often perceives the environmental assessment hearing route as the most democratic, as issues can be vetted in a public forum. However, these quasi-judicial hearings are often confrontational and adversarial (Checkoway, 1981; Elliott et al., 1997) as well as expensive.

The Environmental Assessment Act provides a broad mandate for public participation in the process. Requirements for public consultation at several stages in the process ensure the public an opportunity to play a role in the evaluation (but not in the development) of a proposal. If a proposal goes before an environmental assessment board, any persons or agencies recognized by the board as having an interest may participate in the hearing process. In addition, any "bona fide" public interest intervenors (e.g. local community groups) were entitled to funding to assist in their participation at hearings under the Intervenor Funding Project Act of 1988 (M.O.E., 1992) until 1996, when the Act was allowed to "sunset" (i.e.

FIGURE 3.4

Framework for the Development of an Environmental Assessment

IDENTIFY & DEFINE PROBLEM OR OPPORTUNITY	▶ identify study area ▶ initial assessment of need
DESIGN PLANNING PROCESS	▶ evaluation methodology: 　• "alternatives to" - 　• "alternative methods" ▶ design pre-submission consultation plan (including public and agency involvement) ▶ data collection: 　• establish need 　• describe existing environment ▶ develop criteria (screening) and assumptions
APPLY SCREENING CRITERIA TO IDENTIFY REASONABLE ALTERNATIVES	▶ evaluate for each alternative: 　• environmental effects 　• mitigation/enhancement measures 　• advantages/disadvantages of the undertaking to the environment ▶ describe rationale at each decision point
IDENTIFY PREFERRED UNDERTAKING	▶ provide detailed description of undertaking ▶ compare undertaking with "do nothing" alternative ▶ assess "need". ▶ identify if advantages outweigh disadvantages of proceeding with undertaking
PREPARE DOCUMENTATION FOR CIRCULATION	▶ ensure subsection 5(3) of the EA Act has been met ▶ develop implementation strategy ▶ design monitoring program

Source: Ministry of Environment (Ontario- Management Planning Division), 1992.

FIGURE 3.5

The Environmental Assessment Review and Approval Process
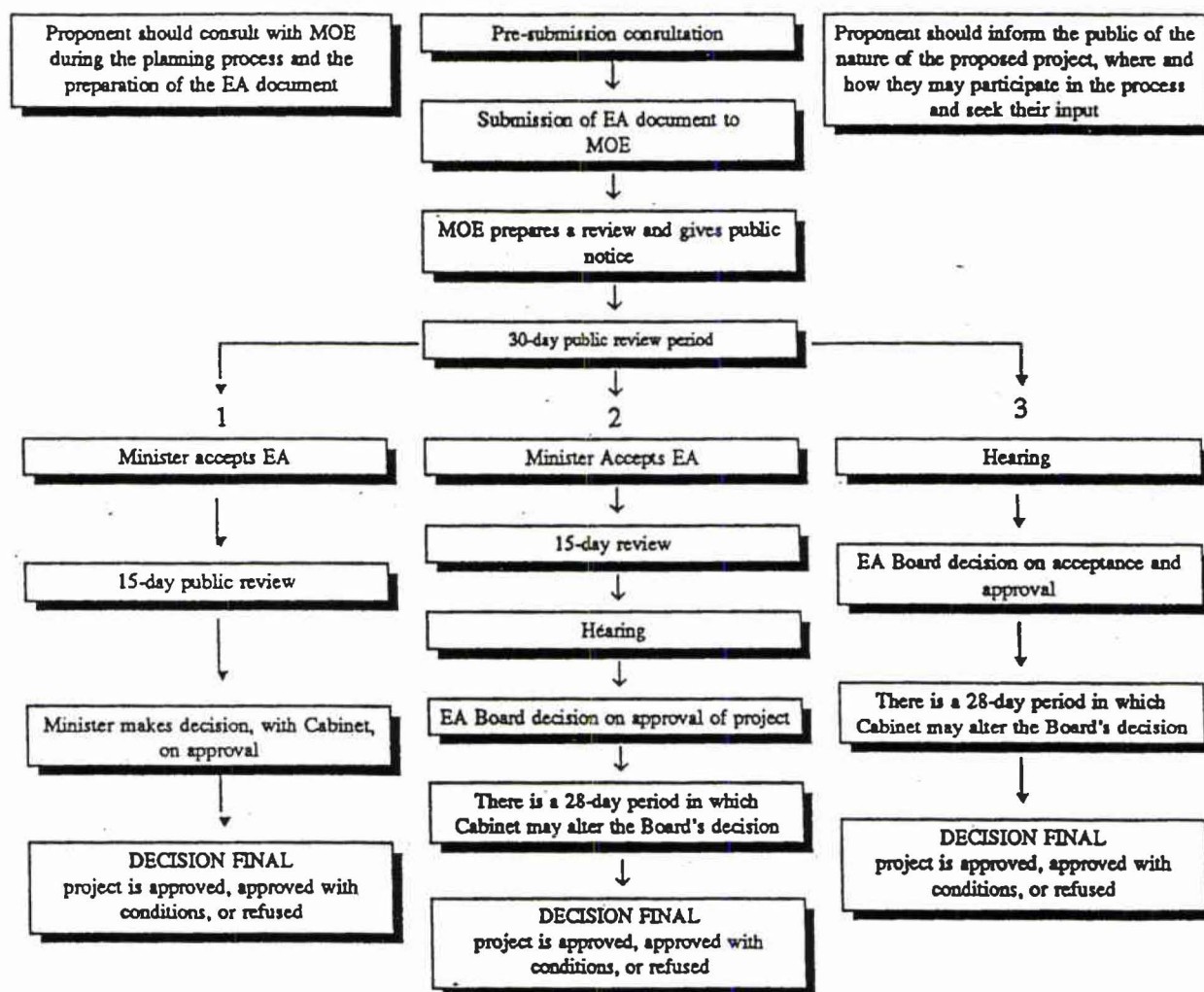
expire). This important change to the legislative framework took place during the study period. However, this change is not relevant in the context of this research since no hearing was called for the Taro proposal, the study site which would have been affected (the hearing in regards to the Steetley/Redland site took place well in advance of this legislative change).

3. 4 "Key Actors" in the Environmental Assessment Process

Policy processes such as the environmental assessment process are shaped by "those actors from a variety of public and private organizations who are actively concerned with a policy problem or issue..." (Sabatier, 1987, 652). These actors include the members of various levels of government, interest groups and other interested members of the public or private spheres, as well as journalists. The most significant actors in these environmental assessment processes were the Ministry of Environment and Energy (including the Minister), the Environmental Assessment Hearing Board (where applicable), the corporate proponents (i.e. Taro and Steetley/Redland), study and community liaison groups (entities created by the proponents to investigate the proposal and liaise with the community), community opposition groups, the local municipal and regional governments, and the government organizations charged with protecting the local natural environment (e.g. the Hamilton Regional Conservation Authority and the Niagara Escarpment Commission). In addition, the local media participated indirectly in this process by attempting to inform and/or influence public opinion.

Sabatier (1987) notes that some actors may participate in policy processes not because they are particularly concerned with the issue at hand, but because they have certain skills to

offer. These actors, primarily scientific consultants, can play a large role in the environmental assessment process by providing evidence to support arguments both for and against the proposals.

3.5 The Processes

The environmental assessment for the Steetley/Redland landfill proposal in Greensville was submitted in 1990. By this point, public consultation, initiated by the corporation, had been underway for 2 years (**Table 3.5**). Consultation began with private meetings with nearby residents in March of 1988, followed by the establishment of a community liaison group (known as the Public Liaison Committee or PLC; the mandate of which was to liaise with the community about the proposal and the process), a series of open houses, site tours, and public meetings, and the publication of several newsletters. A community group opposed to the landfill proposal (called Greensville Against Serious Pollution, or GASP) also emerged in 1988. This group was originally formed, more informally, to protest some of Redland's previous operations, and so had an existing membership and organizational structure.

The Ministry of the Environment reviewed and accepted (with conditions) Steetley's environmental assessment (Province of Ontario, 1992), despite the dissent of two members of the Review Team (the Hamilton Region Conservation Authority (HRCA) and the Niagara Escarpment Commission (NEC)), and the opposition of the Region of Hamilton-Wentworth and the local municipality. After the 30-day public comment period, the Minister of the

TABLE 3.5

Greensville Site History, 1988 to 1997

Date	Event
pre-1988	Greensville Residents Against Serious Pollution (GASP) formed
March, 1988	Small group meetings held with residents within 500m of site
January 31, 1989	First Open House held by Steetley
May 10, 1989	Open House held
May 15, 1989	First meeting of the Steetley Public Liaison Committee (PLC)
October 2, 1989	Open House held
April, 1990	Community compensation meetings held
November, 1990	Steetley submits Environmental Assessment
August, 1992	Ministry of Environment accepts Environmental Assessment
December 19, 1992	Preliminary hearing held
March 25, 1993	GASP receives intervenor funding
May 31, 1993	Joint Hearing begins
June, 1994	Joint Hearing ends
March 17, 1995	Joint Hearing Board rejects the undertaking
April, 1995	Steetley gives notice that it will appeal the Board decision
October 31, 1996	Provincial cabinet dismisses the appeal

Environment chose to call a joint hearing[4] which would include an environmental assessment review component. This combined hearing took almost a year (The Joint Board, 1995). The proponent, the Region of Hamilton Wentworth, GASP, the MOEE, the NEC and, surprisingly, Taro Aggregates (who were already in the process of planning their own proposal) all participated in the hearing. GASP received funding through the Intervenor Funding Project Act to help finance their participation.

In 1995, the Joint Hearing Board denied approval for the undertaking, stating that the rationale for the Steetley proposal was not adequately established, the possible impacts were not adequately addressed, the defined need was unrealistic, the alternatives inadequately addressed, and the process not traceable, rational, consistent, or participatory (The Joint Board, 1995). This decision was appealed to provincial cabinet by the proponent, but the appeal was dismissed at the end of 1996.

Taro Industries (a subsidiary of Philip Environmental) submitted a formal environmental assessment document in 1995. At this site, public consultation (including public meetings and open houses) had been taking place since 1991 (**Table 3.6**). A Study Group was established in early 1992, the purpose of which was (unlike the Steetley/Redland group) to review the merits and drawbacks of the proposed undertaking on behalf of the community. An opposition group, called Stoney Creek Residents Against Pollution, or

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Necessary under the *Consolidated Hearings Act* because the Steetley proposal required approval under the *Planning Act* and the *Niagara Escarpment Planning and Development Act* in addition to the *Environmental Assessment Act*, due to their concomitant requests to change the zoning of the site and construct a sewer line across a section of the Niagara Escarpment Planning Area (The Joint Board, 1995).

TABLE 3.6

Stoney Creek Site History, 1991 to 1997

Date	Upper Stoney Creek
November 30, 1989	Taro publicly announces plans for a landfill
May 21, 1992	First public meeting held
June 23, 1992	First meeting of the Taro East Quarry Study Group
March 31, 1993	Public Workshop held by Taro
February 22, 1994	Public Workshop held by Taro
November 29, 1994	Taro Open House held
January 26, 1995	Taro submits Environmental Assessment to the Ministry of Environment
March, 1995	Stoney Creek Residents Against Pollution (SCRAP) formed
September, 1995	Ministry of Environment accepts Taro's Environmental Assessment
July 15, 1996	The Minister of Environment grants approval to proceed with the undertaking
August, 1996	SCRAP decides not to appeal
December, 1996	The new landfill site begins accepting waste

SCRAP, was formed around this proposal in 1995, a considerable time after the beginning of

the proponent's pre-submission public consultation process. The proposal was submitted to

the ministry in January, 1995, with only the HRCA officially opposed, despite internal debate

at the NEC and the City of Stoney Creek. In this case, the Region of Hamilton-Wentworth

supported, rather than opposed, the proposal. The MOEE Review of the Taro environmental

assessment again suggested that the proposal be accepted with conditions. In this case, none

of the participants in the review process, including the Conservation Authority (which voted

to apply conditions without calling for a hearing) and the NEC, asked for a hearing to be

called, although these decisions were again the subject of much internal debate. In the

summer of 1996, after the appropriate 30-day comment period, the Minister of Environment

decided that an environmental assessment hearing was not necessary (in this case no joint

hearing was necessary), that the proposal was acceptable, and that the undertaking should

proceed provided that the conditions stipulated in the review were met. SCRAP protested

this decision, but felt that their funds were too limited to allow them to appeal. The new

landfill site began accepting waste in the winter of 1996.

3.6 Timing of This Research

At the start of the research, the Greensville landfill siting process had been underway

for a considerable amount of time (approximately 10 years), and hearings before the

Environmental Assessment Board had already taken place. When the interviews were

conducted, the community was waiting to hear whether the provincial cabinet would accept

the decision of the Environmental Assessment Board or reject the decision and order new

hearings. This was a period of great uncertainty within the community, as there had been speculation that the cabinet would overturn the decision of the Joint Hearing Board and send the process (and the community) "back to the beginning".

In Stoney Creek, the environmental assessment process had been underway for a comparatively short time (about 5 years) when this research began. During the period in which the interviews were conducted, the Minister of the Environment made her decision that a hearing was not necessary, and that the landfilling operation could proceed. Although once the decision was made most of the uncertainty regarding the proposal was removed, that uncertainty was still fresh in the mind of the respondents, and some feelings of uncertainty lingered as SCRAP had not yet decided whether to appeal the Minister's decision to the provincial cabinet.

3.7 Summary

This chapter outlined the contexts in which the siting processes under study took place. Overall, a number of similarities as well as differences exist between the two sites. The sites have similar physical characteristics; the communities have similar ethnic mixes, income distributions, education levels, and home ownership rates, as well as similar access to information and amenities; and the processes operated within the same legislative and regional political frameworks. However, Greensville is more of a rural (rather than suburban) community, and lacks municipal water service. In addition, its residents are more likely to earn more than $70,000 and live in more expensive homes. The proposed landfill in Greensville was larger than in Stoney Creek, and would accept municipal waste. The

processes which took place in the two locations were different in a number of ways. First, the membership and timing of opposition at the two sites was substantially different. Second, an Environmental Assessment Hearing took place around the Steetley/Redland proposal in Greensville, but not in Stoney Creek.

The differences between the two sites are substantial. However, it is important not to let these differences overshadow the many similarities between the sites. The next chapter documents the study design and methods used to investigate perceptions of the environmental assessment process within these two communities.

CHAPTER 4

DESIGN AND METHODOLOGY

4.1 Introduction

This chapter describes the study design and research methods used to address the study objectives: namely, to explore residents' concerns about the proposed landfill and the environmental assessment process, and the meaning of those concerns; to investigate the effects of the siting process; and to examine the role of various information sources in influencing the development of effects. The chapter begins with a discussion of the study design. This is followed by the identification of several issues which arise from the use of qualitative methods. The methods used in data collection and analysis for both the depth interviews and the media analysis are then described.

Because of the significant differences between qualitative and quantitative inquiry, qualitative research needs to be evaluated using different criteria[5]. These can include the neutrality, credibility, dependability, and applicability of the research (Lincoln and Guba, 1985; Baxter and Eyles, 1997; Borman et al., 1986). Not all qualitative research meets these

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Note that these criteria are not rules about how to 'do qualitative research', since strict guidelines may stifle the creativity essential to humanistic research (Baxter and Eyles, 1997). These criteria, however, serve as a useful way to begin to distinguish between well-developed and weak qualitative research.

criteria, and certainly criteria could be added or changed. However, these guidelines provide a good basis for the evaluation of qualitative research in a way that takes into account the unique features of this methodology. This study addresses these criteria using techniques suggested in the literature: they are noted as they become applicable in following sections.

4.2 Study Design

A parallel case-study design is used to investigate the two sites selected for this research. The sites were selected based on their timeliness (i.e. the fact that the environmental assessment processes at the sites were ongoing when the research began, and were the last processes to take place before the modification of the environmental assessment legislation in 1997), their proximity to each other and to the research base (McMaster University), and the previous selection of the Stoney Creek site as the location of the quantitative component of this research program. A case-study design was chosen because of its utility in this situation. Case studies are a form of empirical inquiry that use a variety of evidence to investigate a contemporary phenomenon within its real-life context (Yin, 1989): in situations such as this, where the boundary between a situation and its context is difficult to determine, a case study design is particularly appropriate. The results of this research are, however, reported in a comparative format, in order to reduce repetition, add fluidity to the reporting, and highlight similarities and differences between the sites more easily.

Case studies share certain characteristics, according to Merriam (1988): they are particularistic, descriptive, heuristic (in that they help increase understanding of the topic of study, and provide new meanings and insights into a situation), and inductive. Many of these

features overlap with characteristics of qualitative research: a case study design, therefore, is particularly compatible with a qualitative approach.

4.3 Methodological Issues

4.3.1 The Use of Qualitative Methods

Qualitative methods include any inductive method of research which seeks to reconstruct or interpret reality in order to understand how people create meaning in their lives (Eyles, 1988). These methods stem from the humanistic/interpretive tradition in geography, which presumes anthropocentrism (Tuan, 1976; Cloke et al., 1991), a recognition of the inherently social nature of experience, and an understanding that meaning is multiplicitous (Entrikin, 1976; Ley, 1981). Using qualitative methods to uncover the sources of uncertainty in the landfill siting process is appropriate because these methods "reconstitute the subjective meanings of individuals and groups, in order to understand their actions and the meanings that places hold for them" (Ley, 1981, p. 220). In this case, we are attempting to understand the 'sources of uncertainty', but more than that we are trying to understand what the siting of a landfill *means* to residents within an affected community, and how these meanings are constructed in context. How the siting process makes residents feel, and how these meanings and feelings affect their everyday lives, is key to this research.

4.3.2 Grounded Theory

Grounded theory, also known as adaptive theory, is an approach to analysis whereby theory develops in an "intimate relationship" with the data: that is, the development of theory

takes place through constant review of and comparison with the data, in order to ensure that the developing theory is not speculative but firmly "grounded" in the data (Strauss, 1987). "Grounded" theory attempts to identify concepts and linkages found and repeated in the data, because the repetition of categories and connections in qualitative data is thought to point to key aspects of the phenomena under study. This project uses a grounded approach, consistently linking the emerging theory with the data. This research is not exclusively inductive and "grounded", however, but instead uses a combined inductive and deductive approach. This is suggested by Miles and Huberman (1994) who advise that a general research framework (as outlined in Chapter 1) helps to focus qualitative research and keep it from becoming unwieldy, particularly when more than one site is being studied.

4.3.3 Qualitative Computing

The use of computers for data preparation, coding, and manipulation in qualitative research is becoming commonplace (Baxter, 1996; Richards and Richards, 1992). Indeed, some theorists see the emergence of a "new orthodoxy" in qualitative research stemming from the use of computers (Coffey, Holbrook, and Atkinson, 1996). Since this project uses computers to help in data analysis, it is important to explore the use of computer-assisted data analysis in qualitative research, and the repercussions this might have on the research process.

Richards and Richards (1992) outline the benefits of computer use in qualitative research, including the ability to keep fuller records, the ability to move between data and theory development, the ability to locate all occurrences of a keyword or phrase, and the ability to create a richer, more flexible indexing system. They also state that the use of

computing techniques can help researchers establish the credibility and validity of their analyses with a skeptical audience.

Richards and Richards (1992) also outline some of the possible negative effects of qualitative computing. They state that the use of coding and manipulation programs can inhibit a holistic view of the data. It can also produce data that is unwieldy and incomprehensible, making the emerging theory more rather than less comprehensible to non-experts and so alienating possible audiences. Perhaps most importantly, there is a possibility that computer operations can be used to mask a lack of conceptual understanding of the data: as Pfaffenberger points out, 'retrieval operations only masquerade as the retrieval of concepts' (1988:41).

For this project, the benefits of using computers to assist with qualitative research far outweigh the limitations: the added flexibility and retrieval capacities of qualitative computing programs allow stronger, better organized, and more easily accessible research. The criticisms of qualitative computing, although valid, are not inherent in the use of computers, and can therefore be overcome through the careful choice of a program which minimizes these problems, and through the conscious effort of the researcher to avoid these conceptual and methodological pitfalls. NUD.IST, a hierarchical data indexing program, was chosen as the most appropriate coding and manipulation tool for this project. Its technical capabilities make it more flexible and useful than other similar programs (Baxter, 1996). Although the hierarchical framework of NUD.IST is sometimes limiting, NUD.IST's flexibility in both data retrieval and indexing (Richards and Richards, 1993), its 'memo' facilities (which can assist in developing research dependability and applicability), and its capability for index browsing

(Richards and Richards, 1992) all add to the program's utility in this context.

4.4 Depth Interviews

4.4.1 Introduction

In-depth interviews were chosen as the most appropriate data collection strategy for this research, since in this situation relevant information was obtained more readily from interviews than from a more immersive method of qualitative research like participant observation. Depth interviews allow the in-depth probing of specific issues and responses (Burgess, 1984), and allow the participants to present their ideas in their own words.

4.4.2 Sample Selection

This study uses a purposive sampling technique in order to focus the data collection on a small sample which has been selected specifically to represent the maximum variation of opinion in the study communities. The criteria used here for establishing maximum variation include distance from the proposed landfill site, amount and type of involvement in groups organized around the landfill proposal, age, and gender. Maximum variation purposive sampling was seen as the most appropriate sampling technique because it leads to an understanding of the issues at work in many different subgroups within the communities, and allows for common themes which exist across subgroups to be identified (Quinn-Patton, 1980).

At each site, three core groups were identified as having potential importance to the research objectives - members of the community opposition groups, members of the

"study/liaison groups" which were created by the companies to investigate the proposal and liaise with the community, and residents of the surrounding communities who were unaffiliated with either group. The organized group members were identified as important (separately from their resident status) because of their possible role in the social amplification of risk, as well as their positions at the opposite ends of the continuum of social opinion concerning the landfill proposals.

A list of possible participants from the opposition and study groups was assembled from various records and media sources. The resident sampling frame at the Stoney Creek site was created by selecting a sub-sample from the survey participants; in Greensville, a sampling frame was created using the local city directory and telephone book. Sampling was not random: instead, respondents were chosen from these sampling frames to represent a diversity of ages, genders, locations relative to and concerns about the site (when this information was available). All possible participants were contacted by letter to inform them of the research project and to ask for their collaboration, and were contacted again by phone to solicit their cooperation and to schedule an interview. The interviews took place between July, 1996 and February, 1997. They took approximately one half to one hour, and were all conducted by the same researcher. The interviews were conducted in accordance with all McMaster University ethics guidelines. In total, 36 interviews were conducted (for a breakdown by group and site, see **Table 4.1**). In several cases, the spouses of the participants were present for some or all of the interview, and their comments were included in the analysis in order to broaden the focus of the interviews and to provide additional context for the participant responses.

TABLE 4.1

Interview Participants by Group and Location

	Stoney Creek	Greensville	Totals
Unaffiliated Residents	8	7	15
Study Group Members	3	5	8
Opposition Group Members	6	7	13
Totals	17	19	36

4.4.3 Interview Topics

During the interview, a series of semi-structured, open-ended questions were asked

from an interview checklist (see **Appendix A** for a copy of the basic checklist). Each

participant was asked the same series of core questions concerning their perception of and

involvement in the community, their awareness and concerns about the proposed site and the

assessment process, their sources of information, and the effects of the process on their lives

and their community. Members of the study/liaison and opposition groups were asked

additional questions about their roles in transmitting information to the community, the

effectiveness of their group, and their perceptions of the other "players" in the siting process.

Individual topics could be pursued in more or less detail by the interviewer. The use of

standardized questions helps to minimize researcher bias from interview to interview, and

helps create a thorough, focussed interview. At the same time, the ability of the interviewer

to pursue unanticipated topics and to flesh out less developed ones gives flexibility to the

design (Quinn-Patton, 1980). Using a semi-structured interview guide helps to improve the

credibility of the research by allowing the researcher to identify key elements of the research

and focus on these consistently, persistently and in detail (Lincoln and Guba, 1985).

4.4.4 Data Collection, Preparation and Coding

All interviews were tape recorded, in order to ensure the accuracy of the data. These

tapes were transcribed verbatim. All transcripts were checked by the researcher to be sure

they conformed to the original tapes and were entered into the NUD.IST program.

The interview transcripts were coded within NUD.IST using a combination of

inductive and deductive strategies. Many key categories and a few of the sub-categories were created prior to the line-by-line coding: for example, socio-demographic categories were created this way. As well, categories which are often discussed in the literature (for example, "coping" and various community factors which become intervening variables, such as community perception, involvement, and links) or about which specific questions had been asked in the interview schedule (for example, information sources, perception of the process and other players, and effects) were created before coding began. This was done in order to give some basic structure to the arrangement of the data gathered, so that improper coding, missed coding, and the creation of duplicate categories could be avoided.

The remainder of the categories were created through line-by-line coding, which is generally considered the most appropriate coding mechanism for the development of grounded theory (Strauss and Corbin, 1990). This is an interactive and inductive process, allowing for the data to direct the development of categories. Wherever possible, "in vivo" codes, or participant-generated names (Strauss and Corbin, 1990), were used. The line-by-line coding resulted in the development of selective, precise categories, which were then subsumed under the deductively created, hierarchically organized key categories, or were used to create new key categories if necessary. This coding strategy resulted in an extremely rich, detailed data set, consisting of over 300 categories and subcategories (see **Appendix B**). All of the transcripts were coded using the same coding scheme, despite the differences between respondents and sites. This was seen to be the most effective way of identifying similarities across and differences between groups.

After the line-by-line coding was completed, the coding scheme was "rationalized":

that is, the organization of the coding scheme was changed to increase the coherence of the categories and their linkages, and to better reflect the importance of various categories and sub-categories as observed in the data. This rationalization enabled the order and importance of the categories to more accurately reflect the importance of and linkages between themes within the interviews themselves, strengthening the quality of the analysis.

4.4.5 Inter-rater Reliability Testing

Dependability, a key criterion for assessing qualitative research, requires that measurement instruments are stable and produce consistent results (Lincoln and Guba, 1985). In qualitative research, the measurement instrument is the researcher. Therefore, the interpretation/analysis of data should be consistent: that is, the same phenomena should always be matched with the same constructs, and variability should be tracked to identifiable sources to the fullest possible extent (Baxter and Eyles, 1997). One means of testing the dependability of qualitative research is by measuring inter-rater reliability. In addition, qualitative research should be *neutral* (i.e. not subject to the biases of the researcher). Qualitative approaches assume that objectivity is impossible and in many ways, undesirable, but attempt to minimize the influence of bias through peer review processes (Baxter and Eyles, 1997), such as inter-rater reliability. In order to determine the extent to which phenomena were consistently matched within the coding scheme, an intra-rater reliability test (Miles and Huberman, 1994) was performed. That is, the researcher independently coded the same transcript after an interval of several months, to determine how consistently themes were identified. The results of this test indicated that the reliability of the coding (calculated

as the number of coding agreements divided by the total number of agreements plus disagreements, following Miles and Huberman, 1994) was 78%. Values over 70% are generally considered acceptable (Miles and Huberman, 1994). This value, however, may be somewhat misleading given the hierarchical nature of NUD.IST: that is, values may be underestimated using this test because the coding scheme operates simultaneously on several levels of increasing complexity, and if the coder fails to go into sufficient "depth" within the coding scheme a disagreement results even if the understanding of the meaning of a text unit is similar. For example, concerns about "nuisance" might be coded as "nuisance" or they might be coded more specifically (as "traffic nuisance", "noise nuisance" etc.) When intra-rater reliability is investigated on a moderate (rather than highly specific) level in the hierarchy, the value achieved is 89%.

In addition, a test of inter-rater reliability between the researcher and her supervisor using a subset of the data collected was performed. The standard version of this test indicated an inter-rater reliability of only 29%. When a more moderate level of coding accuracy was taken into account, agreement was still only 53%. At first glance, these values throw the reliability of the coding scheme into question. A more through investigation of the coding shows that the two coders do not often disagree on the coding of text, but that the primary researcher coded the data much more thoroughly. For example, in one of the documents used for the reliability test, the primary researcher identified 131 codes, while the secondary coder identified only 38. This means that the greatest possible reliability that could be achieved at the highest coding resolution is less than 40%. However, the codes identified by the supplementary coder were in agreement with the primary researcher's codes 94% of the time

within the data subset. At a more moderate coding level, this value

100%. This indicates that, although the primary researcher coded the d

more detail, the meanings found in the statements were very similar. This

rater reliability has been observed by other researchers (Baxter, 1998). Given that the

supplementary coders are generally not as familiar with the documents or the coding scheme,

it is not surprising that their coding detail would be less than that of the primary coder. This

phenomenon has two implications. First, it suggests that the coding of these documents may

well be accurate, despite the low inter-rater reliability scores. Second, it points to the

possibility that a new way of measuring inter-rater reliability needs to be found to compensate

for this problem.

4.4.6 Identification of Key Themes and Linkages

The identification of the"key codes" or major elements within a coding scheme is one

of the most important steps in qualitative analysis. This is the key descriptive stage of the

analysis, and is the stage at which the elements to be used in further, more detailed analysis

are chosen.

The key elements/themes in this research were identified according to a number of

criteria. First, since a predetermined set of research questions or topics have been identified,

the elements or categories which best correspond to those topics were automatically selected.

Second, the theme codes with the largest numbers of mentions across interviews (that is, the

codes which were mentioned by the greatest number of participants) were considered

important. However, the sheer quantity of research participants mentioning an issue was not

considered sufficient to identify an important thematic category. Third, the universality of key themes (that is, the predominance of the same themes across all the different types of research participants) was assessed, as was the differentiation of codes by group (that is, the importance of different themes in different groups within the sample). Next, the relative importance of the categories within interviews was determined, as indicated by the number of mentions of a topic within an interview, the amount of text taken up to address an issue. Finally, the emphasis given to a certain theme ("emphasis" here being a qualitative measure of emphatic or emotional speech, etc.) by the participants was assessed.

Once the key theme codes were identified, the linkages between the various themes were examined, as were the relationships between these themes and individual differences (such as socio-demographic variations or differences in group membership). This analysis is undertaken to identify how different themes interact and influence each other, and also why differences between individuals and groups occur. One important feature of this analysis was "negative case analysis", which involves reformulating theory until it accounts for all variation in the data (Kidder, 1981). The use of negative case analysis adds to the credibility and dependability of this research, because it helps to explain differences between responses to the fullest possible extent.

4.4.7 Circulation of Results

Another method of improving the credibility of the research is through "member checking", asking the groups from which the data was collected if they agree with the analysis (e.g. Porteus, 1988). The results of this research were circulated to interview participants

in a draft form, requesting comments and feedback. Of the participants, only 6 responded to this request. These responses were primarily positive reviews of the interpretation of the interviews. Any comments made were incorporated into the analysis.

In addition, the results of this research were circulated to other members of the research community, to add their feedback to the analysis. Checking results with the "interpretive community" (e.g. other researchers) is another way to ensure credibility (Baxter and Eyles, 1997).

4.5 Media Analysis

4.5.1 Introduction

This research uses content analysis techniques to identify and quantify certain aspects of the content of the media over the course of the two siting processes under study. Content analysis is a method of studying communication in a systematic, objective, and quantitative manner in order to examine the content of recorded narrative information (Walizer and Wiener, 1978; Kerlinger, 1986). It involves using specialized procedures to make replicable and valid inferences from large amounts of unstructured narrative data (Krippendorf, 1980). These procedures include the identification of categories for analysis and the coding and counting of communication information.

When analysing media messages, the researcher can choose to examine only intrinsic features of the data itself, or may choose to investigate factors extrinsic to the narrative, particularly the social context in which the narrative was presented (Smith, 1988). Although this content analysis will deal explicitly with only the intrinsic content of the messages, one

of the goals of this research is to show the interrelations between media messages, the context in which they occur, and their influence on the community. This research also explores how media messages themselves become part of the context in which members of a community experience the process of siting a landfill. This analysis, therefore, is concerned with both the intrinsic and extrinsic features of media messages.

It is important to note that while content analyses can provide a great deal of insight into the nature of media messages, they cannot serve as the basis for making statements about the effects of the content of those messages on an audience (Wimmer and Dominick, 1994). In order to make reasonable inferences about the effect of media messages on a community contextual data is needed. This media analysis is linked with the other investigations undertaken as part of this research in an explicit attempt to investigate the effect of the media on communities in relation to other modes of communication and in varying community contexts.

4.5.2 Data Collection

Newspaper articles were collected from three sources for this analysis: the *Hamilton Spectator* (for both sites), the *Stoney Creek News* (Taro site) and the *Flamborough Review* (Steetley site). This analysis was limited to newspapers because previous research has indicated that newspapers are the most cited source of local information (Elliott, 1992; Matthews, 1997). Newspaper articles concerning the Taro site in Stoney Creek were collected from the time of the first publicity of the site (June 1, 1992) until April 1997. Articles concerning the Steetley/Redland site in Greensville were collected from the first

publicity of the site (fall 1988) until after the rejection of Steetley/Redland's appeal of the Environmental Assessment Board by cabinet (November 1996). These articles were assembled in a clipping file by site and source in chronological order. All the articles in this file were included in the analysis.

4.5.3 Content Analysis

One of the goals of this project is to examine the role of newspapers in influencing perceptions of the landfill siting process. To that end, this content analysis attempted to determine the nature and content of siting-related media coverage during this time period. The investigation focuses on two key questions. First, how predominant are articles about the environmental assessment process at these two sites, and in which sources (i.e. when is the most and least coverage provided and by whom)? Second, what topics are most common, at which sites and in which sources?

This content analysis uses the entire article as the unit of analysis, and examines the articles according to a number of categories, including the newspaper name (ex. Hamilton Spectator), the date of the article, the page number, the length of the article (in cm2), the headline/title and subheading (if applicable), the author (if noted), the source if applicable (e.g. the home paper of the author if not the same as the source), the type of article (news, editorial, cartoon, etc.), the topic of the article, and the article's key point(s). These categories were used as fields in a spreadsheet, and each article was assigned a value in each category, according to a preset coding scheme (this coding scheme can be found in **Appendix C**). It is possible that the audience's perception of these media messages may differ from the

researchers', because the researchers cannot be completely aware of the context in which these messages are being received and interpreted. Many researchers have identified this as a difficult problem to overcome in content analysis (Wimmer and Dominick, 1994; Krippendorf, 1980). However, focussing on descriptive rather than interpretive uses of the results, as this research does, helps to limit the effects of this problem. In addition, the combination of the content analysis results with results of the other aspects of this research provides the context necessary to more accurately interpret these results and vice versa.

4.6 Summary

This chapter described the design and methodology chosen for this research. In this parallel case study, a qualitative approach was used for data collection and analysis. In-depth interviews were conducted and analyzed, and a media content analysis was undertaken, in order to address the study objectives. These objectives were to uncover what the landfill siting process means to individuals, to explore the effects of the siting process on individuals and communities and to examine the role of various information sources in influencing perception.

Thirty-six semi-structured interviews were conducted with three key resident stakeholder groups at each site: the site opposition groups, the study/liaison groups, and unaffiliated residents. These interviews were then coded and analyzed using a grounded theory approach. A qualitative software package (NUD.IST) was used to facilitate this analysis. Inter-rater reliability tests were performed on a subset of the coded data to determine the dependability and neutrality of the coding scheme. These tests revealed that

the data coding was probably neutral and dependable, but also that standard inter-rater reliability testing may be inappropriate for complex coding systems. The results of the interview analysis were circulated to research participants, and their feedback was noted and incorporated into the analysis.

The media content analysis involved the collection of relevant articles from three newspapers (the regional and two local newspapers) between 1988 and 1997. Pertinent information about these articles was entered into a spreadsheet. Analysis of the newspaper coverage focussed on the amount of coverage in different time periods and the types of issues being addressed.

In the next chapter, the results of these analyses will be presented, comparing and contrasting the two sites simultaneously, beginning with respondent concerns about the site and the siting process. This is followed an examination of the role of various information sources, including local newspapers, in influencing perception of issues. Next, the effects of the siting process on individuals and communities are identified, with specific reference to the effects of uncertainty. Finally, the different coping strategies used by respondents are examined.

CHAPTER 5

IN-DEPTH INTERVIEW AND MEDIA ANALYSIS RESULTS

5.1 Introduction

This chapter presents the results of the analysis of the in-depth interviews and newspaper coverage in order to address the study objectives:

1) to uncover what the landfill siting process means to individuals;

2) to explore the effects of the siting process on individuals and communities;

3) and to examine the role of various information sources in influencing perception.

The chapter, therefore, first details what the landfill siting proposal and process means to individuals in Greensville and Stoney Creek, by investigating issues of concern to the respondents. Next, the role of various information sources in influencing perception is examined. Finally, the effects of the siting process on individuals and communities, and the use and usefulness of various coping strategies are documented. The results are presented by major theme, rather than according to respondent's site or group affiliation. This prevents repetition, and highlights the many similarities across groups and communities. To prevent obscuring important differences between the sites, in cases where alternative views are held in one community or group these differences are highlighted and discussed. This form of presentation was chosen because, although the study sites are different in a number of ways, it was felt that dividing results by site would obscure commonalities. Preliminary analysis

revealed more similarities than differences between the study sites, and this is consistent with the many similar characteristics observed in the site/community profiles. These commonalities (which are in some ways surprising) should not be minimized: rather, it is important to emphasize areas of similarity and difference in the data. To facilitate this, and to avoid duplication in the text, results at the two sites are presented together.

Qualitative health geographers recognize that experiences are time and context dependent, and so cannot be easily generalized (Baxter and Eyles, 1997). However, other researchers may wish to look for similarities between their and other's work. To facilitate this sort of comparison, research needs to be made *applicable* or translatable (Borman et. al., 1986). Allowing the reader to "enter into the situation and thoughts of the people represented" is key: this is facilitated by the use of description and direct quotations (Quinn-Patton, 1980, 430). However, the use of narrative text alone to display results can be cumbersome and overload the reader. Visual displays such as tables and charts to summarize the data can be helpful in preventing this (Miles and Huberman, 1994). The results of this research, therefore, are submitted as tables where appropriate, and are elaborated by descriptions and direct quotations from the interviews themselves. Quotations are chosen based on their illustrative quality (i.e. their ability to accurately and emphatically describe the phenomenon being elaborated); respondents are identified using pseudonyms.

5.2 Concerns about the Proposed Landfill Sites

5.2.1 Nuisance Concerns

Several areas of concern about the proposed landfill were identified in the in-depth

interviews (**Table 5.1**). The greatest number of concerns hinged on the nuisance aspects of

the proposed landfills, including increased traffic, dust, and noise. Concerns about traffic

dominated the discussions of possible nuisance effects:

> A big concern was the trucks. It's really dangerous having a quarry
> there, we knew that when we moved in and a lot of trucks were going by:
> we said that's fine. But now, they showed us how many trucks every hour
> it would be, I thought oh my God. The noise from the trucks would be
> horrendous. **"Karen", Greensville, PLC member**.

Concerns about odours and pests such as seagulls and rats were also mentioned:

> It's a dump and there's going to be vermin coming and there's gonna
> be dirt and smell and paper and stuff. **"Janet", Greensville, resident**.

These concerns were only mentioned in relation to the Greensville site. This is likely because

the proponent in Stoney Creek assured residents that the limitation of that site to industrial

waste (which would not contain organic matter) would mean that pests would not be

attracted.

Nuisance concerns often appear to overlap. For example, concerns about traffic are

related to increased noise and dust from the roads. Nuisance concerns can also often overlap

with health concerns:

> Well, there's gonna be more health problems with the dust...
> **"Daniel", Stoney Creek, resident**.

> Well health, what can go wrong there? With health, it can be a dust
> issue, because of asthma and breathing. It could be even safety,
> truck traffic. There was a major concern about truck traffic.
> **"Ryan", Stoney Creek, CLC member**.

In many cases, health is not explicitly mentioned as a concern, but it may be the underlying

basis of concern, as one respondent observes:

TABLE 5.1

Nature of Proposed Site Concerns

Type of Concern	GASP (n=7)	Steetley PLC (n=5)	Greensville Residents (n=7)	Greensville Total (n=19)	SCRAP (n=6)	Taro SG/CLC (n=3)	Stoney Creek Residents (n=8)	Stoney Creek Total (n=17)	Overall Total (n=36)
Nuisance related	4*	5	6	15	2	1	8	11	26
Environment/pollution	4	4	7	15	3	3	4	10	25
Technological concerns	4	5	5	14	1	2	4	7	21
Company's reputation (lack of trust)	3	3	7	13	1	2	5	8	21
Property value	3	3	1	7	2	1	5	8	15
Health concerns	0	3	2	5	3	1	7	11	15
No alternatives	3	4	5	12	1	1	0	2	14

* number represents number of interviews in which concept was mentioned

A lot of the people that I've talked to, who live in the area, have health
concerns. I don't know if they would describe it as health concern, but
when you talk to them, they'll say, "I'm not really sure, with all those trucks
on Highway 20, and me travelling up and down, I don't know how safe
that is". Well, that's a health concern, even though they may not even be
thinking of it, but it is, because you look at all the aspects of it. You've
got all the trucks, all the exhaust emissions, all the diesel fumes - diesel
fumes are a carcinogen, you know - and then the traffic, and the car
accidents, and all that kind of stuff. Those are health concerns.
"Tony", Stoney Creek, SCRAP member.

Nuisance concerns are related to residents' underlying reasons for appreciating, and

often for moving to, these communities. These underlying factors, or "core values"

(following Baxter and Eyles, 1997) are united by an appreciation for "country life": residents

value the rural, small-town feel of their communities, their quiet lifestyles, and their clean air

and water. These values were noted by respondents at both study sites. A lack of

appreciation of these values by the proponents is one of the major sources of conflict in these

siting processes, since these values are not necessarily being protected in the proposal, or

restored by proposed mediation measures. For instance, one resident did not feel that the

company's proposal for controlling dust and odour problems adequately dealt with her

concerns:

And also Steetley offered to all of us the homeowners, if the dump goes
in they were going to give us $3,000 and a berm built up at the back.
Now the $3,000 was for air conditioning so we could close up our house
and not smell the dump. Well that was so stupid. I'm sure I moved to the
country to close up the house: we don't even have air and we never wanted
air... You know, stay in your house, lock yourself in, don't go outside,
'cause you would have to smell the garbage. How could we have
barbeques? Every since we moved here we have all our parties in summer
because we have a small house... and it's worked out in the family that all
my sisters have the parties in the winter and I have them in the summer,
all the barbeques and all the outdoors stuff. And they don't, the quality of

life, they just don't take that into consideration.
"Karen", Greensville, PLC member.

Reasons like these for enjoying a community are often overlooked or minimized by others, since they are not universally enjoyed amenities. However, they are extremely important to neighbourhood character, and are therefore integral to the maintenance of the community in the eyes of the respondents. At these sites, respondents were attached to their country lifestyle. Where this underlying attachment would be impacted by the proposal, community concern was much greater (for example, around dust).

5.2.2 Environmental and Technical Concerns

Other concerns revolve around possible damage to the natural environment through pollution, primarily leachate, from the landfill. These concerns are often voiced vividly, with imagery drawn from knowledge of "worst case scenarios" at other sites:

> And the stories. It came up through their toilets and everything, green slime coming up through their toilets... And they were on city streets with hydrants and storm sewers, and all this came up through and over their streets and their lawns. It was just terrible. The woman just about cried when she described it. **"Craig", Greensville, resident**.

> In fact, the experts said that if it did leach in, there's no cure, there's no stopping it, there's no way to completely take all the stuff out of the quarry that they had put in. No, they won't do that, I mean, face it! So it will become another Love Canal or whatever and it will be just no stopping the pollution. **"Stewart", Greensville, resident**.

The most commonly mentioned environmental concern was the potential for 'pollution' from the site to affect water quality. In Greensville, this was a very personal issue, because of the community's reliance on well water:

> We were just devastated. When you think we are all on well water,
> and that is being threatened by this project.
> **"Derek", Greensville, GASP member.**

> People that lived in the area, who lived on Moxley Road, they were
> concerned because they're on wells - their water quality was going to
> be contaminated by leachate from the pit.
> **"Philip", Greensville, PLC member**.

Again, this concern is related to resident perceptions of what makes their community special,

and has repercussions for the acceptance of certain remediation strategies:

> They were all very worried about their water. Because people in this area
> don't want to go on Hamilton water. They don't want to drink Lake
> Ontario water that's mainly why a lot moved out here (laughs): they
> wanted well water they didn't want that.
> **"Samantha", Greensville, resident**.

Despite their use of city water, some Stoney Creek residents were also concerned about water

quality, since they felt that any leachate or pollution escaping from the proposed landfill

would eventually reach the lake, and therefore contaminate their water supply. Once again,

these concerns are linked with health concerns:

> Health-wise, I don't know enough about the process of this stuff actually
> biodegrading, whether it does, I guess it doesn't, but they're talking about
> some of the leachate going into the springs, and things like that, so I guess
> there's a health problem. **"Mike", Stoney Creek, resident**.

These concerns also indicate mistrust of the proposed landfill safety measures, since these

measures are designed to ensure that little or no pollution is released into the environment.

In fact, many respondents voiced explicit concern about the effectiveness of the proposed

containment technology at the both sites:

> I don't like the thought of them putting garbage there because they say
> they can put a containment in, to keep the garbage in a bowl, but I never
> heard of any man-made thing that ever worked the first time they put

it in, there's always better things made after. But I'm afraid that it's
gonna break the envelope and pollute the water.
"Janet", Greensville, resident.

Oh yeah, they sent their so-called experts (and believe me they had the
money to pay people) that talked about their state-of-the-art liner and
it had 6 feet of clay and 7 feet of this and that, but you see the whole
point is that there's never been these liners built so there's no prototype
so they can't guarantee them. I mean, it sounds good and it looks good
if you see a model with this plastic liner and the rest of it... But, I mean,
if you had an earthquake say or something... (laughs) and the liner
fractured what could they do, nothing, I mean the stuff would be there.
"Henry", Greensville, resident.

One thing was the structure itself. We felt that limestone - it's not a
strong material: this isn't granite we're talking about you know... We
feel it could not hold all that weight of that material and we felt that the
plastic liner was not going to be the answer because we still feel there's
gonna be shifting. And maybe some people will think that I'm crazy but
in Ottawa, they did have an earthquake on the Richter scale of 3.2 and
that's a minor earthquake but if ... you could feel those tremors - people
have felt them you know and it is documented. Then this is not the place
to be putting that thing. It's really taking a risk. There has to be a safer
place to put that dump and this is not it.
"Daniel", Stoney Creek, resident.

As evidenced above, concerns about unlikely but catastrophic events causing technological

failure dominate the discussion. This illustrates two concepts from the literature: first, that

the risk assessments of non-experts take into account qualitative aspects, particularly

catastrophic potential, rather than relying on odds ratios and statistical likelihood. Any level

of insecurity is intolerable: an event which could have the effect of destroying a community,

even if it is extremely unlikely, is cause for concern, since the event would only have to

happen once - here. Second, these quotes illustrate a lack of trust in technology in general,

and a lack of tolerance for technological risk (Beck, 1992a; Giddens, 1990). It is interesting

to note that the above respondents imply that their concerns may not be considered "rational"

by others (one by laughing at his own suggestion, the other by saying that people will think he's crazy). Still, this does not dissuade them from having or voicing these concerns.

5.2.3 Concerns about the Proponents

Related to lack of trust in technology is concern about the trustworthiness of the proponents. This stems partially from the perceived poor track records of both companies with regards to their previous operations (Steetley/Redland's "Brow" landfill and Taro's "West Quarry" landfill) and community relations:

> ...part of the background to this is that we have this other landfill site -
> the Brow landfill site which is being filled as we do this and there have
> been problems with this and people are concerned that there's leachate
> coming out the side of the escarpment. So that's in people's minds as well
> and they knew there's been trouble with seagulls and dust and garbage
> floating around the community from that and so people just didn't trust;
> they felt they had no reason to trust them.
> **"Philip", Greensville, PLC member**.

> I don't trust them...I mean if they had fixed the first dump and now they
> want this second one, that's different. It's very frustrating, they should
> have fixed the problems with that one first.
> **"Ed", Stoney Creek, resident**.

These feelings are exacerbated by the fact that respondents feel the companies have shown little or no regard for the concerns of the community:

> I guess its because they're such a large company it... and their past record,
> it seems like they don't give a damn about the people here.
> **"Roger", Greensville, resident**.

> They didn't particularly care. They... I shouldn't say they didn't listen, they
> were there and then the people spoke - they heard them out but not too
> seriously. **"Beatrice", Greensville, resident**.

This lack of trust intensifies responses in other areas of concern, since residents are not

convinced that they will be able to resolve problems with the companies at the time they occur. This means that respondents feel their concerns must be voiced and addressed prior to any new development because they cannot trust the proponents to deal with their concerns once the site is in operation.

Another area of concern also stems from the actions of the proponent, rather than from the proposal itself. Respondents voiced concern about the lack of alternatives to landfilling offered by the proponents. They felt that they were not offered a choice by the proponent, despite the existence of what they considered viable alternatives to landfilling. First, alternative "quarry rehabilitation" options were not felt to be adequately considered. That is, many participants felt that the assessment process was not (or should not be) about siting a landfill, but was instead about rehabilitating the existing quarry. Suggested alternate rehabilitation options included creating a lake and recreation area, a sunken garden, a compost factory, a secluded residential community, or a farm; grading the slopes; or filling it with clean fill. The Greensville residents expressed concern about a lack of rehabilitation alternatives more often than those in Stoney Creek. One Stoney Creek opposition group member felt that this was due to the proponent's refusal to frame the issue in this way:

> You know what the proponent wanted to do, in all this? Negotiate.
> I said, we will sit down, if you will discuss rehabilitation of the quarry.
> (Changes voice) "Absolutely not! This is a landfill issue!" Then no,
> there's nothing to discuss. You want a landfill, we want to discuss
> rehabilitation. There's nothing to talk about. They closed the door
> **"Matt", Stoney Creek, SCRAP member.**

Second, respondents felt there was a lack of waste disposal alternatives considered. Alternatives to disposing of waste by landfilling at these sites included incineration, waste

export, and increased recycling. Although these options were considered in the environmental

assessments for these sites, they were not considered in as much detail as they would be for

public proponents: respondents felt this meant other options were not adequately investigated.

5.2.4 Health Concern

Health concern has already been identified as underlying other types of concerns. In

addition, health concerns were voiced independently of other concerns. Some respondents

were quite vehement about the likelihood of negative health impacts:

> Respiratory disease will increase significantly, definitely... The prevailing
> wind will blow that crap over the side of the escarpment. People who live
> here, those people that live down at the end here, will get sick. People on
> the other side of the escarpment will get sick. And these poor people down
> here are going to live with 20 years of prevailing winds and persistent
> contaminants. There's cancer over there, they'll be cancer over here. Mark
> my words, it'll happen. Because we don't understand the effects of PAHs
> and phenols, and all the other toxins that are in the air.
> **"Matt", Stoney Creek, SCRAP member.**

The respondents seem to recognize the uncertainty attached to estimates of health outcomes.

They see this uncertainty as reason for not allowing these proposals to go ahead, or at least

for increased monitoring and the development of more specific outcome projections before

the project goes forward:

> Well I think in terms of any kind of contaminant in the soil and that you
> have to concerned about cancers developing and that kind of thing...
> We have to wait and see what the effects are and probably we'll have to
> wait and to see until people get cancers. I doubt whether or not they're
> going to be evaluating land itself, doing samples, until people start
> having symptoms. **"Laura", Stoney Creek, resident.**

> Many of my concerns are health related. What really really got me
> involved, Taro environmental assessment indicates that people with

> respiratory problems may be affected sometimes. Oh, well, what does
> that mean, you know? When is sometimes? And they said that on
> windy days, we'll decrease our operation. Well, you know, what are
> you going to do? When do you determine when it's a windy day? And
> then let's go further into it. What do you mean by a respiratory
> problem? Is it someone who has chronic obstructive pulmonary
> disease? Is it someone who is an asthmatic, or emphysema, or in a
> nursing home? And there was a recent report saying there was a high
> rate of asthmatics in the region - how's that going to affect these
> people? **"Tony", Stoney Creek, SCRAP member.**

Concern was heightened by the perception that uncertainty about health effects could allow

the companies to avoid taking responsibility in the event of adverse health impacts:

> So, you know the first time we get asthma or something, that's when we
> turn and say well it's the dump. I guess while your kids are healthy, you
> just keep going on... The first time that three kids on one street all get
> leukemia or something that will be it and we won't want to live here.
> And we will all blame the dump for it... You know even if it's not, even
> if it's just like a complete fluke they will blame the dump for all the
> health problems. But I wonder myself how Phillip Environmental will
> deal with the issues like that if they come up. If my kid gets cancer or
> something and I turn around and say it's your fault, how do we prove
> that it's not or that it is? **"Megan", Stoney Creek, resident.**

As illustrated, health concern here is dominated by the most dreaded health impacts - illness

in children and cancer - as well as by the most plausible (respiratory impacts in susceptible

populations). This makes sense given the literature around the influence of "dread" in risk

perception (Slovic, 1987). It is interesting to note that the most severe health concern was

reported by some of the least involved residents. In fact, the only health concerns mentioned

in Greensville were mentioned by less involved residents. The lack of health concern reported

among the most involved respondents is surprising, since in the literature health is often cited

as a major factor motivating action. This may mean that the health concern reported by less

involved residents is not well-informed, and so might not be considered credible by other

actors. However, this concern has implications for the psychosocial health of these uninvolved residents, since increased health concern could easily lead to greater stress and worry with regards to the proposed sites.

Health concern was also mentioned more often in Stoney Creek. Considering that health impacts from the Greensville facility would be just as likely as in Stoney Creek, this difference is puzzling, but likely attributable to differences in the framing of concern in the two communities. In Stoney Creek, several opposition group members were vocal in the interviews (and presumably elsewhere) about the possible health impacts of the site. The influence of these extremely active members of the community could direct debate towards health issues because of their contact with many members of the community as well as with reporters. In addition, slightly more health-related articles were found in analysis of the Stoney Creek newspapers (**Section 5.4.1**).

5.2.5 Concern about Property Values

Finally, concerns about property values were also mentioned by respondents:

The other thing that I was thinking about was property values. You know, you sit there and you think you work all your life to pay off the mortgage and what happens? All of a sudden you can't sell for what you paid for - so that was a big concern for a lot of the people.
"Rita", Stoney Creek, resident.

The older people too, for instance our next door neighbours, I always thought of them. They're in their late 60's/early 70's, and what would happen if something was to happen to one of them? This is a 2 acre piece of property - it's a lot to look after - it's not a one-man operation and then to be put on the spot where you can't sell your house.. What happens to you? ... It was like we were being held hostage because whether you wanted to or not, your hands were tied - you couldn't do anything until this

process was over and I don't know if it's over yet...
"Vanessa", Greensville, resident.

Concern over property values highlights the involuntary attachment residents have to their property (and by extension to their community). That is, if they wished to leave the community in the event it became contaminated, they feel it would be difficult to do so. Because of this, the intensity of other concerns is again increased, since problems with the landfill could leave residents unable to leave the community to avoid unpleasant impacts and therefore unable to control the course of their lives to a certain extent. One respondent eloquently describes this situation as feeling "under attack":

> I don't think anyone realizes the stress that you're put under going
> through these proceedings... until you've been through it and god forbid
> anyone go through it because it's an awful, awful thing - because the
> biggest investment you'll ever make is your property and to know that
> that's no longer valuable and you know your house and your home, you
> know, it's your haven - and all of a sudden somebody's attacking that
> and you don't have a lot of control or power to do anything about it -
> you just kinda go with the flow. **"Vanessa", Greensville, resident**.

This loss of control has been linked with negative impacts on well-being in other research (Frank and Mustard, 1994; Syme, 1994). The concern about "losing control" through the loss of property value is not easily dismissed. As Williams (1987) notes:

> ...the home as a possession, a physical commodity, may itself, through sale,
> have wealth effects which can substantially transform the prospects of its
> occupants (or, through inheritance, the subsequent generation). Equally,
> the home... is capable of disabling individuals and families as they seek to
> maintain the home in the face of its physical deterioration and the financial
> burdens it imposes (156).

A loss in property value, therefore, can impact substantially on people's lives, and so understandably concern about this possible loss of control runs high. This concern may be

accentuated by respondents' lack of trust in the proponent: that is, respondents feel that they (and, by extension, others) would not wish to live in the community once the site was established, despite the propnents' assurances that negative impacts would not occur.

5.2.6 Lack of Concern among Residents

Some residents, unlike their neighbours, were not concerned by the landfill proposal in their area. These respondents were unconcerned for several reasons. First, they felt that the proposed landfill site was well-planned and would use effective technology to prevent harm, and would therefore have little or no effect on the community or themselves. Some respondents explained their lack of concern by assessing their relative risk:

> [The dump would affect me] Not at all. Because, we live in a municipality
> that has services today... because all the water now is basically treated,
> and I'm living off treated water, I don't have to worry. And I don't think
> that the things that are in there, by the parts per million of the combination
> of chemicals that are in there, there isn't anything in there that's going to
> affect me. Unless I chose to dig a grave, and go and live in that grave 6 ft
> under, for 6 hours, after heavy rainfalls, fine, I might be affected, but on
> top of it, I'm not going to be affected.
> **"Allan", Stoney Creek, Study Group member.**

Other respondents admitted a slightly selfish lack of concern: that is, they were unconvinced that the proposed landfill would be benign, but only that it would not affect *them*, their families, or their immediate neighbours:

> In a lot of cases a number of people up here are of the opinion that it
> has no real direct effect on us. If they were to block off half of First we
> would never drive past it, we would never go near it. The wind
> direction is that way, the water flow is that way. People really wouldn't
> be influenced by it. It's a horrible way to be but that is part of the way I
> felt about it.   **"Albert", Stoney Creek, resident.**

It is interesting to note that many of those people who felt that the proposed landfills would have little effect maintained that they were neutral parties despite their "pro-dump" opinions in certain areas:

> As I say, I'm not for it, I'm not against it.
> **"Bill", Greensville, PLC member.**
>
> Now I'm not for the GASP group but I'm not against them - if they
> want to do their own thing, fine, just don't condemn me for not joining.
> We did actually have a guy sit right here one night and he was quite
> upset, like "how dare I stick up for Steetley" and I said "I'm not
> sticking up for them, I'm sitting on the middle of the fence here".
> **"Kevin", Greensville, resident.**

This may be a function of "peer pressure" in the community, and concern about being ostracized for, as some would see it, supporting the company over the community. It is just as likely, however, to stem from the fact that these respondents in particular see themselves as objectively weighing "the facts" and reaching a rational conclusion. Other residents, particularly opposition group members, perceive themselves instead as trying to protect their families and their communities, and acknowledge the emotional component of that process.

5.2.7 Possible Benefits of the Sites

Many respondents mentioned possible positive effects of the landfills as well (**Table 5.2**). Possible benefits of proposed end facilities[6] to the communities were noted by respondents:

6

That is, facilities or land uses which have been suggested for the landfill sites once they are completely capped. Proposals at these two sites include golf courses, parks and sports complexes.

TABLE 5.2

Reported Possible Benefits of the Proposed Sites

Possible Benefit	GASP (n=7)	Steetley PLC (n=5)	Greensville Residents (n=7)	Greensville Total (n=19)	SCRAP (n=6)	Taro SG/CLC (n=3)	Stoney Creek Residents (n=8)	Stoney Creek Total (n=17)	Overall Total (n=36)
End facilities	1*	1	2	4	0	2	4	6	*10*
Compensation	1	2	3	6	0	1	3	4	*10*
More employment	1	1	4	6	0	1	1	2	*8*

* numbers represent number of interviews in which concept was mentioned

> It'll be a community that's fully grown and parks, they're talking maybe
> a golf course, I mean it'll be like Mississauga soon - 90% of the people
> don't know that it was a dump - they play on it every day.
> **"Jack", Stoney Creek, resident.**

The proposed facility was also seen as a possible source of jobs for the areas, both personally

and for the communities in general:

> Economically, this region is suffering unemployment, and its an
> opportunity for a lot of great employment... It provides more jobs.
> **"Allan", Stoney Creek, Study Group member.**

> I stood to get a lot of work out of the landfill site.
> **"Kevin", Greensville, resident.**

Another possible benefit mentioned by respondents was the compensation package

offered by each proponent. These packages varied by site, but in each case they included a

cash payment to the host municipality, some sort of property value insurance within the

compensation zone, the occasional provision of cleaning and other services, and home

improvement grants to reduce the possibility of dust and noise infiltrating the home. Most

respondents felt that these packages were generous.

Even respondents bitterly opposed to the sites cited these possible benefits (as some

supporters of the projects mentioned possible concerns). However, these respondents were

quick to note difficulties with these benefits. Respondents were concerned that the end

facilities being proposed would become contaminated; that the number of jobs created by

these endeavors would be small; and especially that the offered compensation would not really

restore residents' quality of life:

> They said "Oh, we'll wash your houses, we'll send some kind of a spraying
> equipment, truck or whatever in and wash your houses down periodically to
> get the dust off". We couldn't have opened our windows, we couldn't have

> sat outside, I mean why would we be here if that there the case - it
> would have been awful.   **"Beatrice", Greensville, resident**.

> What they had decided as part of the compensation package was they were
> going to put in new windows so that we could just seal ourselves up in
> our little cocoon and we'd never have to go outside and smell this and
> inhale the dust and dirt.   **"Vanessa", Greensville, resident**.

The implied ineffectiveness of the proposed remediation and compensation again seems to be

due to its failure to take into account the underlying reasons residents value their community.

Although several members of these communities remained unconcerned, and possible

benefits were also mentioned, concerns noted here about the proposed landfills were

mentioned often enough and with enough force that they should be considered fundamental

to respondents' perceptions of these sites and processes.   However, although many

respondents voiced these concerns, others contradicted them in almost every area. This

should not be surprising, since within a community a certain amount of variation in opinion

should be expected. What is interesting about these differences is that even in the case of

opposing viewpoints, arguments are presented in similar ways. Respondents tend to draw on

personal experiences to justify their positions. For example, this couple draws on their

experience in the waste management industry to illustrate why pests should not be a concern:

> I felt that would have been good for the community but a lot of people
> were concerned about rats and seagulls and so on. That doesn't occur
> anymore with modern landfills -you might get the odd seagull but you
> don't get the rats and hordes of seagulls like you used to ... you can get
> your density up considerably so there would be no horrendous amounts
> of paper flying through the air and that's why I said about the rats and
> seagull problem - that would've been non-existent...
> **"Kevin", Greensville, resident**.
> ...The rats are non-existent anyway - I never once saw a rat - the only
> wild little critter I ever saw was a poor belated rabbit.
> **"Pamela", Greensville, resident**.

However, the following respondent's experience is contradictory:

> ...I was very naive... I believed them. And then about a year later...I was
> in Niagara Falls way and I thought, oh, they keep bringing up this dump.
> So I looked on the map and found it... And I couldn't believe it. Like the
> smell: far away I opened my window and I could smell, way far away, I
> just followed the smell. And then the fence, they had a fence around it
> which they said they would do here. And all the garbage was blown up
> against it. And there were tons of seagulls. And I thought oh my God.
> So then I looked where I would live and I thought "that's ridiculous".
> **"Karen", Greensville, PLC member**.

The issues identified in the previous sections constitute the basis of debate surrounding the siting of these two landfills. Other concerns are also important, however, particularly concerns regarding the siting process itself, independent of the pros and cons of the actual sites. These concerns are discussed in the next section.

5.3 Concerns About the Landfill Siting Process

The landfill siting process, in addition to the proposal itself, concerned many of the residents. Indeed, some residents were quite vehement about how poorly they felt the process operated:

> **Interviewer:**
> Um... So what do you think about the environmental assessment process?
> **"Tony", Stoney Creek, SCRAP member:**
> Oh, well, can I say it sucks?
> **Interviewer:**
> (laughing) oh yeah.
> **"Tony", Stoney Creek, SCRAP member:**
> well, it sucks. Its a very flawed process.
>
> **"Matt", Stoney Creek, SCRAP member:**
> It sucks. It is corrupt. It's perverted. It is out of control.

Both of these respondents are from Stoney Creek, where the landfill site was approved. This no doubt increases their dislike for the process. However, many Greensville residents also voiced concerns about the process, despite the fact that they were "successful" in keeping a landfill from their community. This indicates that flaws in the process exist, independent of "sour grapes" on the part of unsuccessful challengers.

5.3.1 Lack of Meaningful Participation in the Process

The most frequently mentioned concern related to process was the high cost of environmental assessment (**Table 5.3**). Many respondents saw the high cost of environmental assessment in terms of its unfairness to those who wished to have a voice in the process:

> And just to put it in a simplistic phrase, he who has the most money wins. That's what it's all about, these days, and its very discouraging. Because I don't think, right now, the environmental assessment is a process that provides fair opportunity for everybody. It doesn't. You need lots of money to get involved, and it shouldn't be that way.
> **"Tony", Stoney Creek, SCRAP member.**

> There is just such an imbalance, you know. One of the things that really concerns me about this whole process is that those volunteers that come to represent the community, it is all hard material and everybody else is getting paid. And some of them are getting paid huge amounts of money and that's not right. Again, it's like sitting on these meetings... You know you've got people earning money attending this meeting and then you've got all these volunteers who are not getting a thing out of this. And yet they have the most at stake and it is just such an unequal thing.
> **"Samantha", Greensville, GASP member.**

Concern about this inequality within the process is tied to respondents' perceptions that there was not enough opportunity to participate in the process in a *meaningful* way. The distinction between participation and meaningful participation is a critical one. Sometimes

TABLE 5.3

Concerns about the Siting Process

Concerns	GASP (n=7)	Steetley PLC (n=5)	Greensville Residents (n=7)	Greensville Total (n=19)	SCRAP (n=6)	Taro SG/CLC (n=3)	Stoney Creek Residents (n=8)	Stoney Creek Total (n=17)	Overall Total (n=36)
Costs too much	4*	2	6	12	4	1	1	6	*18*
Too long	3	5	6	14	0	1	1	2	*16*
Little meaningful participation	3	1	1	5	5	0	2	7	*12*
Rules/interpretation not strict enough	2	0	2	4	3	0	1	4	*8*

* numbers represent number of interviews in which concept was mentioned

participation was not as easy as perhaps it should have been:

> It's very difficult too with people working - how do you go to meetings that are scheduled during the day and a lot of times that's when they were. And a lot of times it was being told at the last minute and wondering how we were going to get the information out to everyone in time... **"Vanessa", Greensville, resident**.

> It isn't made easy enough for a lot of people.. Even the people in the old age building there - I don't even know that it's been easy enough for them - like I know if my mother lived up here she wouldn't have anything... she wouldn't even know...
> **"Rita", Stoney Creek, resident**.

Still, respondents noted that adequate opportunities existed to get involved:

> For a number of years; plenty of opportunity. That is one thing that I can't fault, they let you know, at least on that level what was going on and what they had planned. There was plenty of time to get involved...
> **"Albert", Stoney Creek, resident**.

However, many respondents felt that this was only perfunctory, superficial participation, and that the public had little if any opportunity to truly *influence* the process or provide meaningful input:

> Well I certainly wasn't aware that there... I mean there were certainly meetings where people were discussing it but I didn't have the opinion that it was an opportunity to change it, it was just more discussion about what was happening, you know, an information session more than anything else. **"Laura", Stoney Creek, resident**.

> We had an opportunity to participate in the process, yes. Affect it, no. We were ignored. It was a PR campaign by the government, by the municipality, by the proponent. "Yes, we had to listen to these people, because the act says its for the benefit of the people of the Ontario. We heard you, we heard you"... they didn't listen. If they heard what we were saying, and listened to what we were saying, then they would have moved for a hearing... Now, so, was the process fair? Not even close. Were the residents truly, was this a public process? Not a chance. **"Matt", Stoney Creek, SCRAP member**.

This was particularly noted in Stoney Creek, since in Greensville many felt that the hearing (but not any of the process leading up to the hearing) gave them their opportunity to really participate. In addition, the opposition in Stoney Creek is more likely to perceive their participation as not meaningful given that, despite their opposition, the landfill site in their community was approved.

5.3.2 Length of the Process

Another often-mentioned concern was the length of the process. Many respondents were uncomfortable mentioning this as a concern, however, because they feel that the length of the process did allow it to be exhaustive, particularly in Greensville where the hearing took place. The respondents, then, are torn:

> I do think it has got flaws in the length of time that the hearing takes, even the length of time of the assessment before it gets to the hearing, is too long... If you look at judicial proceedings, like the Environmental Assessment process, they are such long drawn out antagonistic ways of dealing with questions, that they, everything becomes a nightmare for everybody concerned. All of the other hearings, you are looking at every possible pro and con, which I suppose is a good thing. I don't really know what the answer is, but there are sometimes advantages in comparatively quick and dirty process, that comes up with a solution that you are able to cope with. I think that is less satisfactory in major environmental proceedings in that the result is something that affects not only the immediate parties but you'll affect generations to come. I don't know what the answer is.
> **"Corinne", Greensville, PLC member.**

> It's just too long -- it is long and it is ugly and looks like it was invented by a committee. It was designed I guess in an era when we really really were focussed on the environment and it seemed to be the appropriate way to go to make people know the questions involved when they take on major engineering projects. It is long and will be

time-consuming and costly and only the rich can afford to play it
unless they get this intervener funding from sponsoring people. I
don't know if there's a better way to do it - I just know that it's a long
time to get a project off the ground, especially of this magnitude, and
you have to be really serious about it and have a lot of money to sit
it out waiting for it to happen.
"Philip", Greensville, PLC member.

Concern about the length of this process is for many respondents related to the fact that

uncertainty surrounding the site is prolonged. The effects of this uncertainty are addressed

in **Section 5.5.1**.

5.3.3 Lack of Strict Rules for Environmental Assessment

The last major area of concern identified by the respondents is the lack of strict rules

to guide the assessment process. Residents felt that flexibility within the existing rules and

guidelines left too much room for interpretation by the proponent and the ministry:

Well, I don't like the way they interpret the rules. You can ask three
of them the same question and you will not get the same answer - each
individual will interpret the rules differently, and that's one thing that I
don't agree with - a rule is a rule and it should be written down and it
should be applied to you, me and everybody else.
"Kevin", Greensville, resident.

The environmental assessment act needs to be strengthened, the
guidelines need to be followed, I mean, if they followed everything that
was in the Act, to the letter of the law, I would be the first one to say
the process is working. But what happens is, the EA branch will give a
very broad interpretation to one section of the act, and then a very
narrow interpretation to the other... You have the Environmental
assessment board, which is the, basically the judicial body, the semi,
quasi-judicial body, making rulings about landfills, and environmental
assessments, setting these precedents, and a pattern that they follow,
Meaford, Simcoe, Halton, and then you have the EA Branch, that says
nah, we don't like that. We think the private proponent should have
different rules. The Environmental Assessment Act does not state that

there's a difference between a private proponent or a public proponent.
And yet EA Branch has subverted, perverted and corrupted the entire
process.   **"Matt", Stoney Creek, SCRAP member.**

Without strict guidelines and enforcement for both public and private proponents, decisions

vary case-by-case, which the public perceives as *bias* on the part of the Ministry which

benefits private (as opposed to public/municipal) proponents:

> ...if this had been a municipality looking to locate a dump site, the
> MoE and E regulations right at the outset would have prohibited it...
> under those conditions.   **"Stewart", Greensville, Resident.**

> If they had just made the proponents follow the guidelines
> that are there like every municipality has to, we wouldn't be here
> because they wouldn't have met any of these guidelines and we
> wouldn't have had to go through all this stress, their environmental
> assessment would not have met the criteria, but there's some
> unwritten rule that as a private proponent you don't have to go
> through all that.   **"Peter, Stoney Creek, SCRAP member.**

This lack of predictability in the environmental assessment process severely hinders the ability

of the Ministry to maintain the trust of the community, because residents see variation in the

process as stemming from bias in, rather than the uniqueness of, the situation. Indeed, the

Ministry was not trusted by respondents, in part because of the extremely close relationship

which develops between corporations and the Ministry:

> The Ministry I would say, they've certainly in the past not really had to
> deal with the private citizens, and I think that is where the problem has
> come here because they always have to deal the company and of course
> their job is to regulate, and that's where all the regulations come from,
> and they have to monitor, it's just their job...
> **"Derek", Greensville, GASP member.**

> ...So they have very close relationships with the company you know
> there is lunches, lunch meetings, and all kinds of you know nice friendly
> little talks.   **"Samantha", Greensville, GASP member.**

> And you can't because every time you turn around you find out, oh so and
> so was at the MoE and now they are working for the company you know.
> Every time you turn around and you figure you've got somebody in there
> that's going to do something. And they hire them themselves.
> **"Sue", Greensville, Resident**.

These were thought to cause the Ministry to operate *covertly* on behalf of the companies, without adequately informing the community of its implicit goals, and by not providing sufficient monitoring, enforcement, or opportunity for public consultation. As one respondent noted, the fact that a branch of the government which should respond to and protect its citizens is not felt to be trustworthy by those citizens is "totally unacceptable", and is an indication of significant problems in this process.

These process issues, along with concerns about the proposed landfills themselves, form the basis of resident concern. The effects of these concerns on individuals and communities will be examined in **Section 5.5**.

5.4 The Role of the Information Sources in Identifying and Framing Issues

5.4.1 Content of Newspaper Coverage

Newspaper coverage at both sites was analyzed according to a number of criteria, including newspaper name, the date of the article, the headline/title, and the topic of the article. 498 articles, collected between June 1988 and July 1997 were analysed, 175 from Greensville and 323 from Stoney Creek. The majority of articles addressed process issues (**Table 5.3**): that is, the primary concern of most articles (62% in Greensville and 54% in Stoney Creek) was some aspect of the landfill siting process. This means that newspaper readers received a great deal of information of the process, its stages, and potentially its flaws.

TABLE 5.4

Topics of Media Coverage of the Greensville and Stoney Creek Sites

Topic of Article	Greensville	Stoney Creek	Total
Process	127 (62%)	237 (54%)	364 (58%)
Environment	23 (11%)	58 (13%)	81 (13%)
Technology	18 (9%)	40 (9%)	58 (9%)
Community	6 (3%)	27 (6%)	33 (5%)
Health	4 (2%)	23 (5%)	27 (4%)
Nuisance	6 (3%)	3 (1%)	9 (1%)
Business	0	9 (2%)	9 (1%)
Review	0	3 (1%)	3 (0.4%)
Other	19 (9%)	33 (8%)	52 (8%)
Total	203	433	636

This concentration of coverage is not unusual considering that news coverage often deals with new occurrences in an issue (Golding and Elliott, 1979). In drawn-out, complicated, and adversarial processes such as these, where most new occurrences involve advancing to the next stage in the process, it is not surprising that process issues dominated this coverage. Coverage of environmental concerns and issues were the next most common (11% in Greensville, 13% in Stoney Creek). Technological concerns, such as the design of the "liner" systems of the proposed landfills, accounted for 9% of the coverage at both sites, followed by concerns regarding effects on the community (3% in Greensville, 6% in Stoney Creek), nuisance issues (6% and 3%), and health issues (2% and 5%). The frequency of these issues in the news mirrors the relative importance of these concerns to respondents. For instance, 33 respondents (from both sites) mentioned process concerns/issues in the interviews, 25 mentioned environmental concerns, 21 mentioned technical concerns, and 16 mentioned health concerns. The pattern of relative issue frequency is the same. The one exception is nuisance: nuisance issues accounted for at most 6% of the articles, but were mentioned in 26 of the interviews. This is perhaps due to the sensate nature of nuisance concerns: because both proponents had previous operations which had caused nuisance in the study communities in the past, the residents had personal experience with certain aspects of the proposal likely to be nuisances (e.g. dust and traffic). In any case, the majority of issues identified in the newspaper and in the interviews are similar, and seem to be of similar importance, based on frequency of mention. However, this similarity does not necessarily indicate that the media coverage influenced the perceptions of respondents. Indeed, it is just as likely that the media responded to existing concerns in the community.

The volume of coverage at both sites varied according to the times of key decisions and actions around the sites (**Figure 5.1**). Coverage in Greensville began in June 1988, and continued until November of 1996 when Steetley/Redland's appeal to cabinet was quashed. Some of the coverage centred around key decision periods. For example, peaks in coverage occurred when Steetley's Environmental Assessment was ready for viewing, when the hearings began, and when the appeal of the Board decision to cabinet was quashed. However, a large amount of the coverage does not relate directly to steps in the process - rather, peaks in coverage are often related to particularly controversial actions on the part of process actors. For example, a peak in coverage in July of 1989 corresponds to the resignation of GASP members from the Steetley Community Liaison Committee, while the September 1989 peak relates primarily to concerns about Steetley's decisions to delay the closing of their Brow landfill (another landfill in the area) and to "test burn" automobile "shredder" waste, a potentially toxic material, in their kilns. In addition, coverage of the issue increased when the Provincial government indicated it might not overturn Steetley's appeal (September 1995) and when Steetley placed bids for handling waste from Toronto contingent on their success (January 1990 and November 1995). Despite the concentration of coverage around certain key events, the coverage in Greensville (except for a 6-month period between August 1991 and February 1992 and a 9-month period starting in January of 1996) was fairly constant. Most of these articles were found in the Hamilton Spectator, although the Flamborough Review provided some coverage as well (**Figure 5.2**). This should be expected, given that the Hamilton Spectator is a daily, while local papers are issued on a weekly basis.

In Stoney Creek, coverage began in the fall of 1989, when rumors that Taro was
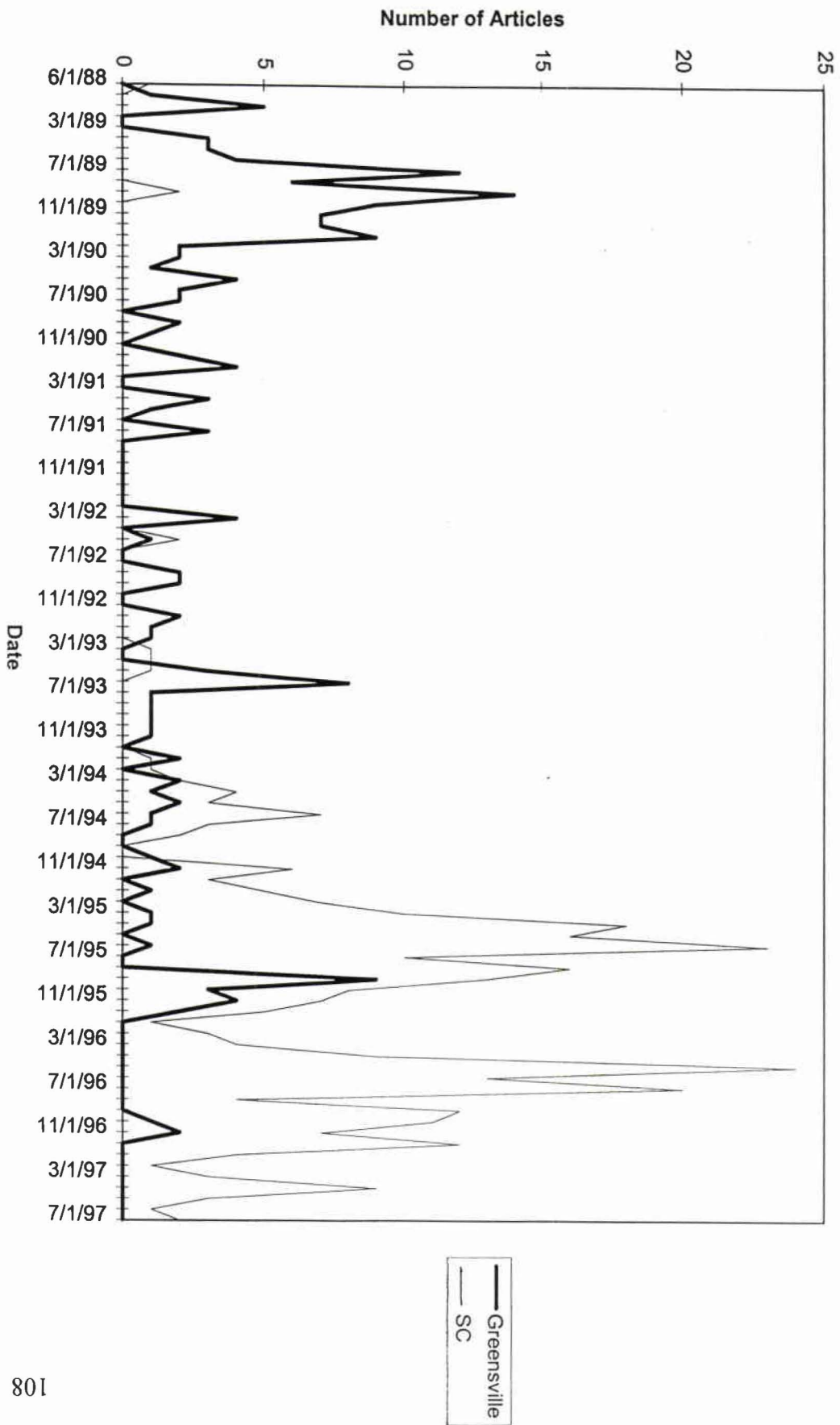
FIGURE 5.1

Frequency of Articles, Stoney Creek and Greensville, 1988 - 1997

FIGURE 5.2

Coverage in Local Newspapers, 1988 - 1997

601
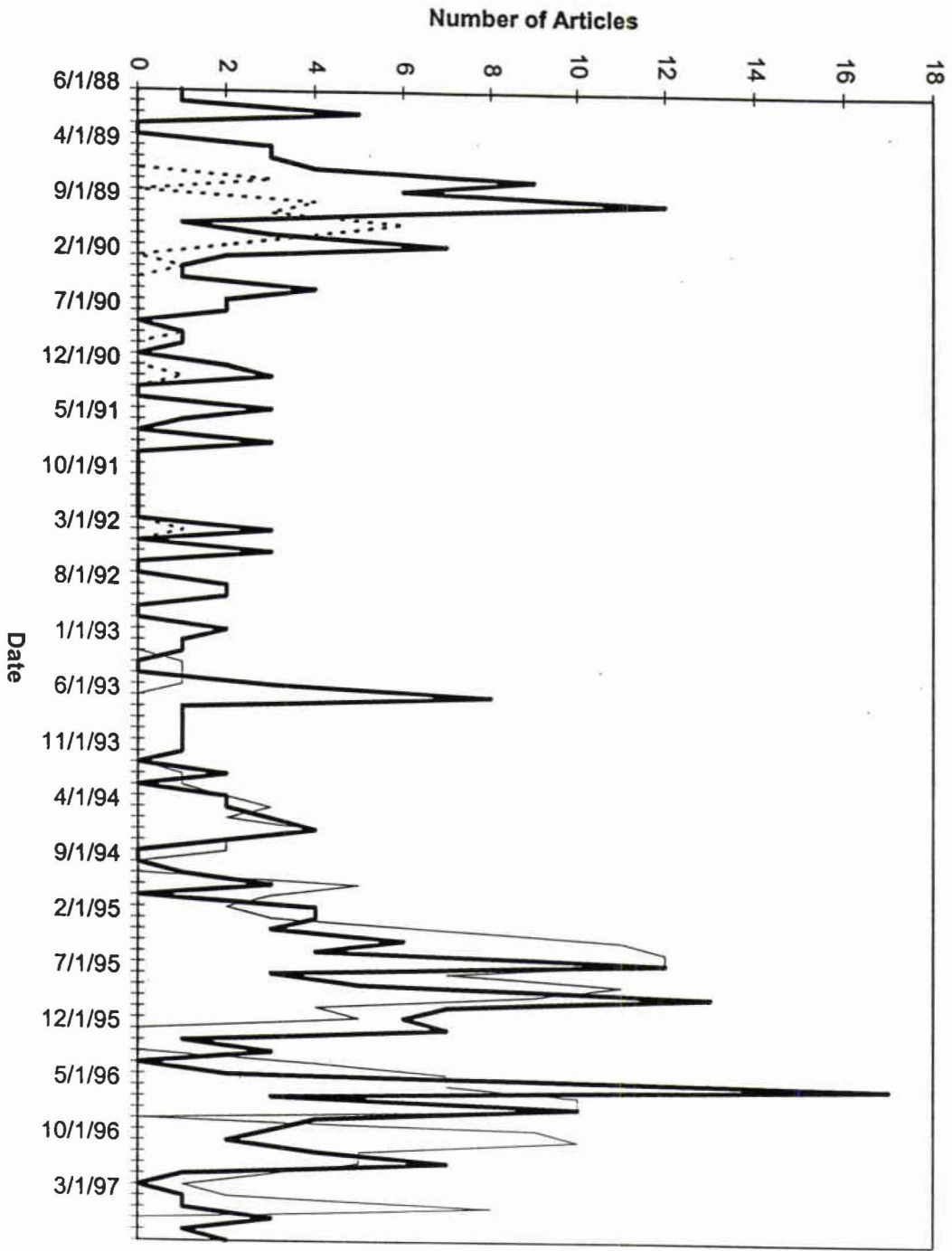
planning a landfill began to circulate. The newspaper analysis ended in July of 1997. In

Stoney Creek, the coverage increased at certain stages in the process, such as around the

submission of Taro's Environmental Assessment and the approval of the site (summer 1996).

However, like in Greensville, coverage centred around controversial moments: a zoning

dispute (June 1994), the formation and consequent actions of SCRAP (spring/early summer

1995), the discovery of "ooze" thought to come from Taro's existing landfill (December

1996), and allegations of various unethical actions by a variety of players in the process (e.g.

corruption on Stoney Creek council - April 1997). Unlike coverage in Greensville, coverage

in Stoney Creek was not constant - there were very few articles which addressed the issue

prior to 1994, but between the beginning of 1994 and the end of the study period there was

only one month is which there was no issue coverage, and in some months there were more

than 15 articles (**Figure 5.1**). Again, the Hamilton Spectator contained more coverage of the

issue than the Stoney Creek News, but in this case only slightly, and the coverage in the

Spectator appeared to follow the coverage in the local weekly (i.e. when coverage peaked in

the Stoney Creek News, coverage often peaked in the Spectator the following month - see

Figure 5.2). Interestingly, the Stoney Creek News did not include an article about the site

until April, 1993.

At both sites, there were a number of key events in the process which did not receive

much coverage. In Greensville, these included the Steetley Open Houses (a key component

of their public consultation process), the Minister's acceptance of Steetley's Environmental

Assessment, the end of the hearing process, and the Minister's rejection of the undertaking

following the hearing. In Stoney Creek, the Open Houses and Workshops held by Taro did

not generally receive coverage. Particularly surprising is the fact that, while key decisions in the process were covered, the opening of the site to accept waste was not recorded by either local paper. This illustrates the inconsistency of newspaper reporting - despite the importance of certain steps to the assessment process, media actors may or may not consider them "newsworthy" (Golding and Elliott, 1979).

5.4.2 Perceptions of the Media

The media, particularly newspapers, were relied upon by respondents in both communities to provide information about the siting process: that is, newspapers were the most noted source of information in the interviews (**Table 5.5**). This reliance was particularly pronounced among the less involved members of the community, who had few other sources of information. Among media sources, newspapers were considered the only real source of information about the sites, since respondents perceived that television and radio programs rarely covered them. The exception was the "Fifth Estate" CBC television documentary (March 26, 1996) concerning the Taro proposal in Stoney Creek, which respondents felt summarized (and to some extent legitimated) their concerns, and raised awareness about the proposal in other locales, but did not introduce anything fundamentally new. The local newspapers were seen as slightly better sources of information than the regional newspaper, only because they provided more regular coverage of the issue.

Despite the fact that newspapers were important sources of information to respondents, they were not considered believable ones, due to perceived bias in reporting. It is interesting to note that the same newspapers were thought biased by both those for and

TABLE 5.5

Respondents' Sources of Information

Information Source	GASP (n=7)	Steetley PLC (n=5)	Greensville Residents (n=7)	Greensville Total (n=19)	SCRAP (n=6)	Taro SG/CLC (n=3)	Stoney Creek Residents (n=8)	Stoney Creek Total (n=17)	Overall Total (n=36)
Media (all types)	4*	5	8	**17**	4	3	8	**15**	*32*
Meetings (all types)	5	4	8	**17**	4	2	4	**10**	*27*
Informal Communication	5	4	4	**13**	4	3	6	**13**	*26*
Flyers	2	2	6	**10**	1	0	5	**6**	*16*
Environmental Assessment Documents	1	2	0	**3**	1	1	0	**2**	*11*

* number represents number of interviews in which concept was mentioned

against the landfill:

> The Spectator was a disgusting display of bias towards the proponent,
> to the point where we had one resident go down there to speak to an
> editor.   **"Matt", Stoney Creek, SCRAP member.**

> The Spectator has two reporters and they seem to take great delight at
> taking pot shots at Taro and the landfill.
> **"Ryan", Stoney Creek, Liaison Group member.**

> The newspapers, I think they have a distorted opinion...
> I think personally they were all kinda siding with the GASP group.
> I guess its fashionable to go against the big corporations - that's the
> way I looked at it.   **"Kevin", Greensville, Resident.**

> No, the Flamborough Review... was never on [GASP's] side.
> **"John", Greensville, GASP member.**

The Stoney Creek News is an exception - it was widely thought to be partisan:

> If you take the last 18 issues of the Stoney Creek News, and condense
> them, you can see a pattern emerge: the position of the newspaper and
> its reporters and its editorials, it is totally, totally anti-landfill. You see
> wild accusations about terrible things happening then you never see
> the conclusions about these accusations about these wells being
> poisoned and sheep dying, and these apples are shrivelling you know.
> **"Ryan", Stoney Creek, Liaison Group member.**

> One thing about the Stoney Creek News, they've always seemed to be
> against the dump. Which is fine - you know, that's their slant.
> **"Mike", Stoney Creek, Resident.**

> The Stoney Creek News, I found that they were active right at the
> very start... in terms of the reporting of it, I know that there's a lot of
> editorials very in opposition towards the Taro proposal, but I found
> that they were very active, weekly, in bringing out the events through
> their newsprint.   **"Tony", Stoney Creek, SCRAP member.**

This perception of bias limits the media's ability to provide useful information to the public,

since the information provided is not necessarily trusted. The attitudes of respondents

towards the media also supports the "uses and gratifications" model of communication, since

individuals are using the information found in media to solidify existing opinions, and where that information contradicts the existing opinion, it is rejected as "biased".

The respondents were not simply receivers of information from the media: they also played a large role in influencing the content of media to further their own interests. For example, opposition groups at both sites provided the media with regular press releases; the study/liaison groups at both sites provided regular accounts of their progress and kept residents appraised of meetings and open houses, mostly through "advertorials" (articles printed in advertising slots paid for by the companies); and community residents wrote letters to the editor to voice their opinions. Of course, not all of these efforts were published, and indeed getting particular opinions published was sometimes very difficult:

> The Stoney Creek News has been very biased, because once I wrote
> a letter, as a soccer parent, to thank Philip Environmental for a donation
> for sponsoring a kids team, to allow kids to have uniforms, and play
> soccer in a league, which we didn't have the money for. So I was very
> thankful, and I was writing the media to thank them, and the Stoney
> Creek News didn't want to do it, because two of their reporters, and
> their editor, are very biased, and they're sort of on the SCRAP side only.
> And I tried to get a pro letter in. And it took me a month and a half, by
> threatening to go the press council. And then they published it.
> **"Allan", Stoney Creek, CLC member**.

Still, respondents not only consumed information provided to them by the media (albeit selectively), they also attempted to influence it as well. In doing so, respondents could use their writing as an outlet/coping mechanism, and could use the media as a community forum, giving residents another arena for participation.

5.4.3 The Role of Other Information Sources

Although the media was a major source of information, information also came from

other sources (**Table 5.5**). Public meetings, held either by the proponents or the opposition

groups, were important:

> Well, they invite people to, they've had open houses for years. Come on
> in, take a look and we'll show you what we're doing, what is happening.
> **"Frank", Stoney Creek, CLC member**.

> We did go to every meeting and we had very good speakers and had one
> outstanding man from the States who was a professor and he put it on the
> line how important it was not to have the dump here and he made a great
> impact, I think.   **"Freida", Greensville, resident**.

These meetings were especially important because they provided residents with the

opportunity to ask questions and make comments about the proposal. Because of the

interactive nature of these forums, they were often quite heated:

> We had a general public meeting. It was very very turbulent. It was
> very interesting, you know, farmers standing up there, calling these guys
> out. I remember a very pointed moment when [a Steetley employee]
> was... something related to a guy's well... but [the employee] said that
> such and such has never happened. And this old, wizened up little guy
> stood up and said, "you're a liar". And it was right out of Kentucky, you
> know, and the funny thing was, I've been to a number of public meetings,
> and I've heard people accused of.. massaging the truth, but I'd never
> really heard anybody being called a liar in public before. Except for in
> a movie maybe. And the thing was, [the employee] just turned beet
> red, he didn't defend himself, he didn't have a smooth line, he just
> turned like a lobster, red. So it was really quite interesting. So there
> was a lot of animosity too I think, noise, at that meeting.
> **"Simon", Greensville, PLC member.**

Despite the animosity, these debates were useful to the residents, as they put individuals and

groups "on the spot" and made them elaborate their positions. Meetings were more often

considered information sources in Greensville than in Stoney Creek. This is probably due to

the nature of the PLC in Greensville: they considered their meetings public forums for information dissemination and discussion, rather than intensive study sessions (as was the case in Stoney Creek) and so encouraged a public presence at their meetings.

Another common source of information was newsletters/fliers. Again, both the proponents and opposition groups created these, and many respondents reported receiving both. The major complaint about these fliers, not surprisingly, was that they were biased. For less involved residents, however, these fliers, along with the newspapers, were primary sources of information.

More involved residents reported that the environmental assessment documents (the proponent's assessment, as well as legislation and other technical material) were a major source of information. For the study/liaison groups, these documents were required reading; opposition group members felt that in-depth knowledge of this material was necessary to making their case. However, almost all the respondents using this material found it very difficult to understand, and time consuming to "plough through" (**"Corinne", Greensville, PLC member**):

> Which, there's a lot of that technical things - I didn't get all that,
> I didn't understand all that even though we've got books and books
> and the study. There was a lot that I didn't understand.
> **"Iola", Greensville, GASP member.**

For less involved residents, difficulty understanding the assessment literature led them to question their ability to make judgements on that material, and so led them to rely on other sources:

> I briefly went through it, but it was something that I really didn't understand... I really don't have the experience...
> **"Mike", Stoney Creek, Resident**.

> I don't rely on myself for information or by reading specifically on the landfill site because I don't feel that I am knowledgeable, you know what I mean.   **"Laura", Stoney Creek, resident**.

Opposition group members, on the other hand, studied the material despite its difficulty,

which meant a great deal of mentally strenuous, time consuming work:

> You had to do a lot of paper chasing, I would say, trying to get this information. And to read through someone's environmental assessment, having not read it before - you know, I don't do it as a profession, I found it hard. Very time consuming. I did manage to get through it, but it's very time consuming.
> **"Tony", Stoney Creek, SCRAP member**.

> We had to learn those skills. We had to become hydro-geologists overnight. We had to become biologists. I mean, we had to become.. you know?   **"John", Greensville, GASP member**.

The complexity of these documents limits their usefulness to the lay public: however, some

respondents felt it was necessary to understand the "official" documents of the siting process

to gain credibility. These documents were not necessarily taken at face value, however -

some respondents were skeptical of the validity of the science presented in these documents,

despite their lack of expertise in the area. This was particularly true of information generated

by the proponents.

Finally, informal communication - word of mouth - was reported as an important

source of information by many respondents in all sampled groups. For members of the

opposition group, this often meant having another member of the group call or stop by to

exchange information. For other members of the community, this took the form of

impromptu question-and-answer sessions with opposition or liaison group members or

company representatives, either in casual conversation or in a slightly more formalized setting:

> GASP still always has booths at all the fairs up around there, the
> garage sales, at the churches and craft sales, they still have a booth at
> environmental fairs and that...   **"Henry", Greensville, resident**.

Informal communication was thought by those who received it to be a useful source of up-to-

date information.

For respondents, mass media is the most mentioned source of information, and is

particularly important to respondents who have fewer links to the issue. However, media was

considered a thoroughly untrustworthy source of information. Similarly, fliers on the issue

were reported as information sources by the less involved residents, but these were also

considered suspect. This has repercussions for respondents' abilities to make wise choices

on this issue, and in their lives more generally: without a trustworthy source of information

on which to base decisions, residents are left powerless in the process, recognizing their

inability to make informed judgements.

Respondents considered face-to-face communication the most reliable source of

information, whether at public meetings or through word of mouth. This has been reported

in other research as well (Copley, 1992). This may be due to the impact of non-verbal

communication in these situations. Research in communication has long indicated that non-

verbal cues are important in the development of communicator trust (Lowery and DeFleur,

1983): this is particularly true in situations like these, where the factual information provided

by various parties is considered suspect. Since meetings and informal contact allow face-to-

face interaction, they allow residents to form their opinions of various information sources

based on these familiar cues. The provision of this kind of open forum, then, is an important component of the assessment process, above and beyond the provision of facts.

5.5 Effects of the Siting Process on Respondents

5.5.1 The Role of Uncertainty

The uncertainty associated with the siting process has been identified as a factor which contributes to the development of psychosocial effects (Elliott et al., 1993). Often, respondents mentioned uncertainty only peripherally as a concern about the siting process. However, this uncertainty is a factor which was seen by the respondents to have real effects on their lives.

About a third of respondents stated that the uncertainty associated with the landfill siting process affected them, and the effects of this uncertainty were pronounced. These respondents were primarily but not entirely from Greensville, which is not unexpected considering the much longer process and therefore prolonged uncertainty. One effect emphasized by respondents was their perception that their lives had been placed "on hold" by the siting process in their community. This sense of being "on hold" permeated their daily lives, and affected individual and household behaviour and decision-making. Most importantly, it prevented the investment of time, energy, and capital into homes:

> Everybody is on hold. Everybody feels like their life is on hold...
> you can't make any long term decisions on improving your house...
> we are not doing a lot of expensive remodeling, which we would
> like to do. It's just not worth it.
> **"Samantha", Greensville, GASP member**.

> Especially people around the landfill site, there's a hundred homes
> around that quarry, and their lives are on hold. And they have been
> on hold for almost seven years, since the hearing started. And a lot
> of them are holding back, they're not putting new roofs on their
> houses, they're not putting new windows in, they're not building
> decks, they're not doing any of this stuff, they're just holding back to
> see what's going to happen. **"John", Greensville, GASP member.**

> You don't know what to do, you don't want to spend money on
> your property, you don't want to invest any more because you figure
> you'll never get it out and you don't have the interest either because
> you just figure it's not worth it - what's going to happen to it if this
> does happen - if they do get the approval and then it's gonna be like
> a Love Canal area really. So there was that feeling.
> **"Beatrice", Greensville, Resident.**

This lack of investment into one's home is significant because, as many theorists have noted,

the home "in a variety of ways, penetrates deeply into the core of our social being" (Williams,

1987, 156). The home serves as a "physical centre for departure and return"(Smith, 1994,

32), contributing to a sense of rootedness, belonging, continuity, and stability; it is also a

medium of self-expression and personal identity (Smith, 1994), and is central in an

individual's social network (Lawrence, 1987). In many respects, it is integral to the

development of Giddens' (1990, 1991) "ontological security", since many of these issues

(rootedness, stability, etc.) mirror Giddens'. Discomfort with investing (both financially and

emotionally) in the home can therefore impact on the sense of centredness and security a

home provides, which can in turn impact on individual and family well-being. The negative

effects of being 'on hold' were described eloquently by this respondent:

> I think that a lot of the stress comes from the inertia we've experienced,
> because when you get involved in something like this... it brings
> everything else to a standstill because it takes so long to resolve anything,
> so from the standpoint of major decisions... it just grinds everything to
> a halt. You don't sense that your life is progressing and it is really

debilitating to look at life that way. You just have no sense of where your life is going. It's just awful.
"Peter", Stoney Creek, SCRAP member.

Another effect of uncertainty is mood swings, related to developments (but not conclusions) in the siting process:

> I had ebbs and tides, I was almost a manic depressive. I was, "yeah, yeah, we're doing good, look at what we're doing, this is great, yeah, we got 'em on the run, this is great!" Everyone was so high, and then a decision would come down and knock the wind right out of you, and knock you to the floor. And you'd go, Jesus, that's it, I'm out of it, I've got to get out of here.
> **"Matt", Stoney Creek, SCRAP member.**

These swings usually take place earlier in the process, and are eventually replaced by a constant level of concern/anxiety which is linked with a sense that the process will never reach a conclusion:

> The decision came down about a couple of years ago and then that was short-lived and we all partied then. It was short-lived because of the appeal. So this time when the decision came down it's been really quiet because we're, you know, once bitten, twice shy. We're afraid to celebrate and say that it's the end of it because you don't know...
> **"Vanessa", Greensville, resident.**

All in all, respondents found coping with the uncertainty in the landfill siting process very difficult. Some respondents, echoing a hypothesis voiced in the literature (e.g. Elliottet al., 1997), feel that dealing with uncertainty is more difficult than dealing with a landfill would be:

> The referral to Cabinet, or appeal to Cabinet and the decision, it would sort of come and go, you know... The in between, not knowing, you just sort of live day by day with the frustration of not knowing and the fear... You know, if a decision came down that "yes, it's going to happen and they're going to allow it", you would gradually get used to

that thing, you would gradually come to live with that scenario. The not knowing is sometimes a whole heck of a lot worse than even a negative decision.   **"Stewart", Greensville, resident.**

Negative outcomes, although definitely unwelcome, are seen as "actionable" - that is, individuals could take action to minimize their risk once outcomes were known. The current state of uncertainty, however, means that these sort of personal decisions are impossible to make. This leads to mood swings, and feelings of powerlessness, frustration, and occasionally panic - negative emotional impacts which are discussed in the next section.

5.5.2 Emotional Effects

Both positive and negative emotional effects related to the siting process were noted by respondents (**Table 5.6**). Negative effects were grouped into three categories: "stress related" emotions such as worry/stress, fear/dread, and generally being "upset"; "disempowering" emotions such as disillusionment and despondency, which limit the willingness of individuals to participate in public life; and "violent" emotions like anger, outrage, and frustration, which can affect individuals' ability to interact. Positive emotional effects revolve around increased pride in oneself and one's community, and hope for the future.

The most common stress-related emotion was worry or anxiety caused by the proposal, either personal stress or stress observed in the community:

...it's been years, years and years, people worrying about it 'cause it's on your mind constantly...   **"Roger", Greensville, resident.**

The stress level has been magnified - there was already enough stress... without being at the mercy of reporters and less than ethical lawyers and

TABLE 5.6

Emotional Effects of the Siting Process

Emotional Category	GASP (n=7)	Steetley PLC (n=5)	Greensville Residents (n=7)	Greensville Total (n=19)	SCRAP (n=6)	Taro SG/CLC (n=3)	Stoney Creek Residents (n=8)	Stoney Creek Total (n=17)	Overall Total (n=36)
Stress related	5	4	4	13	3	1	5	9	*22*
Disempowering	4	1	4	9	4	1	5	10	*19*
Violent	4	3	3	10	4	1	1	6	*16*
Positive/beneficial	3	1	2	6	3	0	1	4	*10*

* numbers represent number of interviews in which concept was mentioned

big business, and corrupt politicians - the whole gamut.
"Peter", Stoney Creek, SCRAP member.

In some cases, this anxiety became real fear: respondents mention how "frightened" and "scared" they are by this landfill "threat". This stress and anxiety comes not only from the proposal, but also from uncertainty and from aspects of the siting process. Stress-related emotional impacts were experienced by all groups interviewed. The experience of constant worry is a potent psychosocial disorder, reducing individuals' ability to cope with daily life, and so is worthy of note.

Emotions which reduced the ability of respondents to take action were also common. Respondents became disillusioned with the process and their own ability to effect change, which led to despondency and apathy in this process, and in other areas of life:

> It was so much better in the '60's. I was used to the idea that, you know, we can do all kinds of things if we put our minds to it. The question now is do you have the time, do you have the effort, and can you fight the guys in the striped suits?... The first thing that comes to your mind is "oh well, here we go again". What the hell is the sense?
> **"Albert", Stoney Creek, resident**.

> Having the will to continue on; it's been so demoralizing to fight a clean, fair fight and then be stabbed in the back or ignored - then you think, what's the point?
> **"Peter", Stoney Creek, SCRAP member**.

In the above instances, the emotions generated by the siting process are turned inwards; in a number of cases, these emotions are directed outwards in the form of anger and frustration at various actors:

> [I'm] exasperated. Frustrated... Totally pissed right off. I'm outraged...
> **"Matt", Stoney Creek, SCRAP member.**

> I was so angry I couldn't see (laughs). I personally, I was angry and
> I wasn't angry at every meeting but I had an underlying anger for sure.
> 'Cause anything that comes up... and I start reading, and I was getting
> a little anger again about it (laughs). I was really angry.
> **"Karen", Greensville, PLC member**.

These emotions were experienced most acutely by members of the opposition groups at both

sites. This hostility is emotionally harmful, limits the ability of individuals to participate in the

siting process (since their anger could prevent them from behaving civilly with other actor),

and can cause social network and community division as a result of overly acrimonious debate

among friends and neighbours.

Despite the negative emotional effects reported, some respondents experienced

positive emotions in the course of the siting process as well. New (or renewed) pride in

oneself and in the community was emphasized by respondents:

> We had never done anything like that before... we did our part and I'll
> always feel good about that. That I didn't just sit... I'm proud of the way
> we were. I was proud. It made me even prouder of the community
> because I didn't know so many people cared.
> **"Iola", Greensville, GASP member.**

Positive emotional impacts were reported most commonly by members of opposition groups.

Unfortunately, negative emotional impacts were more prevalent, at least at the time of the

study. The lasting emotional impacts, if any, cannot be ascertained from this research.

5.5.3 Other Personal Effects

Although the emotional effects of the siting processes were predominantly negative,

a number of the respondents reported that their experience in/with the landfill siting process

had positive effects in their personal lives. Respondents felt that they had gained a great deal

of knowledge and experience during this process:

> I would do it [again] in a snap simply because I have some background
> now which I think is valuable. You can't buy this experience. Most
> people say why would you? Well, it's part of life. It's demonstrated to
> me how the system works. I have a better understanding and again if
> that can be of benefit in another area, or in a similar set of circumstances,
> yes I would do it in a snap.   **"Ryan", Stoney Creek, CLC member**.

> Well, my knowledge level increased as the process went along. At
> the start I knew nothing about it... But now, as the years and months
> have gone by, my knowledge of it has increased dramatically...
> Now, I have a pretty good understanding of an environmental process,
> I have a good understanding of what a liner means, and what fractured
> bedrock and the effects of that is. So I gained knowledge, and you never
> turn down knowledge. I always like to learn. So, it influenced that way,
> that I got a lot of information.
> **"Tony", Stoney Creek, SCRAP member.**

Others noted that their involvement in the siting process had empowered them in a variety of

ways. Respondents became involved in the siting process, sometimes only in small and

peripheral ways like delivering fliers or increasing their personal recycling. These actions

gave respondents the confidence to become more involved in a number of areas in their lives:

> What it's done though, it's been a spring board to, we got involved
> in a lot of other things, environmental issues.
> **"Derek", Greensville, GASP member.**

> I eventually hope to make a presentation to the environmental
> assessment advisory committee, um it gave me the confidence to go
> and address a body like that.
> **"Corinne", Greensville, PLC member.**

This increased involvement and confidence empowered respondents, and deepened their

connection to their communities and their environment.

Negative effects on personal aspects of the respondents' lives were also mentioned.

For respondents deeply involved in some aspect of the siting process, the amount of time and

hard work required by their involvement in the siting process took away from other things in

the respondents' lives:

> Oh, I've been to sixty-four separate meetings, anything from two hours
> to a whole day. I also attended a number of meetings maybe about
> twelve down at the city hall, watching the city hall in effect. So overall
> it's been a very exhausting exercise.
> **"Ryan", Stoney Creek, CLC member.**

> To tell you the truth we are sick and tired of the amount of time that we
> have had to spend fighting that company. It's been a long haul.
> **"Evelyn", Greensville, GASP member.**

> It was a lot of work. I'd say for the first, it had to be for the first two
> or three months, it was just about every day. It basically swallowed up
> every spare minute I had. You know, I would come home from work,
> and I'd barely sit down. I mean there were nights when I would be
> going to bed at one, two in the morning, and I was still in my work
> clothes. I still hadn't had time to change, let alone do anything else.
> And it was a lot of work, it wasn't work as in physical work, but you
> spend a lot of time... It's taken up a lot of my time.
> **"Paula", Stoney Creek, SCRAP member.**

Respondents who mentioned the large amount of work involved in their participation often

commented on the negative effect this had on their family lives:

> I mean, there were times when I didn't see my family for days on end.
> I'd go to work, I'd come home, grab a quick.. or not even get home,
> I'd be off to a meeting. I mean, there was one week, every single
> night I was out at SCRAP meetings - not SCRAP specifically, but
> HRCA, NEC, City Council, Region - it was absolutely insane.
> **"Matt", Stoney Creek, SCRAP member.**

> It was a lot of work. It was a lot of work. A lot of arguments... you
> know, stress, tension, family... I was out almost every night, for, like,
> months on end: you know, "where are you going?" "I've got a meeting
> tonight, got to go up to the church, gotta do this, gotta go there". When
> are you going to stop this kind of stuff, you know, when are you going
> to stop?   **"John", Greensville, GASP member.**

This high level of involvement, then, could have negative repercussions on the residents'

private lives.

Few respondents mentioned experiencing adverse health or behavioural effects.

Effects which were mentioned included loss of sleep, fatigue, and high blood pressure:

> I mean how many nights did you lay awake wondering what you should
> do or what was going to happen. Or how can you fight it you know.
> **"Craig", Greensville, resident.**

> It's not good for you either. It brings your blood pressure up. I mean
> it's not helpful.   **"Samantha", Greensville, GASP member.**

For the most part, these effects can be associated with stress/worry of the siting process, and

the overwork experienced by highly involved residents. These are psychosocial health

impacts in the truest sense, given that they are a physical/somatic reaction to stressful life

events.

5.5.4 Effects on the Community

Respondents perceived the siting processes to have a paradoxical effect on their

communities. Many respondents noted that the process had divided their community:

> Well, I think its caused a great division in council, and they are
> representative of the community, at a municipal level. And it's
> created some division amongst neighbours, because Philip
> Environmental is based in Hamilton Region, and you could be
> opposed to it, and your neighbour could be a Phillip employee, so
> that would create a division there. So, I think its divided certain
> aspects of the community.
> **"Tony", Stoney Creek, SCRAP member.**

However, many also noted that the process had brought their community together:

> Basically, we all sort of got together. It was amazing, like that's how
> I met a lot of my neighbors, which made the community even stronger.
> They would have dances, they would sell tickets for this and that. And

> I think having this threat has made the community pull together. Like
> the old timers need the support of the new time... the new ones, like
> ourselves. And the children in the schools are involved, they're always
> making posters and sticking them up... So from that standpoint, you
> know, I think the community really pulled together.
> **"Roger", Greensville, resident**.

This paradox was explicitly noted by some respondents, who reported that both effects (that

is, both community cohesion and fragmentation) had taken place within their communities:

> [The process] certainly put a strain on the community, and there are
> people who do support Steetley in the Flamborough Area. They said,
> "well you have to do something with waste, and it provides jobs, and
> brings money into the area", said it was a good thing. So they probably
> had a pretty tough time with that part of the community (laughs). But
> on the whole it probably, certainly the area close to the site, it probably
> provided a heightened sense of community.
> **"Corinne", Greensville, PLC member**.

> Changed the community? Yeah it did, because all the people involved
> in GASP became closer, and I think it drew them together, but it didn't
> do anything for guys like me.
> **"Kevin", Greenville, resident**.

It appears that these siting processes brought together different groups within the two

communities (particularly in opposition to the site), strengthening the sense of community

cohesion within those groups, but fracturing the communities as a whole.

5.6 Coping Strategies

5.6.1 Action-focused Coping

A large number of the participants (31) used action-focused coping strategies at some

point during the siting process in their community. This large number represents the high

community involvement of this sample, due to sampling which intentionally selected members

of active groups within the community. The inclusion of a number of highly involved respondents provides an opportunity to more thoroughly investigate action-focused coping. The large number of respondents reporting action-focused coping also reflects the broad range of actions which constitute action-focused coping. Action-focused coping strategies here include gathering information/researching the proposal and considering moving in addition to becoming involved with an opposition group or study/liaison group. "Involvement" here does not include paying membership dues to an opposition group, since many individuals who considered themselves uninvolved took this action.

Respondents at both sites, particularly uninvolved residents, stated they had thought about moving away from the affected community at some point (**Table 5.7**). This does not mean that the respondents actually put their homes up for sale, but just that they considered the possibility (although two respondents reported having purchased a home elsewhere). Moving did not seem a particularly appealing option, since respondents had no desire to move, and saw moving away as "giving in" to the proponent, as this couple noted:

> But now, you just wonder about living here. You wonder by hindsight now whether it would have been best at the first rumour to get the heck out while your property was high priced and you could.... But why should you give up your friends, and the place? It's really difficult just to get up and walk away because somebody decides that they want to put the biggest dump in North America right next door to you...
> **"Craig", Greensville, resident.**

> ...You asked whether we would move or not, well that's a good question because you know if you move then you are giving in.
> **"Sue", Greensville, resident.**

> ...Ya that's what we've been toying for all these years. Do we move and give in or do we stay and fight?... But I mean this is what everybody, do they give up their home and move out and start over again?... I

TABLE 5.7

Actions Taken in the Siting Process

Action	GASP (n=7)	Steetley PLC (n=5)	Greensville Residents (n=7)	Greensville Total (n=19)	SCRAP (n=6)	Taro SG/CLC (n=3)	Stoney Creek Residents (n=8)	Stoney Creek Total (n=17)	Overall Total (n=36)
Considered Moving	4*	2	7	13	1	2	6	9	22
Gathered Information/ Researched	2	0	0	2	4	0	0	4	5
Active Member of Organized Group	7	5	0	12	6	3	0	9	21

* numbers represent number of interviews in which concept was mentioned

mean, you hate to start again.
"Craig", Greensville, resident.

They also felt that leaving would not be an effective solution, since the problem affecting them

was effecting communities everywhere:

> I'm happy within my community. Am I going to move because some
> people have the opinion that it's going to be harmful? I suspect it may
> be harmful but where am I going to live that it's going to be less
> harmful, you know, and that there's no threat that they're going to
> make something harmful within that community? Am I going to keep
> moving, because I feel that there's going to be something harmful?
> **"Laura", Stoney Creek, resident**.

> [Moving] certainly is something that we think about...But where do
> you go? Where is it better? I don't want to live in Northern
> Saskatchewan (laughs). Not particularly.
> **"Evelyn", Greensville, GASP member**.

There were also aspects of the social network that would be difficult, if not impossible, to

develop elsewhere, at least without major disruption:

> Well... I have to be honest, if I was looking at this area, if I didn't live in
> this area and I was looking to move, no, I wouldn't look to move into a
> place that had a landfill site going in very close by. You know, in all
> honestly I wouldn't. But would I pick up and move? It would be very
> disruptive. I mean, my daughter's 15, she's in high school, she does life-
> guarding at the pool close by. My 2 boys go to school over there,
> they're close, as I said, to the school, they're close to the community
> centre, they're close to church.
> **"Laura", Stoney Creek, resident**.

> I asked [my daughter], "What happens if somebody gives me a good
> price for my property and I sell it?" Well she said, "If you move
> away, I can't look after you." I said, "Okay, I won't sell it."
> **"Henry", Greensville, resident**.

Moving, then, was an option fraught with difficulty and stress. Thinking about moving did

not seem to serve as an effective coping strategy either, as respondents reported anxiety about

moving, tied with the uncertainty they felt:

> We kept back and forth - if the decision comes, should we move?
> Or should we not?... And even the kids. Like I think, they kept
> saying "are we going to move? Are we going to move?" And they
> were young, they were 8 and 10 when we moved here. I thought
> you know this isn't good for them.. It just isn't.
> **"Karen", Greensville, PLC member**.

Thinking about moving, therefore, should not be seen as a useful coping strategy in these

cases, particularly since this could lead to a sense of uncertainty and loss of security around

the home, the effects of which were mentioned earlier in this chapter.

Only a few respondents mention gathering information about the proposal as a coping

strategy. However, this may be due to the fact that this served only as a first step for many

respondents, who later became more involved:

> I like to gather information before I start getting involved into things, so
> I started getting into things - I started calling my counselor, and the
> mayor's office, and the deputy mayor's office, seeing what their response
> was to it, and I was reading through the local media, what they were
> responding to it. Taro was doing a mailing campaign, they were putting
> out pamphlets, I was looking at that. And then I went "I just don't have
> enough information", right? So that's when I started getting more
> involved, phoning Taro, asking for their environmental assessment,
> that's how it started off.   **"Tony", Stoney Creek, SCRAP member.**

Gathering information and keeping abreast of new developments was, however, an ongoing

part of participation in an organized group.

Many respondents joined organizations as a coping mechanism. However, some

joined opposition groups, while others became members of the study/liaison groups. Most

individuals have similar reasons for joining: the most frequently mentioned motivation was

the wish to protect the community and the environment. However, members of the study

group were more likely to trust the corporations involved to act responsibly towards the community. For members of the study group, participation generally took the form of attending meetings. Opposition group members had more diverse responsibilities: they raised awareness about the issue in their communities, tried to influence opinions (particularly of government), and organized fundraisers. Involvement in such a group constitutes the most active coping strategy. However, although Giddens (1990) calls this involvement, particularly with opposition groups, 'radical engagement', respondents did not generally see themselves as 'radical'. Indeed, in some ways their work in the community was conservative in the truest sense, in that they were fighting for the maintenance of an existing way of life. However, many respondents became highly critical of the system which was creating risk in their community, and attempted to change that system - that is, they became more 'radical' as they realized that their goals were not being achieved within the current system.

In the literature, active coping is linked to involvement in the community in other ways. In this research, there was a clear link between respondents who had a dense social network within the community (that is, a large number of family and friends in the community, as well as a moderate, but not large, level of voluntarism) and involvement in the siting process itself. In most cases, respondents were only moderately involved in their communities before these processes began. At the "end" of the processes, most stated they would remain involved, some more so, some less so, but none at the level reported at the height of the process. The most likely explanation for this is "volunteer burnout" - as is documented in **Section 5.5.3**, highly active respondents came to resent the amount of time and energy they devoted to this cause. This suggests that the level of involvement required for participation

in these siting processes was too great to maintain over an extensive period without affecting

well-being, which has implications for public participation in extended processes such as

these. In addition, respondents who were highly active in their communities in other areas

felt that they could not take on another cause, no matter how important:

> You can't get actively involved in every issue and although this does
> concern me because I do live in this community I feel... (laughs) I feel that
> I've become active in other issues and that maybe other people that know
> more about this can be active in this issue and I'll just sort of sit here and
> wait and see what happens. **"Laura", Stoney Creek, resident**.

However, despite the respondents' "burnout", they remained involved in their community to

a greater extent after their participation in the siting process, even if not at the height reached

during the siting process. In addition, respondents felt that they had developed a greater

connection to their community and had made many new friends because of their participation.

This strengthened social network could increase individuals ability to maintain and improve

their well-being in the future.

5.6.2 Emotion-focused Coping

Emotion-based coping responses included becoming fatalistic about the siting process,

by accepting that "what will be, will be and there's nothing more we can do about it"

("Stewart", Greensville, resident), rationalizing the proposal by concentrating on its merits

and downplaying possible negative effects, and "compartmentalizing" emotions and issues

(that is, separating them from the routine of everyday life) **(Table 5.8)**. Respondents who

documented these forms of coping could be either "for" or "against" the proposal, and were

in some cases also using action-based coping strategies.

TABLE 5.8

Emotion-Focussed Coping Responses

Coping Strategy	GASP (n=7)	Steetley PLC (n=5)	Greensville Residents (n=7)	Greensville Total (n=19)	SCRAP (n=6)	Taro SG/CLC (n=3)	Stoney Creek Residents (n=8)	Stoney Creek Total (n=17)	Overall Total (n=36)
Fatalism	2	2	4	8	0	1	5	6	16
"Compartmentalize"	2	1	3	6	0	1	5	6	12
Rationalization	0	1	2	3	0	1	5	6	9

Some respondents developed a fatalistic response to the proposal:

> I mean, I haven't really given a lot of thought to that Taro dump because
> I don't feel that there's anything we can do about it... So I think you have
> to - I don't know, I guess we're just living with it because it's coming and
> what can you do... Well you can't, you can't, as I said before, we know
> it's coming there's no way of stopping it now all we can do is wait and see
> what happens.   **"Laura", Stoney Creek, resident**.

This fatalistic response to the proposal is similar to Giddens' 'pragmatic acceptance'. It is

characterised by a sense of powerlessness in the process (discussed in **Section 5.5.2**): this

indicates, as the literature suggests, that coping strategies are influenced by the extent to

which a situation is considered alterable. That is, those respondents who feel that they are

powerless to affect the situation adopt a "whatever happens, happens" attitude to protect

their mental equilibrium.

Some respondents attempted to "rationalize" the proposals in order to cope. This

strategy should not be confused with appraising the situation and concluding that it was not

a concern. Instead, rationalization is marked by trust in experts, regardless of their credibility:

> I think, I don't know - I put a lot of faith in science these days and
> the fact that if they say the things are gonna be good environmentally,
> and if they say that nothing is going to leak or get into the water
> system, I tend to ... I'm the type of person that believes that and I put a
> lot of faith in that: OK there's a lot of people who have done a lot of
> research on this and there's people who have gone to school a number
> of years and they know what they're talking about. I certainly don't
> know anything about that so I've gotta believe that that's the case.
> **"Gordon", Stoney Creek, resident**.

> When we found out about [the proposed landfill], I guess we lived
> with it and took however was working on its word for it. I guess we
> just took Taro's or whoever's word for it that it wasn't a health issue.
> **"Mike", Stoney Creek, resident**.

This coping strategy is similar to Giddens' "sustained optimism" since it implies faith not only

in experts but in science and "providential reason" more generally. Respondents who used this strategy were unlikely to become active in the siting process, because they believed that their interests were being looked after adequately.

Many respondents dealt with the proposal and the siting process by 'compartmentalizing' the issue. For uninvolved residents, this process was simple - residents just tried not to think about the proposal in order to remain focused on what they considered more important issues in their lives:

> I try not to think about it. I just don't think about it. I make it a very low priority for myself right now. There are other things that I want to do, or I want them to be more important. I don't want that to be the most important because it just takes up too much of our time.
> **"Megan", Stoney Creek, resident**.

> We just learned to live with it... I guess we like to live in our own little shell and not think of the negative things that could happen... to worry.
> **"Roger", Greensville, resident**.

This withdrawal into everyday life, what Beck calls "turning inwards" (1992b), was particularly noticeable in Stoney Creek, where the predominance of young working families increased the likelihood that other, more pressing and intimate responsibilities were present to distract the respondents from the siting process. For more involved and/or concerned residents, compartmentalizing became more difficult. This kind of coping did not become less necessary for respondents active in the community, however - even the most involved residents at times felt the need to emotionally distance themselves from the process. These respondents reported playing "mind games" with themselves to keep from dwelling on the proposed landfill:

> I have sort of become schizophrenic about it. I detach and I've
> compartmentalized it. I'm a true victim here. And so you know there
> are those feelings and there and I can open the door when I choose to
> and I can also close it now when I choose to. Now of course if the
> thing starts going that's it, the doors open on that and I will never
> close it.   **"Samantha", Greensville, GASP member**.

As the above respondent alludes to, there are instances when this emotion-based coping

strategy falls short, because it does not address the underlying tension or concern. The

response below illustrates the failings, and necessity, of this strategy eloquently:

> It's been a very difficult time and sometimes I think it's not talked about
> because it is so stressful and when you get together, who really wants to
> talk about something like that... And then you get the people saying
> "Well of course they're gonna put ..." - you just don't need to hear that
> kind of talk, that it comes down to politics and money and when has that
> ever won out and on and on it goes and then you start to think again and
> you try to not think of it - you're trying to ignore it so that maybe it'll go
> away or just forget it for a little while but it just doesn't happen...
> You don't know - you can talk yourself into it and out of it and then the
> neighbours get together and we'd do the same thing there - you know,
> we'd hash it over. But it's all a waste of time really because what's going
> to happen is going to happen - it's out of your control so ... and then it
> gets the blood boiling and it gets the stomach churning and so that's
> why you'd just as soon not talk about it and pretend it's just not there -
> life goes on, and you don't have a lot of control over it and you'll deal
> with it when the decision is made - what else can you do?
> **"Vanessa", Greensville, resident**.

These respondents see compartmentalization of their emotions and thoughts as necessary to

maintain their sense of equilibrium over the course of the siting process. This apparent need

to "bracket out" unpleasant or unnerving aspects of life corresponds with Giddens'

conception of "ontological security", the need to protect the appearance of order and control

in an inherently disordered and dangerous world. As Giddens predicts, some residents

reported "fateful moments" where they realized that they were not protected, creating feelings

of shock but also determination. However, few respondents mentioned a particular moment in time where this feeling occurred. Instead, respondents document an ongoing process in which the development and maintenance of protective mechanisms is constantly challenged by realities of the siting process. Uninvolved residents were more likely to use emotion-focused coping strategies than members of organized groups, which is not surprising given that group members are by definition using action-focused coping strategies.

5.7 Summary

This chapter reported the major results of this research in terms of the three study objectives. First, the concerns of the respondents were identified. Respondent concerns about the proposed sites focussed on nuisance, techno-environmental, and health issues, as well as on the perceived untrustworthiness of the proponent and possible negative effects on property values. In addition, several process concerns were noted, including the high cost and length of the process, and the perceived lack of opportunity for meaningful participation in, and strict rules to guide, the process.

Second, sources of information were investigated. Newspaper coverage of the two siting processes was analyzed to identify major themes within the coverage, as well as times when coverage "peaked" around the issue. Themes in newspaper coverage mirrored concerns voiced by respondents about the sites. Volume of coverage increased around many of the key decisions and actions taken concerning the sites. However, a surprisingly large number of key events in the siting process did not result in increased coverage. The relative importance of various information sources to respondents was also documented. Media (and newspapers

in particular) were the most important sources of information to respondents. However, newspapers were considered an untrustworthy source of information. Other sources of information, particularly public meetings and informal, word-of-mouth communication, were considered more trustworthy.

Finally, effects on respondents and their coping strategies were documented. Emotional and behavioural effects on respondents were noted: these effects were predominantly but not entirely negative. In addition, a paradoxical effect on community cohesion was identified. Uncertainty associated with the siting process was seen to play a role in the development and continuation of these effects. Several coping strategies were identified by respondents. Action-focussed coping strategies included thinking about moving, gathering more information, and joining a site-related group. However, these actions (particularly thinking about moving) were not always effective as coping strategies. Emotion-focussed coping strategies included "compartmentalizing" site-related emotions and issues, adopting a fatalistic attitude, and rationalizing the proposal. Again, these strategies were not uniformly successful, particularly given the extended duration of the process, and respondents often reported using more than one coping strategy over the siting process.

Several questions still remain. First, what are the *most* important findings of this research? Second, how do the elements of this research interrelate? Third, how do these findings relate to existing theory and empirical research, particularly in terms of environmental stress and coping theory, the "risk society" literature, and various models of communication? Finally, what are the contributions of this research, and the implications of those contributions for policy and future study? These questions are addressed in the next and final chapter.

CHAPTER 6

DISCUSSION AND CONCLUSION

6.1 Summary of Major Findings

The results of this research are informative in several areas. Concerns (e.g. nuisance and environmental concerns) about the proposal are related to deeper community values, particularly an appreciation for "country life". These deeper values can also influence the acceptance of mitigation strategies. Concerns about the technology used at the sites and about the proponents reveal respondents' mistrust of industry and technology, as well as of government and experts. Process issues (such as uncertainty and lack of trust in the process) are also major concerns, as important as concerns about the site itself. Concerns about the environmental assessment process relate primarily to: the length of the process; the perceived lack of meaningful public participation; and the perceived uneven application of environmental assessment policies and procedures.

Impacts of the siting process include a wide range of emotional, behavioural, and community-level effects, which are primarily but not exclusively negative. These negative impacts were amplified by the ongoing uncertainty associated with the siting process. In addition, this uncertainty leads residents to feel that their lives are "on hold". Most respondents use a variety of coping strategies, both action-focussed and emotion-focussed, to mitigate these effects, changing strategies as they become unnecessary/ineffective.

Finally, the importance of different information sources to individuals varied primarily according to level of involvement in the issue: the media was a primary source of information for less involved residents, whereas more involved residents received their most trusted information from official documents and word-of-mouth. However, newspapers were not considered a particularly trustworthy source of information, even by those who relied on them. The distribution and topics of articles in the newspapers relate to the intensity, duration, and nature of community concern. However, establishing the direction of this relationship is beyond the scope of this research.

6.2 Synthesis

6.2.1 Differences Between Communities

A number of differences in responses between the two sites were noted. In Greensville, residents were concerned about odour from the site, a concern not present in Stoney Creek because the proposal did not include the disposal of organic (and therefore putrescible) waste. They were also concerned about possible impacts on water quality, a particularly pertinent concern in Greensville given its reliance on well water. In Stoney Creek, however, more health concern was reported, perhaps due to the greater focus in the local newspaper and by the site opposition group on potential health impacts.

The lack of other rehabilitation options for the quarries was considered particularly problematic in Greensville. This difference in the framing of the issue illustrates one of the key differences in the processes at the two sites: in Greensville, the environmental assessment was framed as a quarry rehabilitation, while in Stoney Creek, it was framed as primarily a

landfill siting process (despite the fact that the quarry in Stoney Creek would also need rehabilitation). Another notable difference between the processes at the two sites is the role of the proponents' community liaison committees. In Greensville, the Liaison Committee saw their major role as transferring information to the community. They therefore held a large number of public meetings around the issue. In Stoney Creek, there were fewer of these forums. This accounts for the greater reported importance of public meetings among Greensville residents. In Stoney Creek, the Study Group saw their role as studying the merits of the proposal *for* the community, rather than reporting *to* the community. This difference seems to have stemmed from the lack of direction given by the Ministry of Environment regarding the role of a liaison group, and the differing direction given to these groups by the proponents. Finally, the length of the process in Greensville, including the hearing, created a prolonged period of uncertainty which enhanced the experience of various effects, particularly the perception that lives were "on hold", as well as limited respondent ability to maintain the effectiveness of coping strategies. In Stoney Creek, the period of uncertainty was much shorter. However, respondents in Stoney Creek felt their lack of a hearing meant that they did not have enough opportunity to participate in the process. In the Stoney Creek community, then, the shorter process was seen as problematic.

Overall, the timbre of community opposition in the two communities varied: in Greensville, opposition was strong, but controlled, throughout the process. In Stoney Creek, opposition was more vehement, and debate more polarized. However, opposition did not begin until the assessment was well underway. This observation is supported by respondent comments, as well as by patterns in newspaper coverage of the issue.

These differences in community responses and experiences illustrate the role of context - that is, site and community histories, geographies, social characteristics - in influencing the landfill siting process itself (including the obvious difference in outcome between the two sites) and the experience of psychosocial impacts. However, despite these many important differences, certain themes emerge from both communities, indicating that some central issues and impacts exist which may be mediated, but are not fundamentally changed, by community context.

6.2.2 Putting the Pieces Together

Concerns about the proposed landfill sites were noted in almost every interview. These concerns varied considerably in nature and intensity: however, many concerns, as was mentioned earlier, relate in their most basic form to health concerns. That is, health concerns are central to many other, superficially unrelated, concerns. This is highlighted by feedback from one respondent, who noted that "the health issue was absolutely basic to almost all other concerns... Environmental concern is about health - health of the ecosystem being the sine qua non for health of the community" (**"Evelyn", Greensville, GASP member**). To these respondents, the environment is a surrogate for health, not the other way around as has been suggested in the literature (Burger, 1990). In addition, health concerns are particularly uncertain - that is, respondents feel that health impacts may occur, but the type and pathway of impact are unknown. This uncertainty adds to the overall uncertainty of the siting process. Residents feel that the burden of proof should be on the proponent (i.e. the proponent should have to prove beyond all doubt that their facility is safe, not vice versa), but that this is

currently not the case. This feeling is related to mistrust of the proponents and regulatory organizations (i.e. the MOEE), and to mistrust of waste disposal technology.

The greater reporting of health concern by less involved residents is on the surface surprising, since in the literature health is often cited as a major factor motivating action. However, it is possible that outright concern about health among less involved residents may be due to their lack of awareness about the issue. Although involved residents at both sites stated that health concerns underlay their other concerns, the public debate was predominantly framed around these other concerns (which were only tenuously related to health concerns). However, less involved residents who were unaware of the progress of the public debate instead focused on what was of most immediate concern to them: their health and the health of their children.

It appears that the framing and presentation of issues in public forums is linked with the nature of concerns voiced in the community. This hypothesis is supported by the differences in health concern between the two sites, and the concomitant differences in concern within opposition groups and in the newspaper. In addition, the similar patterning of concerns voiced in interviews and those voiced in the newspaper adds weight to this possibility. However, whatever the rationale for increased concern about health, it does not negate the possibility for greater stress and worry with regards to the proposed sites among uninvolved residents.

Respondents experienced a wide range of psychosocial effects associated with the siting process. Reports of stress, anxiety, hostility and community division were pervasive. The experience of psychosocial impacts appears related to intensity of concern about the site.

That is, respondents who were concerned about the site and the siting process experienced the effects of the process more greatly. In addition, residents who felt that their "core values" (the underlying reasons for living in their communities) were threatened by the proposals experienced psychosocial effects more intensely. Psychosocial impacts were also related to the ongoing uncertainty in the siting process.

Respondents reported a lack of trust in the process (evident in concern about their ability to truly participate in the process and concern that the "rules" were being interpreted unfairly), as well as a lack of trust in the other actors in the assessment process. This mistrust of the process and actors in the process is related to the experience of uncertainty (since respondents cannot trust the process or process actors to deliver a consistent or fair outcome) and to the intensity of concern, because concern increased when respondents felt they could not trust other actors to effectively address or mitigate these concerns.

A wide variety of both emotion-based and action-based coping strategies were used by respondents, often together. It should be recognized that the effectiveness of a given coping strategy is related not only to personal and social network factors as mentioned in the literature, but to intensity of concern around these issues. The perception of danger among respondents is not uniform: those who are highly concerned are less likely to find coping responses which effectively alleviate their heightened concern. These individuals are also less likely to find support within their existing social networks, because as Giddens (1990) notes, "people who worry all day, every day about the possibility of [techno-environmental disaster] are liable to be thought disturbed". That is, concern around a site beyond what is considered "reasonable" by peers may result in difficulty relating with others. On the other hand,

individuals with heightened concern may search out others who feel similarly in order to discuss these issues more freely: this could be what leads to the organization of an opposition group.

Analysis of coverage of the siting process in local newspapers shows a very different picture at each site. In Greensville, the amount of coverage was generally moderate but constant over the course of the siting process. In Stoney Creek, regular coverage of the issue did not begin until early 1994, even though the site had been under consideration since November, 1989. However, once coverage began it was intense. These differences in coverage result from, but can also affect, situations in the community. In Greensville, the residents were well-informed and organized from the beginning of the process; in Stoney Creek, awareness and concern about the proposal did not develop until well into the process, but when it emerged it was particularly strong. The newspaper coverage both reflected and contributed to this.

As noted previously, the framing of debate within the community often mirrors newspaper coverage, or vice versa. The content and frequency of this coverage may influence the experience of psychosocial impacts, as well as ability to cope. For example, the presence of messages which could be interpreted as scary or worrying could increase psychosocial distress. There is not, however, a great deal of direct evidence of this effect in the interviews. Respondents did note that their ability to "compartmentalize" issues associated with the siting process in order to cope was often partially compromised by the constant coverage of the issue in the media.

6.2.3 Comparisons with Research in Stress and Coping

These findings relate to existing theory and empirical research, particularly in the areas of environmental stress and coping theory, the "risk society" literature, and various models of communication. It has already been noted that concerns about the proposal and their relationship to deeper community values mirror results found in other research (e.g. Baxter, 1997). In addition, respondents identified certain characteristics of the process and site, including the economic value of the site, the predictability of the process outcome, the culpability of various actors in the process, the duration of the process, and their sense of control over the process. Depending on their perception of these qualities (e.g. whether the site would be beneficial economically, or whether they felt control over the process), the experience of psychosocial effects may be increased or decreased. Respondent reactions to these characteristics of the process (i.e. the stressor) were consistent with what is suggested in the literature.

Psychosocial effects observed in this research are analogous with other examples in the literature. For example, emotional effects reported in the literature include worry, depression, helplessness, anger, fear, guilt and a feeling of losing control of their own lives (Coulter and Noss, 1988): these effects were all observed in the study communities. At the social network and community level, this research identified worries about children's health and a loss of trust of others, similar to other studies (Unger et al., 1992; Edelstein, 1988). Tensions were noted between different elements in the study communities (Levine and Stone, 1986; Edelstein, 1988; Brown and Mikkelson, 1990; Fowlkes and Miller, 1982). However, increased social cohesion and involvement was also observed (Sorensen et al., 1987; Walker,

1995). This paradoxical result was observed in both communities: indeed, increased and decreased community cohesion were often mentioned by the same respondents. This apparent paradox is explained by the fact that many residents draw together in order to organize against a site, often at the expense of relations with those less involved. Whether overall community cohesion is improved is a matter of perspective: however, most respondents noted that they knew many more of their neighbours than they did at the beginning of the siting process, so in this respect at least community connectedness probably improved as a result of the siting process.

Action-focussed coping strategies observed elsewhere - for example, talking about the problem, getting more information about the problem, or joining an opposition group (Lazarus and Folkman, 1984) - were observed in this study. The use of active coping strategies, however, appeared to be cumulative: that is, individuals rarely used only one strategy, but instead invested in more time consuming actions as the process progressed. This is perhaps due to the need to modify or replace coping strategies as the ongoing uncertainty of the siting process rendered previous strategies ineffective. Emotion-focussed coping strategies were also used which are similar to those found in the literature, although these strategies are conceptualized somewhat differently (e.g. "rationalization" vs. "minimization of risk" in Lazarus and Folkman, 1984). Whether or not the situation is seen as alterable (Elliott, 1992; Hallman and Wandersman, 1992) influenced whether action or emotion-focussed coping was used, since those who took action generally felt it would have some effect (although respondents could become disillusioned regarding the effectiveness of their actions). Conversely, respondents who felt they could not impact the situation generally had

a fatalistic attitude towards the siting process.

The usefulness of different coping strategies is difficult to determine, since often more than one strategy was used, and strategies seemed to become "obsolete" as time went on. That is, a strategy which was initially effective in alleviating stress (such as gathering information or compartmentalizing the issue) appeared to lose its effectiveness in the face of the long term, ongoing stress of the siting process, and new (often additive) strategies were needed. This need to replace and augment coping strategies may be due to the damaging effects of some coping strategies and the experience of "effortful coping" as outlined by Cohen et al. (1986). Indeed, respondents reported that certain active coping strategies caused them to become "burned out". The length of the siting process, and therefore exposure to uncertainty, places unique demands on the coping systems of individuals, since coping strategies are associated with a degree of effort on the part of the individual. This in turn requires flexibility and variation in the use of coping strategies, particularly among those most exposed or sensitive to the stressor.

The most active respondents report the widest variety of both types of coping strategies. This may indicate that attempts to separate active from emotional "copers", or to investigate the effectiveness of one type of strategy over another, may be misguided, since strategies are likely to be used interchangeably or in tandem, responding to the situation. This may also be the reason that impacts of the use of either strategy are not consistent in the literature. However, the use of action-focussed coping strategies is linked here, as in the literature (Bachrach and Zautra, 1985; Elliott et al., 1993), with greater involvement in the community.

6.2.4 Relevance of the "Risk Society"

The work of Beck and Giddens provides insight into a number of areas. First, the increasing awareness and concern about the role of individuals, institutions, and "expert systems" (Giddens, 1990) in creating and managing risk that they hypothesize manifests itself in the interviews as a high level of distrust and scepticism. In addition, the heightened sense of actor (rather than divine) culpability that Beck (1992a) postulates is reflected in the attempts to shift the burden of proof onto the proponents of an enterprise, and also by mistrust of waste disposal technology. Beck and Giddens posit that this is part of a new way of looking at the world, "reflexive modernization", criticism of things once taken for granted by modern society. This research cannot hope to identify the extent to which opposition to technological risk in the interviews is the result of a new way of looking at the world. However, respondents do exhibit a high level of discomfort with the assumptions of traditional risk assessment.

Another contribution of the "risk society" literature is a recognition of the importance of centralized information rather than direct sensory perception (Beck, 1987). The importance of this type of information to respondents is evident in respondents' reliance on information sources (e.g. environmental assessment documents and media reports) rather than direct perception. The level of difficulty residents reported in interpreting "official" documents (e.g. scientific assessments and reports) is indicative of the distance between expert and lay understandings of the environment in which they live. Because of this gap, other sources of information become necessary for the "translation" of assessment information. In addition, attempting to place the onus on the proponent (and their highly

trained experts) to prove the safety of their proposal becomes even more necessary given the lack of expertise on the part of community members.

Coping strategies similar to Giddens' (1990) "adaptive reactions" can be seen in the findings of this study. For example, 'pragmatic acceptance' ("numbness" towards the issue and a withdrawal into everyday life) is one manner of coping adopted by respondents, particularly the least involved residents. 'Sustained optimism', or ongoing faith in scientific rationality, is also evident - again, typically in the least involved respondents. 'Cynical pessimism' (black humour as a protective mechanism) is less common, but still present, particularly in respondents' attempts at humour (where they occur). 'Radical engagement' with social and institutional systems is also seen here - this is the response to risk used by members of opposition groups. Giddens' categorization of risk responses is lacking, however, because it does not provide an adequate characterization of the coping strategy used by members of the proponent-sponsored study/liaison groups. Certainly, these groups exhibit some degree of faith in science and technological expertise - however, members of these groups also exhibited scepticism of this expertise in many cases. Their involvement cannot, however, be categorized as "radical" because it takes place within the confines of existing structures of society. Giddens' conception of risk response, therefore, does not catalogue the full range of risk responses.

As noted earlier, respondents generally did not report "fateful moments" (Giddens, 1990), when their conceptions of the world were radically altered - there was instead an ongoing process of negotiation and re-negotiation. However, where "fateful moments" occurred, they could be mediated by media coverage of the siting process. That is, coverage

of key points in the process (particularly the introduction of the proposal) did in some cases induce a drastic rethinking of situations similar to the experience of a "fateful moment". The connection of media coverage to the experience of "fateful moments" is probably due to the fact that newspapers are a major source of information to respondents, rather than something inherent to the medium itself. The media was, however, reported to intrude upon individual attempts to maintain personal equilibrium by "compartmentalizing" issues associated with the siting process. The media, then, could be considered to affect the maintenance of "ontological security", since exposure can prohibit the "bracketing out" of issues which threaten this security.

One assumption of the "risk society" which is not supported by this research is the "democracy" of modern risk (Beck, 1992b). That is, the respondents in this research did not perceive their risk equally, independent of their location in relation to the risk. Indeed, respondents noted that the intensity and nature of their reactions to the proposed site varied depending on their distance from the proposed site. In addition, respondents felt that the siting process (the source of the risk) was particularly *un*democratic, given their perceived lack of power in the process. This indicates that non-global, non-catastrophic risk plays a different role than global risk in the risk society, as Mol and Spaargaren (1992) suggest. However, respondents did not wish to move away from their communities given their perception that similar situations faced *all* communities. This perception of equal risk in all locations may signal the beginning of the "democratization of risk" that Beck envisions.

All in all, the "risk society" framework does assist in interpreting the nature of concern and the effects of this concern. However, as several critics have noted (Leiss, 1994; Roberts,

1993), this theoretical framework is vague and incomplete in some areas and fails to adequately explain certain phenomena identified by this research.

6.2.5 Connections to Media Theory

This research provides evidence to both support and contradict the various theories of media power advanced in the literature review. First, the uses and gratifications model of media effect (Severin and Tankard, 1988; Rosengren et al., 1985) is reinforced by the fact that more involved respondents actively searched for good quality, trustworthy information, and actively participated in dialogue with the media (through letters to the editor, etc.). In addition, respondents selectively interpreted media messages, labelling messages they disagreed with "biased". Uninvolved residents, however, are less interested in the issue, and therefore do not actively search for information. However, this does not mean that individual needs are being met - because of their lack of familiarity with the issue, less involved residents were more likely to express concerns which were implausible, but the worry associated with these concerns was nonetheless intense and potentially harmful. Residents who relied on newspaper coverage for information were also likely to express cynicism about the process and to express doubts about their ability to influence the process, although these opinions may influence their media use and not vice versa.

The pronounced lack of trust respondents felt towards the media negates the possibility that the media have a large ability to actively direct public debate. However, the overlap of key issues in the interviews and the content of newspaper coverage suggests that the media may play some role in setting the "agenda" (Spencer and Triche, 1994) for public

debate (that is, specifying which issues are considered "important"). Still, a question remains about the direction of the relationship between media coverage and the content of public debate: does the media influence which concerns are raised around a proposal, or does the existence of concerns within a community lead to increased coverage of those issues? In these cases, the relationship appears reciprocal. Members of a community have considerable opportunity to make their concerns known, particularly when they are members of organized groups whose opinions are sought by reporters (e.g. opposition groups and study/liaison groups). At the same time, the media plays a role in identifying issues for less involved, and therefore less aware, residents. The media agenda is set through interplay between the media and community members; the community agenda is reinforced by this interplay. This relationship seems to more accurately reflect a process of "risk amplification" (Renn, 1991; Kasperson et al., 1988) than a traditional "agenda-setting" scenario. That is, individuals and groups, including but not limited to media actors, appear to play a large role in the selection, interpretation, and communication of specific characteristics of events or impacts. Issues, therefore, are influenced by personal, social, institutional, and cultural processes in ways that increase or decrease the perceived risk associated with an issue.

6.3 Policy Implications

This research points to several important issues which have implications for the effectiveness of the environmental assessment process in Ontario. First, the perceived lack of meaningful participation in the assessment process by respondents is a major concern. Many observers have noted the importance of including all elements of a community in

decision-making processes (Renn, 1991; Neutra, 1985, 1983; Kasperson et al., 1992; Ozawa, 1993; Johnson, 1994) and fostering the growth of a forum for discussions and the exercise of power within a community (Kasperson et al., 1992; Freudenberg, 1984; Coulter and Noss, 1988; Ozawa, 1993). As long as the perception exists that meaningful participation in the environmental assessment process is impossible, communities are likely to experience negative psychosocial impacts. Community members are also more likely to resist environmental decisions made by government which impact their area (such as the approval of a facility) when they feel that they have not had access to the decision-making process.

Second, the perceived lack of direction from the Ministry regarding the role of the study and liaison groups at the two sites limited the perceived usefulness of these groups and allowed the corporations to create study/liaison group processes which suited their (but perhaps not the community's) needs. This led respondents to either ignore or disparage the contributions of the study/liaison groups to the process. Considering the purpose of these organizations is to reflect and protect the interests of their communities, respondents' lack of confidence in the study/liaison groups reveals a major flaw in the public consultation process at these sites.

Third, the perceived lack of enforced "rules of environmental assessment" reduced respondents' trust of various (particularly government) actors, and of the process itself. This gap between the goals of the environmental assessment process (i.e. to provide structured environmental decision-making) and perceptions of this process has implications for the study and development of environmental policy.

Fourth, the length of the environmental assessment process for these sites should be

considered problematic, because uncertainty is prolonged. This ongoing uncertainty leads to an increase in psychosocial effects and reduces the effectiveness of coping strategies over the long term. These characteristics of the environmental assessment process need to be addressed, particularly in the context of Ontario's recent changes to its Environmental Assessment legislation (Environmental Assessment and Consultation Improvement Act, 1996), in order to reduce impacts on individual and community well-being associated with the siting process.

Finally, it is important that the wide range of psychosocial effects associated with the siting process receive the attention they deserve in policy-making. The long-term implications of the impacts reported in the study communities are many and varied, not least of which is the mounting evidence of relationships between psychosocial processes and physiological health (Wilkinson, 1996). For example, research in this area suggests that stress may lead to adverse physical health outcomes like heart disease (Rozanski et al., 1988), decreases in immune system functioning (Bartrop et al., 1977), and even susceptibility to the common cold (Cohen et al., 1991). Anger, particularly repressed or explosive anger, has been associated with an increased risk of cancer, arthritis, heart disease, and susceptibility to infectious disease (Jemmot and Locke, 1984). In addition, pessimistic reactions to life events (e.g. disillusionment and despondency) have been identified as possible risk factors for physical illness later in life (Peterson et al., 1988; Kamen, et al., 1987). The link between psychosocial impacts and physiological health effects remains tenuous: however, the growing body of literature in this area would suggest that psychosocial impacts merit attention and concern.

6.4 Directions for Future Research

This investigation of the meaning of the landfill siting process and the effects of that process has contributed to existing knowledge in this area in a number of ways. This research adds to understanding of the nature of the issues that underlie resident concern about proposed landfill sites in their communities, and helps to identify the role of uncertainty in the context of risk perception. It also documents self-reported psychosocial effects and coping responses. Finally, it helps determine the importance of various information sources and the ways in which individuals used and reacted to these sources.

This research also points to a number of key areas in which more research is necessary. First, the results of this research should be compared to the results of the associated quantitative research undertaken in the Stoney Creek study community. This quantitative data could be used to help validate, through triangulation, the results of this research. Qualitative research is considered *credible* when it represents experience in ways which appear authentic to those within the research endeavor (both researchers and respondents) and to the greater community (Eyles, 1988; McDowell, 1992). Credibility is enhanced by the use of multiple sources, methods, and investigators to help "triangulate" or corroborate the information collected (Lincoln and Guba, 1985). The results of this research can be used to add context and meaning to the quantitative component of this research project, as well as help to validate those results. In addition, the adaption of ideas generated by this research into another quantitative research instrument (to be administered later) would allow for these ideas to be investigated using a much larger sample, and for the triangulation of these results with the results of an alternative method. The qualitative results can be used

to identify areas which need to be explored in greater detail in follow-up projects.

Third, specific areas of this research need further investigation. The experience and effects of uncertainty in the siting process needs more investigation, particularly as it applies to the experience and meaning of "home". In addition, the use and usefulness of various coping strategies needs more investigation, particularly regarding the interplay of different coping strategies and what leads to the adoption and abandonment of the various strategies over time. More investigation of the applicability and usefulness of the "risk society" literature in this area to needs to take place, in order to concretize and flesh out the assumptions of the risk society, and to identify areas where this conception of society does not adequately explain risk perception and response, particularly with regard to the role of local risk. The role of the media in the siting process needs to be fleshed out more substantially. The perspectives of the reporters and journalists who create "news" is needed to increase our understanding of how particular issues are selected and how members of a community can and do influence that process. In addition, more research is needed for a more refined understanding of the connections between media coverage and the experience of psychosocial effects.

Finally, the relevance of the findings of this research to other areas of study needs to be addressed. How similar are individual and community experiences to those shown here when confronted with different types of stressors? For example, how would experiences differ given an exceptionally long-term, ambient stressor (e.g. air pollution)? In particular, how do coping strategies vary in different places and with different types of exposures, and what are the links between coping and community mobilization around other stressors, and in other community contexts? The communities investigated in this research are economically

privileged when compared with the rest of Hamilton-Wentworth: this is also true of other research in this area (e.g. Baxter, 1997). The dynamics of concern and coping in less advantaged communities need investigation, in order to better understand how the experience of other sources of stress (e.g. poverty) influence stress, coping, and community mobilization around possible and actual environmental contamination.

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APPENDIX A

Basic Interview Checklist

Basic Interview Schedule/Checklist

Topic/Rationale	Questions	Probes
1. Community Context	How would you describe the area that you live in?	
	What are the things you like most/least about living here?	- Q of L - work - services - "community" - "environment"
	How involved are you in your community?	- close to neighbours? - member of groups?
2. Awareness	How did you first find out about the proposed landfill site?	- when?
3. Concerns/ Coping	What concerns do you have about the proposed landfill site?	
	What have you done about these concerns?	- involvement with issue
4. Perception/Awareness of EA process	How involved have you been in the environmental assessment process?	- how? -why/why not? - officially? - had any influence?
	How knowledgeable are you about the EA process in Ontario?	- how did you gain the knowledge you have?
	What do you think of the process?	- effective? - fair?
5. Perception of other actors	Who has been involved in this process?	

	What sorts of roles have they played?	- helpful/ unhelpful
	How have they affected the situation?	
6. Information Sources and Perception	What are your main sources of information about the proposed landfill site?	- are there any sources that you don't use that others do?
	How could your sources of information have been improved?	- fair/balanced? - accurate?
7. Feelings/Self-reported Effects	How has this process affected you?	- emotionally? - physically? - family? - friends?
	How has it effected the community?	
8. Closing Remarks	Is there anything you'd like to add, or something that I haven't brought up that you think is important?	

APPENDIX B

In-Depth Interview Coding System

Q.S.R. NUD∏IST Power version, revision 3.0 GUI.
Licensee: WP30E.

PROJECT: STHESIS, User Sarah Wakefield, 11:03 pm, May 10, 1998.

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(600 20 11 1) /info/forum/informal/"experience"
(600 20 11 4) /info/forum/informal/wofm
(600 20 11 4 1) /info/forum/informal/wofm/early
(600 20 11 4 2) /info/forum/informal/wofm/later
(600 20 11 4 3) /info/forum/informal/wofm/othergrpmembers
(600 20 11 8) /info/forum/informal/signs
(600 20 11 9) /info/forum/informal/ownresearch
(700)   /process
(700 1)   /process/stage
(700 1 1)   /process/stage/hearing
(700 1 2)   /process/stage/decision
(700 1 3)   /process/stage/overall

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(700 1 5)              /process/stage/pre-proposal
(700 2)               /process/comments
(700 2 1)              /process/comments/participation
(700 2 1 1)            /process/comments/participation/notenoughchance
(700 2 1 1 1)          /process/comments/participation/notenoughchance/nonotice
(700 2 1 1 5)          /process/comments/participation/notenoughchance/hard during day
(700 2 1 2)            /process/comments/participation/enough
(700 2 1 2 3)          /process/comments/participation/enough/sg good
(700 2 1 6)            /process/comments/participation/unequal
(700 2 1 7)            /process/comments/participation/inclusive
(700 2 3)              /process/comments/qualities
(700 2 3 1)            /process/comments/qualities/long
(700 2 3 2)            /process/comments/qualities/boring
(700 2 3 3)            /process/comments/qualities/vague
(700 2 3 4)            /process/comments/qualities/corrupt
(700 2 3 6)            /process/comments/qualities/exhaustive
(700 2 3 7)            /process/comments/qualities/adversarial
(700 2 3 10)           /process/comments/qualities/necessary
(700 2 3 13)           /process/comments/qualities/weak
(700 2 3 13 5)         /process/comments/qualities/weak/new
(700 2 3 16)           /process/comments/qualities/sucks
(700 2 6)              /process/comments/cost
(700 2 6 1)            /process/comments/cost/unfair
(700 2 6 2)            /process/comments/cost/waste $
(700 2 6 14)           /process/comments/cost/intervenor
(700 2 18)             /process/comments/procedure
(700 2 18 1)           /process/comments/procedure/precedent
(700 2 18 3)           /process/comments/procedure/not followed
(700 2 18 4)           /process/comments/procedure/reviewers
(700 2 18 5)           /process/comments/procedure/why again?
(700 2 18 6)           /process/comments/procedure/whynec?
(700 2 18 7)           /process/comments/procedure/chngbetter
(700 2 18 8)           /process/comments/procedure/whytnots?
(700 2 18 10)          /process/comments/procedure/cutshort
(700 2 18 10 17)       /process/comments/procedure/cutshort/shd'vecalled?
(700 2 18 15)          /process/comments/procedure/nevergotthisfar
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(700 4 1 1)            /process/solutions/moreinput/referendum
(700 4 1 2)            /process/solutions/moreinput/earlierinput
(700 4 2)              /process/solutions/less co influence
(700 4 3)              /process/solutions/putback
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(700 4 4)   /process/solutions/lesstime

(700 4 5)   /process/solutions/strictrules

(700 4 5 1)   /process/solutions/strictrules/order

(700 4 5 2)   /process/solutions/strictrules/no discretion

(700 4 7)   /process/solutions/more env

(700 4 9)   /process/solutions/more money

(700 4 9 1)   /process/solutions/more money/more MOEE funding

(700 4 9 6)   /process/solutions/more money/intervenorfunding

(800)   /effects

(800 1)   /effects/uncertainty

(800 1 1)   /effects/uncertainty/what if?

(800 1 2)   /effects/uncertainty/onhold

(800 1 2 4)   /effects/uncertainty/onhold/getonlife

(800 1 8)   /effects/uncertainty/perfuture

(800 1 8 1)   /effects/uncertainty/perfuture/flmustbeindoors

(800 1 8 2)   /effects/uncertainty/perfuture/cantpredict

(800 1 8 6)   /effects/uncertainty/perfuture/flmustfeave

(800 1 18)   /effects/uncertainty/swings

(800 1 18 3)   /effects/uncertainty/swings/letdown

(800 1 20)   /effects/uncertainty/doesnt end

(800 2)   /effects/emots

(800 2 3)   /effects/emots/negative

(800 2 3 1)   /effects/emots/negative/violent

(800 2 3 1 8)   /effects/emots/negative/violent/frustration

(800 2 3 1 9)   /effects/emots/negative/violent/hostility

(800 2 3 1 13) /effects/emots/negative/violent/anger

(800 2 3 1 16) /effects/emots/negative/violent/outrage

(800 2 3 1 18) /effects/emots/negative/violent/annoyed

(800 2 3 2)   /effects/emots/negative/damaging

(800 2 3 2 1)   /effects/emots/negative/damaging/worry(stress)

(800 2 3 2 2)   /effects/emots/negative/damaging/feardread

(800 2 3 2 5)   /effects/emots/negative/damaging/upset

(800 2 3 2 6)   /effects/emots/negative/damaging/hurt

(800 2 3 2 17) /effects/emots/negative/damaging/guilt

(800 2 3 3)   /effects/emots/negative/disempowering

(800 2 3 3 4)   /effects/emots/negative/disempowering/feelstupid

(800 2 3 3 11) /effects/emots/negative/disempowering/losscontrol

(800 2 3 3 12) /effects/emots/negative/disempowering/disillusioned

(800 2 3 3 15) /effects/emots/negative/disempowering/disheartened

(800 2 19)   /effects/emots/positive

(800 2 19 7)   /effects/emots/positive/pride

(800 2 19 14) /effects/emots/positive/hope

(800 3)   /effects/personal

(800 3 1)	/effects/personal/prop. values
(800 3 2)	/effects/personal/job performance
(800 3 3)	/effects/personal/too much
(800 3 5)	/effects/personal/time
(800 3 6)	/effects/personal/hardwk
(800 4)	/effects/fateful moments
(800 5)	/effects/stillsame
(800 5 4)	/effects/stillsame/blowover
(800 6)	/effects/relations
(800 6 3)	/effects/relations/family
(800 6 4)	/effects/relations/friends
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(800 6 4 2)	/effects/relations/friends/lostfriends
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(800 7 2)	/effects/health/fatigue
(800 7 3)	/effects/health/bloodpressure
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(800 10 1)	/effects/community/bringptogether
(800 10 2)	/effects/community/dividecommunity
(800 10 4)	/effects/community/indrole
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(800 10 4 3)	/effects/community/indrole/disliked
(800 10 7)	/effects/community/stigma
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(800 12 8)	/effects/betterperson/learned
(800 12 9)	/effects/betterperson/awareness
(800 12 10)	/effects/betterperson/empowerment
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(900 1)	/coping/emotfocused
(900 1 1)	/coping/emotfocused/compartmentalize
(900 1 2)	/coping/emotfocused/fatalism
(900 1 3)	/coping/emotfocused/rationalize
(900 1 5)	/coping/emotfocused/relax
(900 1 6)	/coping/emotfocused/think positive
(900 8)	/coping/actionfocused
(900 8 2)	/coping/actionfocused/infgath
(900 8 4)	/coping/actionfocused/move
(900 8 5)	/coping/actionfocused/participation
(900 8 5 1)	/coping/actionfocused/participation/motivation
(900 8 5 1 1)	/coping/actionfocused/participation/motivation/negmots
(900 8 5 1 1 7)	/coping/actionfocused/participation/motivation/negmots/guilt&obligation

(900 8 5 1 1 14)   /coping/actionfocused/participation/motivation/negmots/fearcompany
(900 8 5 1 2)   /coping/actionfocused/participation/motivation/enjoyment
(900 8 5 1 2 8)   /coping/actionfocused/participation/motivation/enjoyment/interest
(900 8 5 1 2 9)   /coping/actionfocused/participation/motivation/enjoyment/meetpeople
(900 8 5 1 2 11)   /coping/actionfocused/participation/motivation/enjoyment/fun
(900 8 5 1 2 12)   /coping/actionfocused/participation/motivation/enjoyment/feelsgood
(900 8 5 1 2 16)   /coping/actionfocused/participation/motivation/enjoyment/fills time
(900 8 5 1 4)   /coping/actionfocused/participation/motivation/selfinterest
(900 8 5 1 4 11)   /coping/actionfocused/participation/motivation/selfinterest/property values
(900 8 5 1 4 13)   /coping/actionfocused/participation/motivation/selfinterest/prothealth
(900 8 5 1 7)   /coping/actionfocused/participation/motivation/altruistic
(900 8 5 1 7 1)   /coping/actionfocused/participation/motivation/altruistic/notmoney
(900 8 5 1 7 2)   /coping/actionfocused/participation/motivation/altruistic/protcom
(900 8 5 1 7 3)   /coping/actionfocused/participation/motivation/altruistic/care
(900 8 5 1 7 4)   /coping/actionfocused/participation/motivation/altruistic/helping
(900 8 5 1 7 6)   /coping/actionfocused/participation/motivation/altruistic/protenv
(900 8 5 1 9)   /coping/actionfocused/participation/motivation/others
(900 8 5 1 10)   /coping/actionfocused/participation/motivation/howgetinv
(900 8 5 6)   /coping/actionfocused/participation/characteristics
(900 8 5 6 1)   /coping/actionfocused/participation/characteristics/organization
(900 8 5 6 1 5)   /coping/actionfocused/participation/characteristics/organization/roles
(900 8 5 6 2)   /coping/actionfocused/participation/characteristics/influence
(900 8 5 6 2 2)   /coping/actionfocused/participation/characteristics/influence/convincecity
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(900 8 5 6 6)   /coping/actionfocused/participation/characteristics/personal
(900 8 5 6 9)   /coping/actionfocused/participation/characteristics/fundraise
(900 8 5 6 10)   /coping/actionfocused/participation/characteristics/raiseawareness

APPENDIX C

Coding Scheme for Newspaper Content Analysis

Psychosocial Impacts of the Landfill Siting Process
CONTENT ANALYSIS PLAN
28/07/97

1. formulate research question

- *research goal:* to examine the role of newspapers in influencing the process of psychosocial effects around the landfill siting process
- *research questions:*
    a) how predominant are articles about this process?
    b) when is the most/least coverage provided? by whom?
    c) what kinds/topics of articles are most common? In which sources?

2. define boundaries

- newspapers included in analysis: Hamilton Spectator (both sites), Stoney Creek News, Flamborough Review, Flamborough News
- Taro: from first publicity (June 1, 1992) to SCRAP's decision not to appeal (October, 1996)
- Steetley/Redland: from first publicity (August, 1987) to overturning of appeal by cabinet (November, 1996)

3. Select sample

- using all articles in catalogue

4. select unit of analysis

- using entire article

5. construct categories for analysis [use as fields for spreadsheet]

- categories - newspaper name (ex. Hamilton Spectator)
    - date of article
    - page (section and page where applicable)
    - length/size of article (in cm2)
    - headline/title
    - subheading (if applicable)
    - author (if noted)
    - source if applicable (ex. Reuters, home paper of author if not the same as the source)
    - type of article (news, opinion, cartoon, etc.)
    - topic of article
    - BRIEF key point(s)

6. construct measurement devices/criteria

- type of article
- ■   hard news (HN): all stories that involve reporting of "new" information
- ■   letter to the editor (LE)
- ■   editorial (ED)
- ■   comment/viewpoint (CV): generally on 'editorial/letters to' page - usually labelled
- ■   cartoon (CA)
- ■   advertisement (AD): all paid material, even when in the form of newspaper articles

- topic of article
- ■   environmental issues (ENV): ex. pollution; in environmentally sensitive area
- ■   technical/corporate issues (TEC): ex. fallibility of liner system; inability of company to run properly
- ■   health issues (HLT): ex. toxic contamination; cancer; asthma; desire for health study)
- ■   community issues (CTY): what will happen to community
- ■   nuisance issues (NUS): ex. traffic, dust, pests such as seagulls [n.b. all of these can be related to health concerns - be sure health is NOT being mentioned before coding this way])
- ■   process issues (PRO): ex. compensation; allegations of corruption/conflict of interest; lawsuits; public meetings; problems with E.A. process generally or specific stages
- ■   other (OTH): should be less than 10% of total entries