Understanding Residents' Environmental Risk Perceptions in Three Toronto Neighbourhoods: Lived Experiences, Expectations and Policy Implications

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Abstract

The environment is fraught with uncertainties that vary in scope and nature. Dangers posed by exposure to environmental pollutants in the air, soil, water and food are difficult to measure with certainty. Due to scientific and technical limitations, levels of risk stemming from environmental uncertainties cannot be defined solely in objective terms. Environmental-risk constructs are inherently subjective and influenced by multiple and interdependent factors such as psychological, social, cultural, economic, political and environmental conditions. Although environmental-risks are assessed largely on the basis of subjective considerations, lay-individuals' views on environmental-risks are seldom considered as relevant dimensions of risk management. By examining three Toronto neighbourhoods, this paper demonstrates that lay individuals' perceptions toward environmental-risks are rooted in contextual factors and often linked to the neighbourhood's structural conditions. This paper found certain variables such as socioeconomic status (SES), education, locus of control and commitment to place (among others) as influential factors in determining the level of environmental-risk perception. These underlying forces that mediate risk perception can vary widely across neighbourhoods, understanding them in their local contexts can enhance environmental-risk communication and strategic decision-making. Lay-individuals' knowledge and experiential wisdom about their environment should be acknowledged with more sincerity and given more consideration in decision-making.

Foreword

With each passing year, with each passing day, with each passing moment, the world appears to be becoming a more dangerous place to live: political conflicts, threats of nuclear war, disease outbreaks (i.e. Ebola), natural disasters (i.e. wildfires, earthquakes, flooding), extreme weather conditions (i.e. heat-waves) and the list goes on. These contemporary local and global processes represent some of the more salient security issues to human health and the environment. What are often neglected, however, are the subtle and insidious but potentially harmful risks in the environment that largely go unnoticed and undetected. As a result, assessing and managing environmental-risks is not a straightforward process that everyone agrees upon. First, there is often a tension between lay individuals' assessment/perception of risks and technical experts' or government officials'. Next, there are differences of opinion even among lay individuals and experts/officials which confounds the issue even further. This suggests that there is something distinctively human about 'risks', meaning they cannot be adequately addressed without involving the public. This Major Research Paper is borne with the public in mind; it is grounded in the three components of my Area of Concentration: Environmental Risks and Human Health, Environmental Risk Perceptions and Health Outcomes, and Policymaking and Social Mobilization. Risk, health and the environment are closely linked; there is something to be learned by considering the processes that tie them together.

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Chapter One: Introduction

> *The environment story is one of the most complicated and pressing stories of our time. It involves abstract and probabilistic science, labyrinthine laws, grandstanding politicians, speculative economics and the complex interplay of individuals and societies. Most agree that it concerns the very future of life as we know it on the planet. Perhaps more than most stories, it needs careful, longer-than-bite-sized reporting and analysis, now.* (Stocking & Leonard 1990, p.42).

This major paper examines issues related to risk perception in different urban neighbourhoods to help understand how variations in experiences lead to differences in perspective. The overall aim of this research is to further an understanding of environmental-risk perceptions in urban settings. By analyzing and comparing response patterns to environmental-risk inquiries between different neighbourhoods, it may be possible to ascertain some important factors which influence risk perceptions. Furthermore, this chapter presents the theoretical backdrop to subsequent analyses and discussion. Special consideration has been given to literature surrounding the psychological and socio-cultural dimensions of risk perception; it enables an interrogation of the following research questions: 1) to what extent does a common neighbourhood experience influence collective environmental risk perception and what are the potential implications of those perceptions on neighbourhood identity, state of mind and risk-related policy; 2) what are some the underlying factors that mediate risk perceptions in urban environments and; 3) how can each neighbourhood's response to environmental risks be optimized to maximize risk-reducing efforts. Furthermore, chapter two deals with methodology where the uses of qualitative and limited quantitative methods are outlined; in particular, data on neighbourhood perceptions of environmental-risks was collected through self-administered questionnaires and semi-structured interviews. Chapter three presents the questionnaire results

and findings in a fairly straightforward/raw format; they are divided into subsections that address a variety of variables/categories. Chapter four is devoted to a discussion and analysis of findings supported by relevant evidences from secondary research sources. Finally, chapter five provides a summary of the lessons that may be drawn from this research to guide future risk-related policy and risk communication efforts. The paper concludes with a brief summary of key areas of research, limitations of the study and a short statement on future directions.

Environmental risks, whether they arise from natural or anthropogenic causes, represent some of the most serious, but uncertain, threats to human health and safety. Chronic or acute exposures to environmental-risks can result in adverse effects in individuals and can have life-threatening consequences depending on the nature of, and the circumstances surrounding, the hazard. This paper defines environmental-risks as: a situation or event that is shaped by environmental conditions and threatens something of human importance (including human life); the situation or event may be developing, underway or constant and the outcome is unknown in advance. How individuals perceive and construct meanings about environmental risks becomes an important factor in determining the quality of strategic decisions made to address them (individually and institutionally). However, the unique physical and chemical properties of environmental-risks mean that they are more difficult to identify when compared to other mundane risks, especially since many environmental-risks are not perceptible by sense (Neil, Malmfors and Slovic, 1994). "[Environmental] risk perception is the subjective (qualitative) decision-making process that an individual uses to assess [environmental] risk (Ricciardi, 2010, p.143). Moreover, perception is the process of establishing a sense of awareness (about an event, situation, or condition) based on sensory observations and cognitive feedbacks (Balcetis & Cole, 2013, p. 331). As a result, "what is said to be perceived is in fact inferred" (Bartlett, 1995, p.33).

The problem that environmental-risks pose is that they are sometimes difficult to perceive, meaning they cannot be touched, smelled, tasted, or heard. Therefore, environmental-risks become difficult to *infer* because the properties needed for sensory detection is so elusive.

To some extent, environmental-risks are no longer confined to a limited geographic area nor are they concentrated in socially and economically deprived localities, traditionally host settings for risk-producing activities. Nevertheless, spatial mismatches exist in terms of the overall presence of environmental-risks (i.e. disproportionate siting of polluting industries in low socioeconomic areas); risks exist in all societies and in all its varieties of form (Bullard, 2000). Moreover, modern-day risks are not constrained by physical, geographical, or temporal limitations; as such, environmental risks are increasingly becoming global, 'deterritorialized' and borderless (Beck, 1992, p.21-22; Ali, 1999, p.3). Modern environmental risks invade even the most private of spaces, avoidance or isolation is becoming more difficult than in the past. Davidson and Evans (2005) suggest "many [environmental risks] we face are relatively new: new pesticides, new energy, new industrial processes are developed all the time" (p.135). Due to these new technological systems or socio-technical arrangements, most environmental risks are unfamiliar, lack precedence or are 'viewed as poorly understood' to human subjects (Kunreuther & Slovic, 2001, p.337). Additionally, a lack of historical familiarity and practical understanding about contemporary environmental-risks make the judging process difficult, particularly in terms of quantifying or measuring exact probabilities of risk (Davidson & Evans, 2005, p.135; Beck, 1992, p.21).

There are many risks present in the environment that "cannot be detected with the senses, but only indirectly, by the sophisticated instruments scientists have devised to look for them" (Rodricks, 1992). Nevertheless, despite the contribution of science to risk assessment (including

risk identification and analysis), they do not provide a complete (or necessarily totally accurate) picture of the situation (Calow, 1998, p.520). In other words, scientific rationales for assessing environmental-risk do not provide a complete and comprehensive understanding of reality. Slovic and Gregory (1999) contend that "risk assessment is inherently subjective and represents a blending of science and judgement with important psychological, social, cultural and political factors" (p.360). Since the 1990s, it has been suggested that risk constructs are subjectively determined through social processes and that objective risk is a fallacy adopted by realist perspectives (Brauch, 2011, p.81; Thompson, 2014, p.1183). In this regard, risk perception is viewed as a process that extends beyond objective-technical reasoning. Rather, risk perception is based on experiences and subjective evaluations of situational cues, it also involves different ways of analysing, interpreting and drawing conclusions without adhering to any prescribed standards (Plapp & Werner, 2006, p.101). For example, two individuals may witness or experience similar external events in the urban environment (i.e. air pollution), however, their interpretation may be entirely different due to the varying contexts in which they take place.

The question then becomes, what legitimates a representation of reality or a given discourse that not only includes a distinct set of contentions, but also involves particular ways of *sensing*. Looked at from one angle, it appears to rest upon the premise that risk claims are a function of value judgements governed by subjective inclinations. Seen from another angle, risk-claims are also made with varying degrees of reason and plausibility (through technical and scientific procedures), the credibility of these claims are tested against empirical observations or 'objective' criteria. These polarizing views are reflected in two fundamentally dissimilar ways of describing reality: one relying on affective and cognitive processes (lay individuals) and the other on probabilities, statistics and official (impersonal) data sets (experts) (Siegrist & Sutterlin,

2014; Botheju & Abeysinghe, 2015; Slovic, Fischoff & Lichtenstein, 1982, p.85). It is well-known in academic circles that considerable discrepancy exists in the way the expert community perceives and evaluates environmental-risks and how the lay public form opinions about risks. While research continues to focus on decoding the complex, dynamic and multidimensional nature of 'risk judgement' that influence these divergent points of view, clarity on this subject is confounded by other underlying institutional, socio-economic and contextual forces that work to produce and reproduce risk constructs. Furthermore, in the absence of a clear framework within which to develop instruments for the characterization, measurement, and monitoring of perceived environmental-risks, the management of risks have become a matter of strategic judgement and circumstantial assessment. Those entrusted with the management of health risks find it increasingly difficult to invoke strictly 'political considerations' when addressing environmental-risk issues. Policymakers and other relevant political actors understand their policy-decision implications, thus, greater emphasis must be placed on processes that mediate lay individuals' risk perceptions.

Policymakers can use local knowledge, site-specific concerns and observed experiences to leverage support for policies they see as beneficial to their constituents. However, in order for these processes to culminate into effective risk-reducing strategies, there must be a recognition that urban experiences with environmental-risks are multiple and diverse. Although environmental-risks are present and intimately linked to all urban spaces, they manifest themselves differently in different geographic settings (i.e. neighbourhoods). Similarly, environmental-risk perceptions are also embedded in local contexts through direct and indirect experiences; therefore, one would expect that perceptions also manifest differently within specific urban areas. Comparing these experiential and perceptive differences across different

neighbourhoods served as the heart of this research endeavour. Moreover, residential location is not the main driver of environmental-risk perceptions; however, neighbourhood conditions (i.e. the social, economic, environmental, etc.) undoubtedly influence environmental-risk outcomes and individual perceptions toward them. When individuals choose their residential location (or are compelled to live in areas assigned to them due to limited social or economic capital), they not only become intimately connected to the "visible physical structure and its immediate surroundings but also the visible and invisible attributes associated with the location" (Liu, 2001, p.199). As a result, whether individuals are aware of it or not, the local environment with all its inherent characteristics influences how risks are perceived; perhaps, the neighbourhood also affects health outcomes to varying degrees.

The focus of this research is on identifying and determining the various processes that determine environmental-risk perceptions. More specifically, this paper explores the relationship between environmental-risk perceptions and how they are intrinsically tied to the contextual realities that define individual experiences. According to Phillmore and Moffatt (1994) risk constructs are "rooted in daily experience and assessed by reference to experience" (p.147). For this reason, particular emphasis is placed on the underlying assumptions about individuals' surrounding environment and the experiences that derive from it. Specifically, the objectives of this paper are to:

(i) Investigate perceptions regarding environmental and health risks in the urban setting

(ii) The cognitive and socio-cultural processes that mediate environmental-risk perceptions

(iii) Explore how a common neighbourhood experience influences collective environmental risk perception

(iv) Study the potential implications of those perceptions on neighbourhood identity, quality of life and political efficacy.

This study is one of the few community based studies that have investigated the relationships between neighbourhood experiences and patterns of response to experiences. Experiences with the environment are communicated through 'personalized language'; they contain rich and varied descriptions, rooted in contextualized social understandings, feelings and values. Furthermore, differences in environmental-risk perceptions within the city of Toronto have several important implications for policy and decision makers, experts, institutions, and researchers. In addition, this paper provides insights on how and why expressions of environmental-risk differ between neighbourhoods. This research illustrates that a complete understanding of environmental-risk must include considerations of: neighbourhood differences, collective understanding of present conditions and mediating processes that inform perceptions but are not quantifiable by current scientific methods. The results and findings of this research are presented and discussed in light of the literature and theories surrounding risk perception.

Theoretical Grounding

How lay persons act and react to risks in their environment depend on social, contextual, cognitive, motivational, and personal factors, often in contrast to experts' system of thinking (Margolis, 1996; Flynn, Slovic & Mertz, 1993). The Royal Society, Britain's 'preeminent scientific institution', was one of the first institutes to publish social scientific documents on risk matters. In 1983, the Royal Society published a very influential report wherein it clearly differentiated between *objective risk*—a quantifiable outcome that can be objectively measured and assessed by 'experts' and subjective risk—an irrational and unscientific understanding of

risk embraced by lay individuals (Royal Society, 1983; Bassett, 1999, p.197; Adams, 1995, p.8-9). However, subsequent studies and empirical observations demonstrated that cognitive and other psychosocial forces may be working together to engender different attitudes toward risks (Fischhoff, 1989). In line with these new findings, the Royal Society published another report in 1992. This time, the influential institution took on a different tone and began to recognize that social-psychological factors may intervene to influence individuals' risk perceptions. Accordingly, the Royal society defined risk perception as involving "people's beliefs, attitudes judgements and feelings, as well as the other social and cultural values and dispositions that people adopt, towards hazards and their benefits" (Royal Society, 1992, p.89). Furthermore, it also acknowledged that:

> Risk perception cannot be reduced to a single subjective correlate of a particular mathematical model of risk, such as the product of probabilities and consequences, because this imposes unduly restrictive assumptions upon what is an essentially human and social phenomenon (Royal Society, 1992, p.89).

The Royal Society touch on a point that is neglected almost as often as it has been made, namely that risk constructs cannot be completely separated from the physical, psychological and socio-cultural dimensions of human nature. That is, evaluation of risk involves to a large degree many subjective judgements on the part of experts and lay individuals. McDaniels (1998) puts it very eloquently when he states that:

> There is no such thing as an objective characterization of risk. All risk characterizations and all analysis are subjective and value-laden, including lay and expert views. When technical specialists call for a more "objective" characterization of risk, they are simply asking for a greater role in making the necessary judgments. This is not to suggest that having technical specialists make certain judgments is a bad thing… (p.132).

Society no longer accepts the notion that scientific judgements represent the reality of the situation. Increasingly, it has been made clear that "scientific 'truths' are just those which happen to prevail within some given belief-community at some given stage of inquiry" (Norris, 2004,

p.7). Accordingly, Ulrich Beck (1992) asserts that, "sciences' monopoly on rationality is broken" (p.29). There is an inherent conflict in science's claim to rationality because the 'hazardousness of a risk' cannot be objectively, nor conclusively determined in advance. Scientific rationality is challenged by the uncertain nature of risk profiles. Technical experts cannot guarantee scientific objectivity because when it comes to risk, normally they do not have all the facts needed as the basis for final judgment and every risk situation is different, different enough to demand a different assessment (Shrader-Frechette, 1991, p.240). Moreover, technical assessments of risk are based on 'speculative assumptions' which are inferred from other (previous) observations and events, therefore technical assertions depend upon the concept of probability. Additionally, technical risk assessments are governed by 'mathematical possibilities' and 'social interests'. According to Beck (1992), the sciences often neglect the basis upon which their discipline is predicated, that being the 'experimental logic' that drives reason and rationality. Instead, science has opened and allowed itself to be influenced, even invaded, by other diverse fields such as politics, economics, and ethics (Beck, 1992, p.29).

As a result, Beck (1992) asserts that "[t]here is no expert on risk (p.29). In other words, individuals, both lay and expert, are experts of their own lives and of their own environments. For example, in the context of this study, individuals from one neighbourhood can pool their experiences within their environment and create accounts of the setting and the situation, thereby allowing the emergence of expertise of a certain type in the neighbourhood. Nevertheless, it is also equally important to emphasize that lay individuals' assessments of risk not only conflict with experts' but they also tend to contradict with one another (lay individual vs. lay individual) (Kahan, Slovic, Braman & Gastil, 2010, p.196). The term 'expert' is used within this research "as referring to someone working within their field of specialization" (Hayward, 1997, p.344).

The disagreement that exists between lay individuals and within public groups are not by chance, rather they are a product of complex interactions of individual characteristics and situational circumstances, mediated by psychological, social and cultural processes.

A Psychological Approach to Risk Perception

A major component of risk is that it involves uncertainty about the occurrence of an event. The nature of uncertainty that characterizes 'risk' requires individuals to comprehend ambiguous situations by 'filling in the gaps' through psychological methods of investigation. Moreover, uncertainty is a psychological construct that individuals use to make sense of their world; "it exists only in the mind; if a person's knowledge were complete, that person would have no uncertainty" (Windschitl & Wells, 1996, p.343). Beginning in the 1970s, researchers have conducted numerous studies on the psychology of risk; particular emphasis has been placed on how individuals process information and cognitively represent their attitudes regarding risk items (Ricciardi, 2010, p.143; Breakwell, 2014). The psychometric paradigm "provides the beginnings of a psychological classification system for risks" (Williams, 2006, p.303). Studies based on the psychometric paradigm revealed that individuals tend to attribute their risk assessments to two overarching factors. The first factor was identified as "dread risk", meaning perception of risk is heightened if a hazard is considered to have severe consequences, has catastrophic potential, relatively uncontrollable, and the outcome is perceived to manifest itself suddenly (rather than gradually or chronically). The second factor was labelled as "unknown risk"; here, risk perceptions are heightened when the hazard is unobservable, unfamiliar, new or delayed (Fischhoff, Slovic, Lichtenstein, Read, and Combs, 1978; Bodemer & Gaissmaier, 2015, p.12; Weber & Ancker, 2011, p.483).

Advances in psychology and cognitive neuroscience have yielded new insights into the role of heuristics, specifically in relation to human beings' "fast, instinctive and intuitive reactions to danger" (Slovic, Finucane, Peters, & Macgregor, 2004, p.311). Instinctive reactions are a natural human response to possible threats or the sudden emergence of unforeseen situations; "intuitive feelings are still the predominant method by which human beings evaluate risk" (ibid). When individuals first encounter risks, they evaluate them quickly and automatically to determine the extent to which they pose a threat to safety and wellbeing. This type of a reaction is referred to by Slovic and Peters (2006) as 'risk as feelings'. 'Risk as feelings' suggests that individuals' assessments of risk is caused by 'the experiential mode of thinking', where response is quick and evoked by 'associationistic connections', narratives and images from past experiences and affective attributes (Slovic, Finucane, Peters, & Macgregor, 2004, p.313). The affect heuristic theory confirms the 'risk as feelings' framework in lay risk perceptions. The processing or evaluation of a stimulus is conditional on an individual's affective predispositions. All individuals possess an 'affect pool' and "all of the images in people's minds are tagged or marked to varying degrees with affect [relativity of goodness and/or badness]" (Slovic, Finucane, Peters, & Macgregor, 2004, p.314). In other words, "the degree of goodness or badness evoked by the images shapes people's risk perception (Siegrist & Sutterlin 2014, p.2). Research based on the affect heuristic suggests that lay people evaluate a hazard based on the feelings/emotions they have towards it, not necessarily what they think or know about it (Siegrist & Sutterlin 2014, p.2). Positive, negative, or neutral feelings toward a hazard mediate the outlook of risk for individuals. For example, a positive affect (bias toward goodness) results in a more optimistic outlook for a given risk, whereas a negative affect (bias toward badness) results in a more pessimistic outlook for the given risk (Xie et al., 2011, p.451). Similarly, the

'availability heuristic' theory contends that people judge risks based on the ease with which they recall prior knowledge and link it to the present situation they are assessing (Tversky & Kahneman, 1974). For example, if people "can easily recall the occurrence of a certain event, people assess the probability of that event as high. Familiarity, salience and recency of an event play an important role" (Bieberstein, 2014, p.37).

Socio-cultural Approaches to Risk Perception

"Over the last decade or so…socio-cultural approaches to risk perception have situated everyday understandings of [risk] within a wider social, cultural and political frame of analysis" (Bickerstaff, 2004, p.831).The socio-cultural paradigm considers risk to be a societal construct, derived from and maintained by social norms, as well as philosophical, moral, and religious preferences (Bieberstein, 2014, p.48). Socio-cultural studies also show that individuals assign different meanings to risks depending on their social context, socio-political realities/power-relations, values, belief systems, and worldviews which are culturally embedded. This view posits that in order to gain an understanding of how individuals construct risk beliefs, it is imperative that researchers analyze how individuals contend with risk in their social environment and daily experiences (Vojinović, 2015, 75). Perceptions of risks in lay individuals tend to be highly contextual, localized and individualized; attitudes are subject to a continuous process of construction, interpretation and reinterpretation (Tulloch & Lupton, 2003, p.8). Furthermore, social networks and linkages among group members (i.e. neighbors) may also have an effect on lay people's assessments of risks. As Renn (2008) points out: "humans do not perceive the world with pristine eyes, but through perceptual lenses filtered by social and cultural meanings, transmitted via primary influences such as the family, friends, subordinates, and fellow workers" (p.23). Conceptions of risk, therefore, become a multi-attribute affair involving multiple social

and cultural components rather than a single, unidimensional process involving only the individual assessing the risk. Having discussed the theoretical basis of this research, the paper now turns to questions of methodology, specifically how such concepts as environmental risk perception were operationalized in this study.

Chapter Two: Methods

This chapter is specifically aimed at reviewing the methodological techniques employed in this research; special consideration is given to the qualitative approach (although some basic quantitative techniques were also employed). The first section will provide a rationale for using the qualitative method and delineate how this approach, with all its inherent properties and possibilities, fit the needs of this study.

2.1: Employing the Qualitative Research Approach

As the main research question (discussed in Chapter one) indicates, the objectives of this research are to (1) collect data on lay individuals' environmental-risk perceptions so that they may provide insights into how meanings and realities are created through neighbourhood experiences (2) examine and compare different neighbourhood experiences with distinctive environmental (including the social, economic and built environment) characteristics (3) understand potential relationships between perceptions of neighbourhood and their implications for identity, quality of life and political engagement and (4) utilize the data to inform critical public policy issues relating to environmental-risk This study has chosen the qualitative methods approach as the main framework for data collection. Some basic quantitative techniques were also used, but only in analyzing data to ascertain collective differences. A qualitative methods approach is most applicable to this study because of its inherent simplicity and emphasis on real-life-content, centering on experiences in the home and in the immediate environment.

> Qualitative research allows researchers to get at the inner experience of participants, to determine how meanings are formed through culture, and to discover rather than test variables (Corbin & Strauss, 2008, p.12).

Qualitative methods are about tapping into others' accounts and experiences within a particular cultural, social or, in this case, spatial context. It must be remembered here that this study aims to analyze actual issues reflecting lay individuals' viewpoints of their neighbourhoods. Additionally, everyday experiences tend to be more salient in memory, harvesting those ideas not only makes the subsequent analyses more interesting, but also ensures that the results have an individual or 'real-event' relevance to them.

The qualitative paradigm allows the researcher to explore unanticipated or sometimes hidden issues that were subconsciously overlooked and not properly addressed to begin with. An issue that may not have been salient to the researcher in the initial stages of the research may come to be highly important later. For the purposes of this study, the aforementioned approach facilitates the transfer of information as well as the incorporation of new information into the overall study design as it becomes available. It was anticipated, as should be with any research endeavor, that new perspectives would emerge and that one idea would lead to another by virtue of a common causal factor. As a result, as new ideas emerged from individual responses or deduced from collective observations, they were readily incorporated into the analysis to ensure that as rich a spectrum of different meanings, ideas and discourses was documented. In addition, a qualitative approach offered the opportunity to focus on critical areas of concern that are pertinent to the researcher as well as to the participant (Bourgeault, Dingwall & de Vries, 2010, p.701). Research in its broadest sense is about exploring, collecting and assessing information in an attempt to unpack and advance understanding of the phenomena under study. As a major interest of this research is to, "arrive at a deeper understanding of the nature or meaning of everyday mundane [environmental] experiences", this cannot be achieved without a direct recruitment of participants that are willing to provide the relevant information needed for this

study (Lichtman, 2011, p.244). As will be discussed in further detail below, the study utilizes a questionnaire as an initial data-gathering measure. The questionnaire not only provided the participant a preview of the type of research that was being conducted, but it also enabled a fluid and reciprocal dialogue regarding common concerns/themes that were of interest to both parties. In addition, live interaction with participants and the feedback that resulted from those reflections created opportunities to make modifications and follow uncovered 'leads' on subject matter that subsequently became a relevant or important element of study. The insights offered by individuals about the existing environmental conditions and issues (relevant to the analysis of this study) would not have been possible without the application of the qualitative method (and supplemented by some basic quantitative techniques).

The questionnaire and semi-structured interviews were designed to allow for a comprehensive understanding of residents' assessments of their environment. Both, the questionnaire and semi-structured interviews, comprised of a number of possible topic areas that would result in a better understanding of what the participants experienced and how perceptions were shaped by relationships and characteristics of their environments. For example, the questionnaire asked about participants' background information such as gender, age, and household income as well as their judgments on environmental-risk matters. This was carried out to decipher the interplay between underlying contextual factors and patterns of risk judgments in each collective. The types of information that were sought through these questions included: measurement of perceived differences, background characteristics, how and why individuals arrive at different judgments, experiences in their neighbourhoods, and views on future expectations.

2.2: The Research Setting: The Social and Environmental Context

City of Toronto

Founded in 1793 (originally as York), Toronto is one of the most diverse and unique cities in all of Canada, if not the world (Relph, 2014, p.145; Fernando, 2006, p.44). It has a population of 2.75 million people which comprises approximately 20.3 percent of Ontario's total population and 7.8 percent of Canada's overall population (Saul & Nichols, 2014, p.103). Seeing that Toronto is Canada's most populated city, it should also be accepted that its environment is under constant stress from human activities. Consider, for example, the amount of resources and energy required to sustain such a large population, and the rate at which waste is produced from daily urban life. Harmful pollutants are constantly released into the atmosphere through burning of fossil fuels such as gasoline, coal and oil. According to Perrotta (1999), contaminants present in Toronto's airshed are at levels known to pose serious health risks to human beings. Furthermore, Toronto is a city that has experienced different waves of internal and external migrations, hosting successive generations for at least one hundred years. Toronto has also been host to industrial activities which have directly or indirectly affected soil quality. Before the 1960s, industrial by-products were not disposed of properly, as a result "persistent toxic substances such as polyaromatic hydrocarbons (PAHs), PCBs, lead and other metals can still be found in the ground today" (Perrotta, 1999, p.5). Other modern environmental health-risks in Toronto include: the presence of outdoor air pollutants such as ground-level ozone (O_3), inhalable particulates (PM_{10}), and nitrogen dioxide (NO_2); indoor pollutants such as radon, mould, insects, and toxic or deadly by-products of consumer products; organic/inorganic chemicals and other toxics in drinking water (drawn from Lake Ontario); physical agents such as noise, electromagnetic fields (EMFs) via electrical power lines, and radio towers and; pesticides

(although illegal, residues may be present in food sources) (Perrotta, 1999). Individually, each one of these hazards can pose serious threats to wellbeing; however it is the synergistic and interactive effects of environmental health risks that require careful consideration.

Nevertheless, Toronto has been relatively successful in achieving some of its environmental objectives; for example the city was able to achieve a 53% residential waste diversion rate in 2013, necessary steps have been take to reduce the overall consumption of water (dropping by 16 million litres per day between 2011 and 2012), Toronto also surpassed its 2012 emissions target—a 6% reduction from 1990 greenhouse gas (GHG) levels, "[i]n 2012, overall greenhouse gas emissions were 25% lower than in 1990" (Community Foundations of Canada, 2014, p.143-7). Although there is a lot to be celebrated and encouraged as a matter of public policy, there are many other subtle environmental issues that require close attention in policy agendas. For example, one in four individuals live below the poverty line (Community Foundations of Canada, 2014, p.8; Bhuyan, 2013, p.239). Some accounts, such as the Vital Signs Report, suggest that by the year 2025, 60 percent of Toronto's neighbourhoods will be regarded as 'low-income'. This projection entails that by 2025, "Toronto's wealthiest neighbourhoods will comprise 30% of the city; [t]he poorest…will comprise 60%; and…the middle-income neighbourhoods, will have almost disappeared" (Community Foundations of Canada, 2014, p.91-94). It is important to point out these existing patterns as well as potential developments (and future challenges) in view of the considerable relationship that exists between poverty and environmental risk.

> Poverty is often strongly associated with high levels of environmental risk because of low-income groups' exposure to diseases and physical or chemical hazards in their homes, neighbourhoods and workplaces (Aina et al., 1999, p.3).

Potentially significant changes in demographic characteristics of the population taken together with findings which suggest socioeconomic status as a predictor of environmental risk have great implications for this study. Each neighbourhood has its own unique environmental challenges/needs that are embedded in history and a particular sociopolitical/economic context. As a result, each neighbourhood also has its own *experiential-language* that communicates, through experiences, the emerging socio-spatial patterns and measures needed to address any threats that may be arising therefrom. Thus, the *neighbourhood* (within the city) becomes the object of study as well as the starting point for investigation into environmental-risks. What is required, however, is genuine commitment at the municipal level and cooperation from lay individuals in neighbourhoods who want to generate, discuss and provide suggestions for safer and more risk-averse environments.

Toronto is made up of 140 neighbourhoods, defined by parameters set by Statistics Canada Census Tracts. Neighbourhoods are demarcated on the basis of several criteria as determined by Statistics Canada Census Tracts; for example, the minimum population for each neighbourhood must fall within 7,000 to 10,000 people (City of Toronto, 2015). There are several reasons why it can be advantageous to create neighbourhood distinctions, one of which is socio-politically strategic. By establishing explicit geographical boundaries, governments and community agencies can better prepare and organize their efforts as they pertain to local planning initiatives (Black & Veenstra, 2011, p.75). Using neighbourhoods as units of study as opposed to the city in general has its advantages as far as the objectives of this study are concerned. One of the main motivations for choosing to study neighbourhoods is because it allows for a more comprehensive and focus-specific approach to probing collective experiences. Since each locality is differentiated according to census tracts,

> Neighbourhoods [become]… [ideal] unit[s] of analysis because they are defined by natural boundaries that encompass multiple CTs (census tracts) with similar socioeconomic characteristics" (Young, Rinner & Patychuk, 2010, p. 302).

Dividing a large geographic area (city of Toronto) into smaller 'census-inspired' divisions (neighbourhoods) is favorable for this study because larger spatial units are more likely to be heterogeneous while smaller units, homogeneous. At the same time, it is erroneous to assume that all neighbourhoods are small spatial units whose members are homogeneous with respect to economic, political and social profiles, and that they all have similar worldviews and aligned belief/value systems. However, since members of a small spatial area are physically proximate and reside within a close enough distance to see, hear, smell (or sense) what is before them, it is more likely that individual experiences, while uniquely personal, will share characteristics with the experiences of those around them. Some studies have sought to identify neighbourhood conditions (in Toronto) by drawing on socioeconomic and demographic indicators, educational achievement levels, environmental factors (i.e. access to green space like public parks, trails, etc.), health status factors and other relevant variables to characterize neighbourhood differences in the city of Toronto (see D'Cruz, 2013; Centre for Research on Inner City Health (CRICH) of St. Michael's Hospital, 2014). However, for studies interested in inferences about experiences and personal reactions to occurrences in the immediate environment, information-gathering strategies such as those employed by this study provide a better understanding of relationships between life event experiences, localized processes and environmental-risks.

One particular report, *The Best Places to Live in the City: A (Mostly) Scientific Ranking of All 140 Neighbourhoods in Toronto*, is incorporated into this study as a guide to ensure a fair representation of populations and contemporary urban conditions (D'Cruz, 2013). The aforementioned study adopts a diagnostic approach (based on local merits) to assess where each

neighbourhood stands on a ranking index. Taking into consideration such variables as housing, crime, health and the environment, community engagement, diversity and employment (among others), the report was able to quantify these characteristics in a manner that affords easy comparisons between neighbourhoods across the city. Three measures which were given special consideration in determining suitability for this research included, 'Health & Environment', 'Diversity' and 'Employment'. With these measures in mind, three neighbourhoods were chosen, according to their relative position in the overall rankings, to be studied for this research; Rosedale-Moore Park was ranked first overall, Danforth Village-East York ranked 79th overall, and Regent Park which was ranked 130th overall (out of 140 Neighbourhoods in Toronto) (D'Cruz, 2013; Toronto Life, 2013).

To provide some context for readers not familiar with the neighbourhoods mentioned above, a brief profile highlighting some of the distinctive features of each neighbourhood will be provided here. The following information is extracted from official publications prepared by the City of Toronto; they are based on the 2011 Neighbourhood Census analyses. Apart from being named the best neighbourhood to live in within the city of Toronto, the Rosedale-Moore Park neighbourhood is considered one of the wealthiest areas in the city (Toronto Life, 2013; Moore, 2013, 220). In the Rosedale-Moore Park neighbourhood (Figure 1.1), 20,631 people occupy the area. It has a population density of 4,437 people per square kilometer. Seventy-two per cent (or 14,550 persons) of the inhabitants live with other family members. Seventy-one percent of the population in Rosedale-Moore Park was born in Canada and ninety per cent of members aged 25 to 64 have at least a postsecondary certificate, diploma or degree to their name. Fifty-nine percent of the neighbourhood's labour force is employed and sixty-seven per cent of its

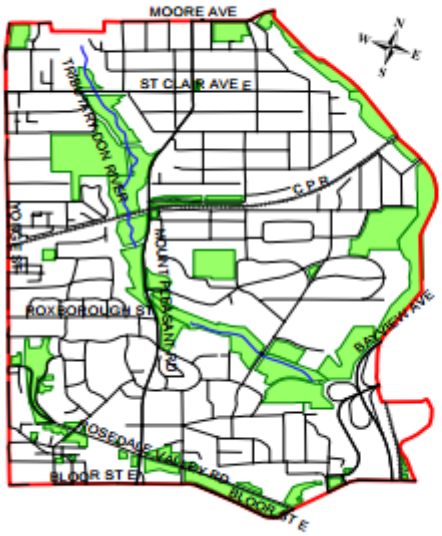
population's household income is between *$50,000 and $125,000 and above*. The Average After-Tax Household Income is $163,371 (City of Toronto, 2014a).

The second area chosen for more detailed study is the Danforth Village-East York neighbourhood (Figure 1.2). This neighbourhood is home to 16,712 people and it has a population density of 7,666 persons per square kilometer. According to City of Toronto records, eighty-one per cent (or 13,460) live with family members. Sixty-five per cent of Danforth Village-East York residents are Canadian-born citizens and sixty-nine per cent of inhabitants that fall within the age bracket of 25 to 64 have completed at least a postsecondary certificate, diploma or degree. The neighbourhood has an employment rate of sixty-five percent and sixty-seven percent of its population's household income is between $50,000 and $125,000+. The Average After-Tax Household Income is $70,344, almost matching the city average at $70,945 (City of Toronto, 2014b).

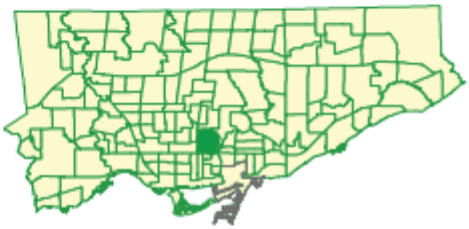
The third neighbourhood selected as a site for further investigation is Regent Park, located in the downtown region of Toronto (Figure 1.3). The area is host to "the oldest and largest public housing project in Canada and continues to be one of the most economically disadvantaged communities in the city of Toronto" (Rowen, 2012, p.36). Settled neighbourhood life is associated with many negative attributes such as low incomes, low educational levels, high levels of unemployment and a disproportionately high number of single-parent households (Rowen, 2012, p.36). Over 10,000 people reside in the Regent Park neighbourhood; it has a population density of 15,636 persons per square kilometer. Seventy-six per cent of Regent Park residents characterized their living arrangements as living with family (7,065 individuals). Forty-nine per cent of Regent Park residents are Canadian-born citizens and sixty-one per cent of residents that fall within the age of 25-64 have at least a postsecondary certificate, diploma or

degree, according to the City of Toronto. Official accounts render just below half of Regent Park's labour force as employed (forty-seven percent) and seventy-two per cent of its population's household income is between *under $20,000 and not above $49,999*. It is worth noting that the unemployment rate for this neighbourhood sits at sixteen per cent, compared to the city-wide average at nine per cent. The Average After-Tax Household Income is $43,038, which is $27,907 below the city average (City of Toronto, 2014c). Despite the gloom, there is some optimism about the future of Regent Park. Introduced in 2005, the Regent Park Revitalization Plan aims to transform the neighbourhood into a multifunctional area, accommodating mixed-income groups, market condominium buildings, "townhomes, commercial space, community facilities, active parks and open space[s]" (Toronto Community Housing, 2015). Over $1 billion is being invested in this redevelopment project. The plan will be executed in several phases, it is expected to take anywhere between 15 to 20 years to complete (Toronto Community Housing, 2015). While the redevelopment process takes place, residents are relocated to other places as demolition and reconstruction work is carried out. However, as Paikin (2014) points out: "experiences of relocation and return vary widely, and while residents may espouse support for the presumed benefits of redevelopment, long-term hopes for secure, well-maintained homes are sometimes overshadowed by stressful experiences of relocation and return". Some of these issues will be discussed further below in the results, analysis and discussion sections of the paper.

Figure 1.1



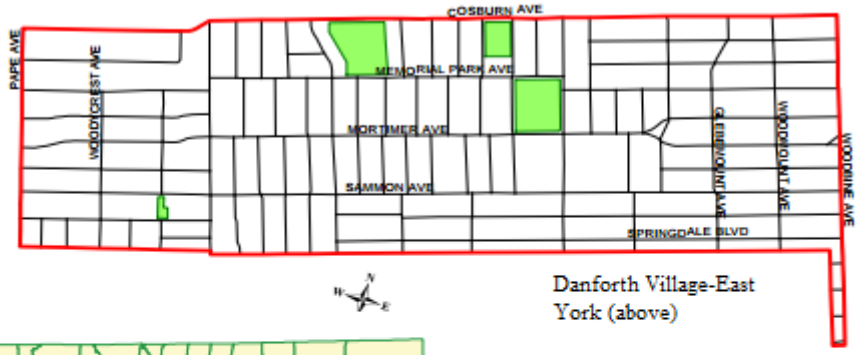
Rosedale-Moore Park



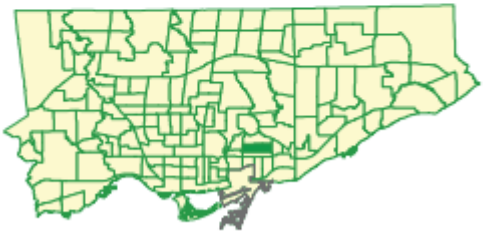
City of Toronto (Rosedale-Moore Park Highlighted)

(Source: City of Toronto 2014a)

Figure 1.2



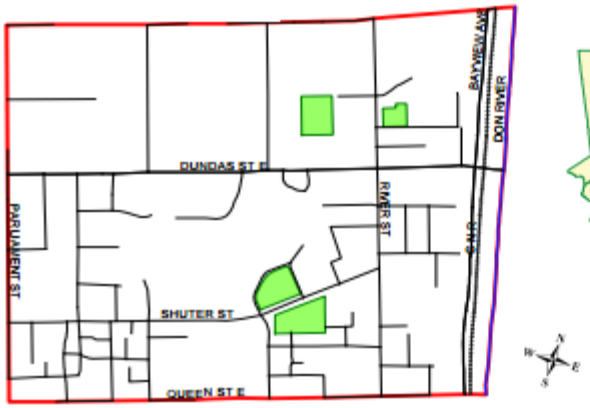
Danforth Village-East York (above)



City of Toronto (Danforth Village-East York Highlighted

(Source: City of Toronto, 2014b)

Figure 1.3



Regent Park (above)

City of Toronto (Regent Park Highlighted)

(Source: City of Toronto, 2014c)

2.3: Sampling and Participant Selection

One of the most important considerations for any study is to determine which population or group should be focused upon in order to maximize not only the quality of work but also the depth and credibility of the outcomes. Moreover, this process, or *participant selection*, is guided by predetermined research considerations such as the research questions, objectives of the study, methodological approach, as well as time and space constraints. Undoubtedly, all of these factors have an effect on the feasibility of collecting and analyzing data (Arminio, Torres & Jones, 2014, p.110). As a result, *sampling* becomes an important factor in determining which groups to include and which to exclude from the overall research process. In this regard, *sampling criteria* becomes one of the main deciding factors in reaching the group that will serve to provide the most appropriate evaluative responses.

> Sampling criteria refer to those variables, characteristics, qualities, experiences, and demographics most directly linked to the purpose of the study and, thus, important to the construction of the sample. In other words, given the purpose of the study and primary research questions, certain characteristics must be present in the sample that are most likely going to elicit insight and greater depth of understanding about the phenomenon of interest (Arminio, Torres & Jones, 2014, p.110).

With the aims and objectives of this research in mind, purposeful sampling was selected as a strategy to gain better insight into the multidimensional nature of neighbourhood-environment experiences. This strategy allows for greater ease in isolating the target population and gaining collective representation of neighbourhoods under study. Moreover, purposeful sampling was employed as a method to not only narrow down the number of potential candidates, but also to determine the 'type' of participant that could be used for subsequent analyses. The target group identified for inclusion in the study comprised of both men and women aged 18 and above. Additionally, the criteria for inclusion in this study included the participants identifying as members of the neighbourhood and having resided there for a minimum of one year. Before the questionnaire was issued to potential participants, they were asked about their residential status, in other words, whether they were residents of the same neighbourhood where the interaction was taking place. If the answer was in the affirmative, prospective participants were then queried about the length of their residence in the neighbourhood. If the above conditions were met, participants were given the opportunity to take part in this study. In other words, after verbal contact was made with a prospective participant, he or she was asked if they were prepared to participate in a graduate study. If they were willing to participate, they were then asked if they lived in the immediate neighbourhood. If their answer was 'no', they were provided an explanation as to why they were unsuitable for the study. If their answer was 'yes', the individual was informed about the purpose of the study and invited to participate. If they agreed to participate by oral consent, data collection (questionnaire/semi-structured interview or both) was initiated. Completion of questionnaire items and interview responses signified implicit consent. Nevertheless, after a questionnaire package was given to participants, they were informed that their involvement in this study was voluntary and that any data provided will be kept

confidential. In addition, a prepared statement written in the onset of each questionnaire provided a brief description about the nature of the study, instructions on how the questionnaire should be filled and that participation is voluntary.

The data collection process took place over a three day period, beginning on June 11th to June 13th, 2015 between the three data collection sites. Each questionnaire took about an average of fifteen to twenty minutes to administer, though a few participants took around half-an-hour to complete the first three sections. Overall, semi-structured interviews lasted about twenty minutes with each consenting individual. All but one interview was administered in English, the other in Dari (a dialect of Farsi) at the participant's request (the respective questionnaire, however, was completed in English without assistance from the researcher). Since the interview was conducted without the use of any digital audio-recording device, many participants were asked to repeat certain accounts to not only ensure clarity and unambiguity, but also to avoid any misinterpretation in context. As a result, this may have contributed to the amount of time taken in administrating/recording interviewee responses on paper. Although some responses have been edited to maintain the privacy of the individuals involved, editing has been minimal to preserve the voices of the participants.

In the Rosedale-Moore Park neighbourhood, a total of thirty-seven people were approached with a request to be participants in this research endeavor. Recruitment in this neighbourhood initially started at a local park named, fittingly, 'Rosedale Park'. But, due to the low rate of recruitment success, participants were also sought in the surroundings areas of the park. The first twenty-six individuals who met the study criteria were invited to participate; twelve individuals accepted the invitation while two others showed interest but would not consent to having their responses published, even though anonymity was repeatedly assured. The

other twelve individuals declined to be participants, citing personal and time commitment constraints. The second neighbourhood, Danforth Village-East York, proved to be the most challenging area in terms of finding individuals who were willing to share their views on questionnaire items and talk openly about their neighbourhood experiences. Although the Danforth Village-East York neighbourhood is considered one neighbourhood as per the City of Toronto guidelines, it encompasses a 'wide' geographic range; therefore the sample was divided into two areas. Six participants were to be selected from the East York area and six from Danforth Village. In the East York area, participants were initially approached in Dieppe Park, and for the Danforth Village section, in Stephenson Park. However, when it became apparent that participant recruitment was difficult in these areas, invitations were extended to individuals far and near to the original sites. In total, seventy-three individuals were solicited from this area to take part in the study. Forty-five individuals were eligible to take part, and in due course, twelve individuals eventually accepted the invitation to contribute to this study. Six respondents initially started the questionnaire process but withdrew midway without completing all the required fields. Twenty-seven other individuals who met the eligibility criteria turned down the request to participate, time constraints being one of the main inhibiting factors.

In the Regent Park neighbourhood, forty-two individuals were approached. They were informed about the purpose of the study and screened for eligibility in advance of being given the questionnaire. The initial starting point for participant recruitment commenced in 'Sumach-Shuter Parkette'. Although engagement and the number of potential participants were high, many respondents were reluctant to fill the questionnaire but were generally willing to share their perspectives and comment on aspects of neighbourhood life. The bulk of the questionnaire and semi-structured interview processes took place on Sumach Street and adjacent areas

(predominantly home to Toronto Community Housing residents). In total, thirty-one individuals met the criteria established for this study; these individuals were asked if they would be willing to participate in the study. The first twelve respondents that agreed to participate in the study were given questionnaires to complete. Three individuals began the questionnaire process but failed to complete it. Two of the three individuals could not continue after filling out the first section, citing language barriers as an impediment to moving forward with the process. The other individual also began filling the questionnaire but opted out without providing a reason. It is important to point out that the researcher ceased collecting data after securing twelve completed questionnaires in each neighbourhood, as per the design.

2.4: Instrumentation and Procedure

The instrumentation and procedure used to gather information is an integral part of the research process, it is the means through which the research is given an analytical basis. The type of instrumentation selected for this study stemmed from a range of considerations including, (1) pool of potential, accessible and willing participants (2) overall design which would elicit evaluative responses (3) a mechanism which would result in the most efficient way of gathering and interpreting data, and (4) a procedure which would yield the highest level of reliability and utility for this research. With the abovementioned concerns in mind, the instrumentations which would allow for such considerations to be met were, (1) a self-administered questionnaire, consisting of several items that requested participants' inputs on a variety of environmental-risk-related factors, and (2) semi-structured interviews, where questions were formulated to stimulate interest and discussion on environmental-risk issues. Accordingly, once it was observed that participants' attention was drawn to the subject matter, follow-up questions related to the context

of the conversation were put forward to provide participants the opportunity to elaborate on their previous responses. Most of the interviews remained informal, very open and relaxed.

The mainstay of this research comprised of the actual questionnaire itself. The questionnaire was administered through live interaction; it consisted of open-ended questions and close-ended questions, and divided into four different sections. Participants were asked to complete three (required) sections of the self-administered questionnaire, and were given the option of continuing on to the fourth section (which was optional and will be discussed in further detail below). All data collected for this study were derived from the participants under natural and non-manipulative circumstances. The first three sections inquire about a range of topics, including: personal demographic and income information, the participants' subjective appraisal of environmental-risk factors, social and health issues, perceptions on quality of life, and attitudes toward experts/public officials. Responses to these items were recorded personally by participants on the questionnaire sheets, data entries were taken directly from this resource for further analysis. Some minor changes were made in the questionnaire to improve clarity and minimize redundancy for final analysis. First, question #4 from Section three was excluded from the analysis because it was redundant with question #1 of Section three. Next, question #8 from section one was slightly modified for one option: instead of 'less than 1 year', the item was changed to 'more than 1 year'. Finally, since the target group was set at eighteen years of age and above, the first item in question #2 of Section 1 was eliminated altogether. The fourth section contained the 'semi-structured interview' phase of the study. At this stage, participants would have already completed the first three sections of the questionnaire and were prepared to answer/discuss open ended questions regarding personal experiences, expectations, and attitudes pertaining to their neighbourhood. However, before each participant proceeded into the fourth

part of the questionnaire, they were reminded that it was completely optional if they chose to proceed from there on in. Participants were also made aware that the researcher would be recording their responses, verbatim, in note form. Out of a possible thirty-six individuals who agreed to participate in this study, eleven participants chose to continue into the fourth section of the study: four participants in the Rosedale-Moore Park neighbourhood, two respondent in East York-Danforth Village and five individuals in Regent Park. This chapter has outlined the overall design of the research; the next chapter will present results obtained via the questionnaire and select semi-structured interviews described earlier in this chapter.

Chapter Three: Questionnaire Results and Findings

The purpose of the present chapter is to present findings and results obtained from questionnaires and semi-structured interviews conducted by the researcher. However, before continuing with a presentation of the results, it should be noted here that this chapter contains raw data and just the summary of the results (as mentioned previously in the introduction). A full breakdown of responses to each question is presented in Appendix A (below). Furthermore, findings from the questionnaires concerning demographics, attitudes toward risk profiles, and general inquiries on neighbourhood characteristics were tabulated, analyzed and will be presented here. For a more organized and controlled presentation of material, the findings from both the questionnaire and semi-structured interviews have been grouped into eight major thematic categories. For analysis purposes, items from the questionnaire were divided into the following eight categories: (1) neighbourhood demographic profiles, (2) level of perceived environmental dangers, (3) perceived level of control over environmental health risks, (4) perceived neighbourhood quality of life (5) evaluating self and collective health statuses, (6) awareness of neighbourhood environmental issues, (7) attitudes on political efficacy and expert opinion, and (8) future projections on neighbourhood trends. Each category will be addressed individually in the sections that follow.

3.1: Neighbourhood Demographic Profiles

The first step in assessing neighbourhood perceptions on environmental-risks was to observe important demographic characteristics. Demographic characteristics provide a helpful overview of each neighbourhood. However, it is also important to point out that neighbourhood demographic profiles generated by this study do not necessarily provide a substantive representation of the actual neighbourhood as a whole. Nevertheless, the data does indicate some broad demographic features inherent to each neighbourhood. Section 1 (Q#1 to Q#12) of the questionnaire captures the personal profile of each respondent, representing the sample as a whole when tallied. First, the gender breakdown is illustrated in **Table 1.** Gender difference is mostly consistent across the three neighbourhoods.

Neighbourhood	**Men**		**Women**	
	Number	**%**	**Number**	**%**
Rosedale-Moore Park	6	33	4	33
East York-Danforth Village	5	28	5	42
Regent Park	6	39	4	25
Total	***17***	**100**	***13***	**100**

Table 1: Participants by Gender, Number and % in Each Neighbourhood

Rosedale-Moore Park

For the Rosedale-Moore Park neighbourhood, the average age of the sample fell in the range of 56-65 (40% of the participants). Thirty per cent of those sampled were found to be in the income range of $80,000 or above (3/10 participants), while another forty percent (4/10) reported incomes between $50,000 and $79,999. From the ten participants in this sample, five self-identified as Caucasian/White' (50%), two as Asian, one as Black/African-American and two as Europeans. There was wide variability in the amount of time participants had lived in their current residences; two individuals had lived in the neighbourhood for '2-5 years', two for '5-10 years', three for 10-20 years and only one individual reported their whole life. Furthermore,

when asked about their educational background, six individuals reported having post-secondary degrees (being the most from all neighbourhoods). Seven participants (70%) considered their occupational orientation as belonging to the white-collar and professional classes. Additionally, four individuals reported their current employment status as 'employed for wages', another four 'self-employed', one was retired and the other was 'looking but unable to find work. A majority of the sample (60%) owned either their own house or condo and did not live alone (80%). Only two individuals reported living with 'spouse and children', another three with just their spouses, one with only their children, one with their 'common law partner/significant other', and the other participant reported living with just their parents.

East York-Danforth Village

Focusing specifically on age range of the sample in East York-Danforth Village neighbourhood, the data reveals that one participant was between 18-25 years of age, three individuals each for the 26-35 and the 36-45 ranges, one in the 56-65 range and one participant older than 66 years of age. Furthermore, there is considerable variability when it comes to household income; almost every response option (representing ten-thousand-dollar intervals) is exhausted (with 'less than $10,000) being the only exception. It is worth noting, however, that five of the ten participants reported household incomes in the range of $40,000 to $80,000 and above. Half the sample identified as European in terms of their race/ethnicity, two as Hispanic/Latino, one as Black/African American, one as White/Caucasian, and one as Asian. As far as education levels are concerned, five individuals reported having a post-secondary degree, one individual having no schooling background, one some high school but no diploma, two high school graduates, and one with some post-secondary experience but no diploma. Additionally, four of the ten participants reported that they belonged to the white-collar occupational class and only one

individual conveyed that they were unemployed. In addition, four individuals reported their current employment status as 'employed for wages', three individuals were self-employed, one was a student, one was unemployed and another, retired. When it came to participants' housing arrangements, five reported owning their own house/condo while three individuals rented a house/apartment. When participants were asked how long they had resided at their present home, one individual stated 'more than 1 year', three answered '2 to 5 years', another three '5 to 10 years, one respondent '10-20 years' and one participant answered their whole life. Only two individuals reported that they were living alone, compared to eight others who resided with other people. Of the eight individuals, only one lived with just their spouse, two lived just with their children, another two lived together with their spouse and children, one individual with their siblings, one with common law partner/significant other and one participant lived with their parents.

Regent Park

The Regent Park sample comprised of participants from a variety of age ranges, one individual reported they were '18 to 25' years in age, two in the range of '26-35', four participants in the '36 to 45' year range, two individuals from '46 to 55', and one individual from '56-65. Reported household incomes were far lower in the Regent Park neighbourhood than in the other two samples. Moreover, one individual reported 'less than $10,000' in household income, another six reported incomes in the range of $10,001 to $29,999 for their household, two participants reported $30,000 to $39,999 and one individual represented the highest of the group at $50,000 to $59,999. When ethnicity was stated, four participants identified as Asian, three as 'Black/African-American', one as 'Hispanic/Latino', and two as White/Caucasian. The general level of education was also low in this neighbourhood when compared to the other two. Two

individuals reported no schooling background, one individual claimed they attended high-school for a certain period of time but did not attain a diploma, four individuals had completed high-school successfully, one individual left post-secondary studies prematurely and did not receive a diploma as a result, and two individuals had their post-secondary degrees. In terms of occupational classification, only two individuals reported that they belonged to the white collar category, four other individuals reported being in the blue-collar category, three classified themselves as 'none' and one individual was unsure which category suited them best. Three individuals reported their current employment status as 'employed for wages', one as self-employed, one as a student, two as unemployed, one on disability and two reported 'looking but unable to find work'. In regards to the participants' personal or family housing situation, 1 individual reported renting a house/apartment, three individuals said they lived with family and six others reported living in public housing (renting at low cost, publicly subsidized). In terms of length of residence, six out of ten individual had lived in their current residence for a minimum of one year and a maximum of five years, two individuals had lived in the area from 5-10 years, one participant 10-20 years, and one respondent reported living in Regent Park for their whole life. Out of ten participants, only one conveyed that they lived alone. The other nine lived with others; one reported living with just their spouse, two with just their children, five with spouse and children together, and one participant reported living with their parents.

3.2: Level of Perceived Environmental Dangers

Individuals were asked to convey their level of concern regarding five environmental risks/hazards. This variable also sought to measure how individuals perceive the level of priority that ought to be assigned to each corresponding environmental-risks/hazards. Moreover, participants were asked to rate each form of environmental-risk/hazard on a scale that ranged

from ‘very low’ to ‘very high’ to indicate the level of threat posed to the safety and wellbeing of the neighbourhood in general. Level of priority was also indicative of respondents’ desire for policy intervention. The five environmental-risks/hazards (in Figure 1) were chosen to be studied because they represent a variety of concerns common to many individuals living in urban areas. In addition, the five items represent some of the more ‘traditional’ environmental-health hazards, meaning individuals are more likely to recognize and express their opinions about them (Haim & Portnov, 2013, p.1). Results from Section 2 of the questionnaire are presented below in graph format, each neighbourhood is graphed individually. Subsequent questions addressed how individuals perceive environmental-related harms and their sense of vulnerability to them.

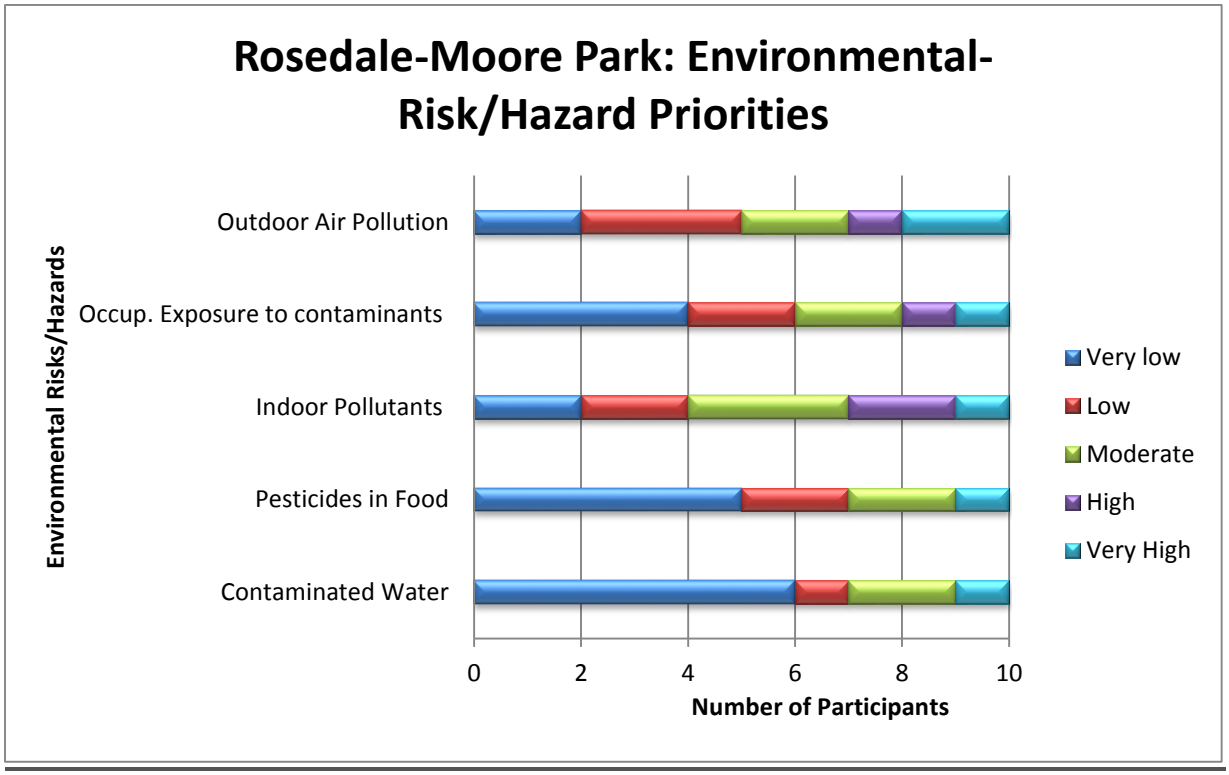


Figure 1 Rosedale-Moore Park (above)

In the Rosedale-Moore Park neighbourhood (*Figure 1*), there were no significant indications that any of the five risks/hazards warranted ‘very high’ priority for additional government consideration. In fact, many of the risks/hazards were not considered a great threat

to the safety and wellbeing of their neighbourhood, with 'contaminated water' and 'pesticides in food' being the least of concerns. Only two individuals deemed 'outdoor air pollution to be a very high priority, the highest of all risks/hazards to be regarded as 'high priority'. Reponses from Question #9 (of section 3) is highly related with outdoor air pollution sentiments expressed in section two of the questionnaire (expressed graphically in Figure 1); in question #9 (of section 3), eight individuals perceived outdoor air quality to be either good or very good in their neighbourhood. Three individuals deemed 'indoor pollutants' to be 'high' to 'very high' in priority. Residents considered contaminated water and pesticides in food to be the least of their priorities; nine participants (90% of the sample) considered 'contaminated water' to be moderate to very low in priority while another nine expressed similar attitudes toward pesticides in food. Nevertheless, a large number of participants considered most risks to be in the 'low' and 'moderate' priority context. Likewise, one individual conveyed a sentiment that reflects this common perspective/finding,

> *We don't live in a bubble, what happens beyond this neighbourhood can easily affect us here. Luckily, there isn't too much to worry about in this neighbourhood as we don't really hear of any real environmental problems. But that's not to they don't exist, so there needs to be some sort of oversight to manage harmful activities that can cause damage to people's health all over the city.*

Therefore, there is recognition that such risks/hazards do pose a threat to health and safety of individuals in general; perhaps, those sampled in this neighbourhood felt that the issues were not as important or as prevalent in their neighbourhood when compared to the rest of the city.

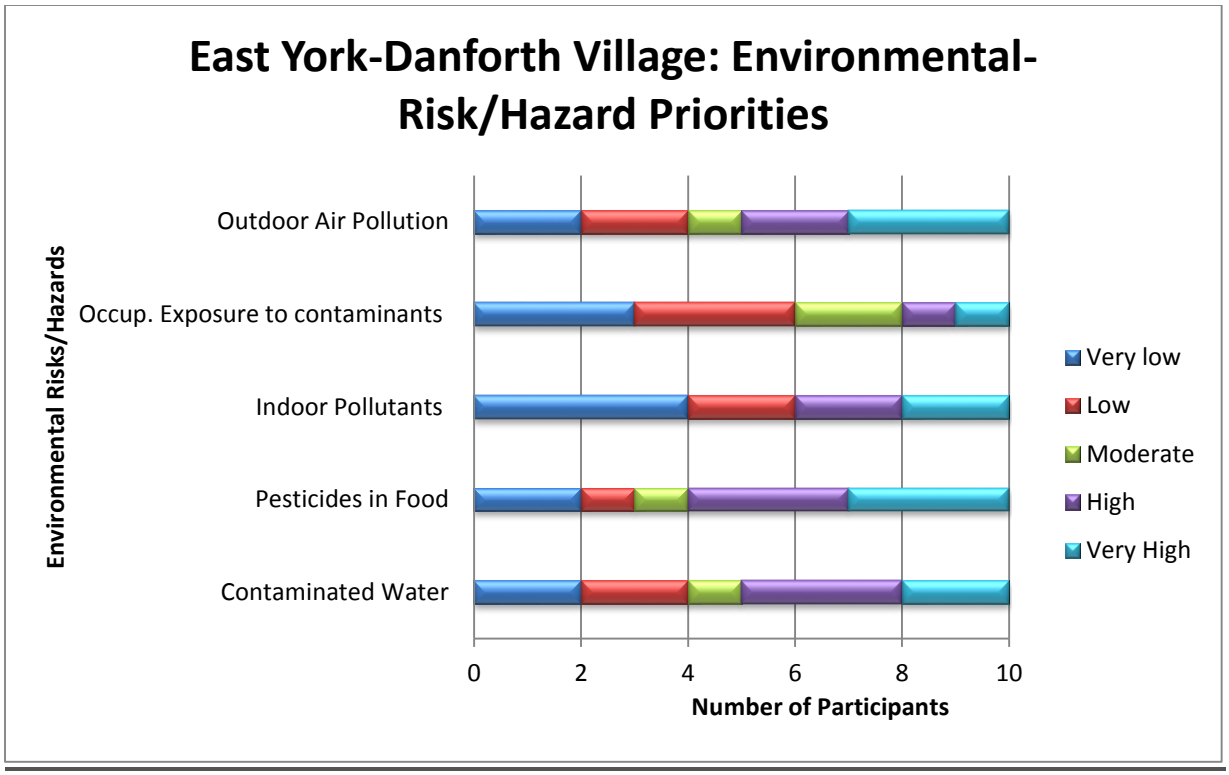


Figure 2 East York-Danforth Village (above)

In the East York-Danforth Village neighbourhood, there was great variability in terms of where participants perceived risk/hazard priorities, as presented in *Figure 2*. Nevertheless, there are some points which should be borne in mind. First, 'outdoor air pollution' and 'pesticides in food' were considered high priority relative to other risks/hazards. Question #9 (of section three) did not provide any significant details on how participants perceived outdoor air quality. Five respondents (50% of sample) considered 'outdoor air pollution' to be either a high or very high priority. Additionally, six (60% of the sample) considered 'pesticides in food' to be either a high or very high priority when it comes to government allocations of resources (or greater policy attention). Contaminated water was also deemed to be of higher priority by the respondents (as half the sample considered it either a high or very high priority). After interacting with residents in the East York-Danforth Village neighbourhood (through semi-structured interview processes),

it became clear that food had a very important social and cultural component for most individuals. One individual noted:

> *I am not too concerned about the environment, like you hear about (sic) climate change on the media and television. I don't see that affecting us any time soon…But (sic) what you eat and drink can impact your health and ability to live a long life. In my culture, we cook meals every-day, knowing where your food comes from is very important to me and my family.*

Another resident added:

> *One of the great things about this neighbourhood is the wide variety of restaurants, cafés and food joints to choose from. But I choose to go to specific ones because I can trust that their food is safe and fresh. I am Greek, so there is always an emphasis on the quality of food, but sanitation and safety are also important.*

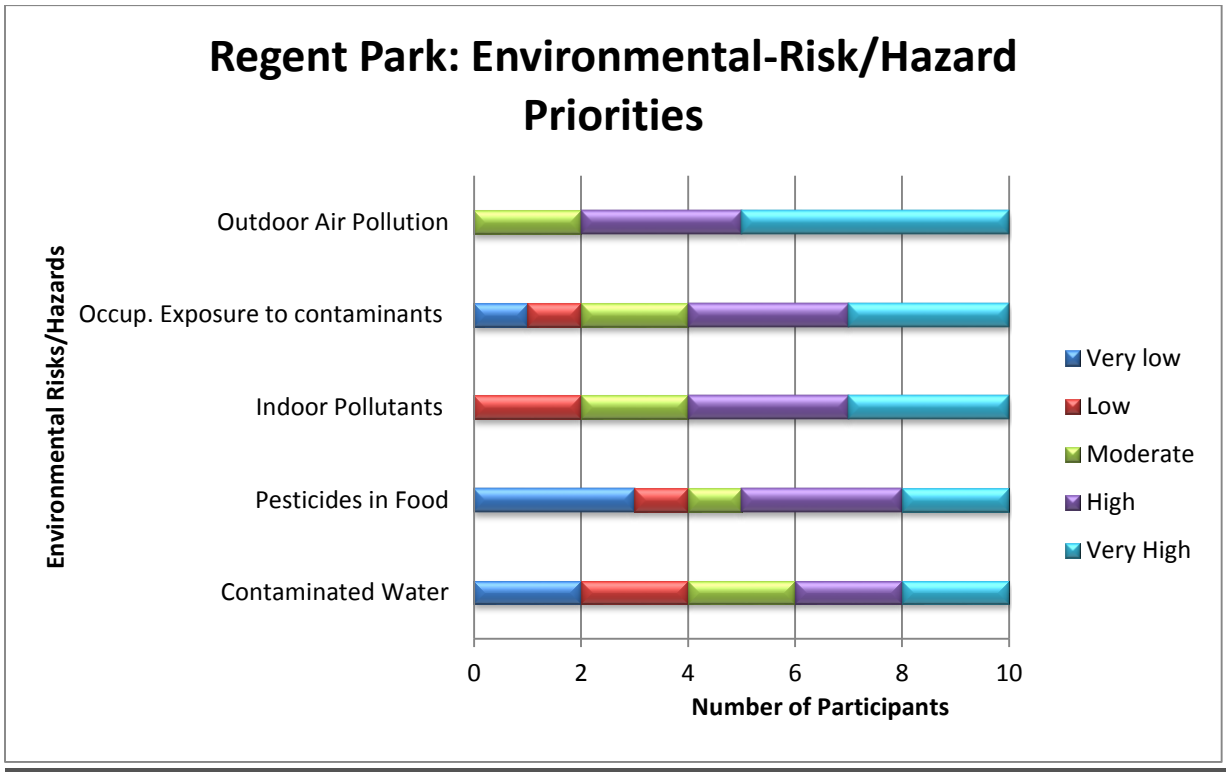


Figure 3 Regent Park (above)

In the Regent Park neighbourhood (*Figure 3*), there was a clear tendency for participants to consider most risks/hazards as high priority, therefore requiring greater government attention. Moreover, of the ten participants in this sample, eight individuals deemed air pollution to be either 'high' or 'very high' in priority. Likewise, in Question #9 (of section 3) in the questionnaire, six individuals reported outdoor air quality to be 'bad' or 'very bad'. Six individuals considered 'occupational exposure to contaminants' and 'indoor pollutants' as high or 'very high' in priority. Half the sample considered 'pesticides in food' as high or 'very high' in priority. Only four individuals considered 'contaminated water' to be a 'high' or 'very high' priority issue. Overall, there was a heightened level of environmental-risk/hazard concern in this neighbourhood compared to the other two in Figures 1 and 2. Much of these heightened concerns stem from perceived threats that are visibly detected and subjectively experienced. One resident explained:

> *There are many issues in this community. I don't know where to begin. I've been living here for four years and things keep getting worse and worse. When I leave the neighbourhood to attend my job in North York, I feel as if they are two different worlds. When you reenter this area, you can recognize it by the smell, there is an odour that characterizes this place* (housing complex).

Furthermore, when describing their neighbourhood, residents would often compare it to other places in the city.

> *I am not sure why this neighbourhood is not held to the same standards as other neighbourhoods in the city. Sometimes it feels like I'm living in a third world country. I see some change though, I am happy about that.*

However, while acknowledging the challenges faced by the neighbourhood, there were also a few residents who expressed the changing landscape of the area as a positive sign.

> *Ever since they introduced the revitalization program, I think there is more attention being paid to the neighbourhood. There are still some problems like crime and violence that needs to be focused on by (sic) government.*

Figures 2, 3 and 4 illustrate a very interesting picture of neighbourhood differences in environmental-risk/hazard prioritization. Furthermore, participants were also asked about the level of anxiety (worry/concern) when it came to exposure to environmental-ills, exposures which could potentially have a negative impact on their health. Participants were asked to specify the magnitude of perceived 'worry' on a likert-scale that ranged from one through five, one denoting 'no worry/concern at all' and five indicating 'very worried/concerned'. Before revealing the results of the questionnaire, a brief commentary on the quantification of risk perception is necessary. Although there have been many attempts made to develop a universal system for quantifying risk perceptions, there is no set, agreed-upon metric for combining perceptions into a single measure (Bassett, 1999, p.202). Nevertheless, this paper employs an approach that is suitable for measuring risk perceptions in this study, it utilizes a coding scheme that offers an overall perception-score as 'output' for some variables. Questions #7, 10, 11, 12, 14 and 18 also probes environmental-risk perceptions on the following subjects: fear of contracting environmentally-related illnesses, concern about the effects of local air pollution on health, concerns about exposures to harmful substances within the home, concern about environmental risks in general, seriousness of chemical pollution and, concern about food and drinking water (respectively). A possible score of 300 (50 x 6) could have been obtained as the highest total score for each neighbourhood. Higher scores indicated heightened levels of perceived threat. Accordingly, Rosedale-Moore Park scored a total of 133 out of a maximum 300. East York-Danforth Village obtained a score of 152 out of 300. Finally, Regent Park scored

222, the highest of all neighbourhoods. A full breakdown of all questions and their associated responses can be found in the Appendices below.

3.3: Perceived Level of Control over Environmental Health Risks

The level of control that an individual feels they have over their environment can heighten or attenuate perceptions of risk (Renn & Rohrmann, 2000, p.26). It was in this vein that this study decided to examine how three different neighbourhoods would manifest feelings of control on environmental risks/hazards. The following data was important in terms of determining a relationship between individual perception of control and manageability of environmental risks/hazards. Furthermore, Question #13 on the questionnaire probed this matter to some extent and found the results to be satisfactory. The question ultimately asks: to what extent do participants feel they have control (or influence) over exposures to environmental risks? Out of a possible score of fifty, where a higher score indicates higher (perceived) level of control (and vice versa), the Rosedale-Moore Park neighbourhood scored a thirty-nine out of fifty. In the East York-Danforth Village neighbourhood, the overall score was thirty-three out of fifty. Finally, in Regent Park, the final output with respect to the (perceived) level of control was twenty-two out of the maximum fifty. A detailed discussion of this topic will be presented below in Chapter four.

3.4: Perceived Neighbourhood Quality of Life

Measuring how individuals subjectively appraise their neighbourhood in terms of whether and to what degree it meets their standards for quality of life is important. Data on this variable allows for a consideration of the role of neighbourhood conditions in shaping risk perceptions. Additionally, participant responses can also engender an abstract or collective emotional state for each neighbourhood. Whether individuals are content or discontent with

neighbourhood conditions depends on the experiences they have encountered and the understandings they have developed there; participants expressed these prevailing attitudes on a variety of questions that linked participants' own feelings and experiences to neighbourhood living.

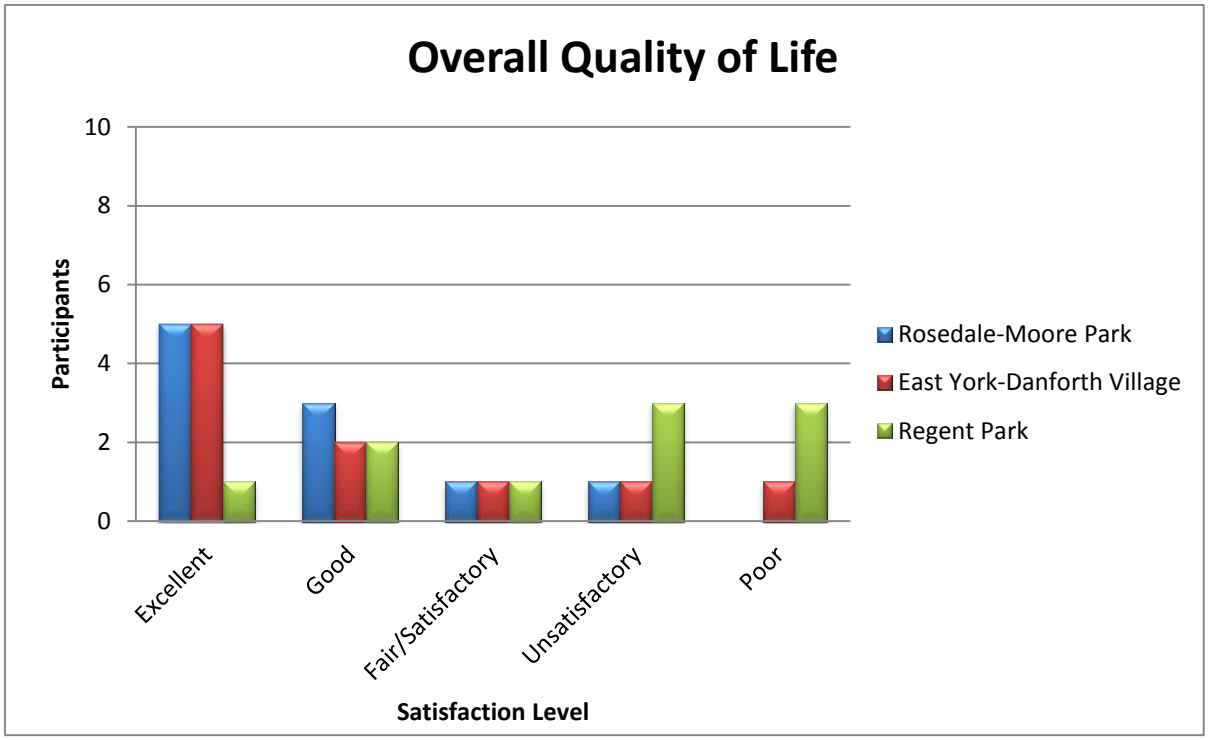


Figure 4 Question #1, Section#3 (above)

As far as 'quality of life' is concerned, the response was skewed more towards 'excellent' and 'good' for the Rosedale-Moore Park and East-York Danforth Village neighbourhoods. On the other hand, participants in Regent Park reported more 'unsatisfactory' and 'poor' results in relation to quality of life in their neighbourhood. Question #3 of Section 3 also asks respondents' about their intentions of staying in the neighbourhood or relocating; in Rosedale-Moore Park, six participants reported they would stay in their immediate neighbourhood, three individuals would relocate and one participant was unsure. In East York-Danforth Village, six participants would stay in their current residence, two would relocate and two others were unsure. Finally, in Regent

Park, three individuals reported that they would remain in their current location, six individuals would move to another area and one participant was unsure. Though, some Regent Park residents were conflicted about relocating because they enjoyed the social life associated with the neighbourhood. Consider the following quote from a Regent Park resident:

> *I like this neighbourhood…I have good friends here and my children also. I just don't like the place I am living in, it's too old and not in good shape.*

Furthermore, Question #5 of Section 3 inquires about the practicality of raising children in the respective neighbourhoods. Out of ten participants in the sample, six Rosedale-Moore Park residents stated that it was a 'very good' neighbourhood and two others reported it as 'fairly good'. Five participants in East York-Danforth Village reported their neighbourhood as a 'very good' place to raise children and another three stated 'fairly good'. In Regent Park, participants were a little more critical of their neighbourhood as a place to raise children. One individual reported the neighbourhood as a 'very good' place to raise children, one 'fairly good', three 'neither good nor bad', two 'not very good', and three participants branded their neighbourhood as a 'not good at all' place to raise children.

Quality of life (in the neighbourhood) is also associated with enjoying the various aspects of the place where an individual lives. Therefore, the questionnaire (Question #8 in Section 3) also probed the amount of time and energy residents devoted to outside activities like taking a walk, jogging, etc. Four participants in the Rosedale-Moore Park sample conveyed that they made time to go outside on a 'daily' basis, and three individuals said '2 to 3 times a week'. In East York-Danforth Village, four individuals stated that they voluntarily spent time outdoors on a 'daily' basis, two other residents stated '2 to 3 times a week', and two others at least 'once a week'. Furthermore, the level of enthusiasm to voluntarily spend time outdoors in the Regent

Park neighbourhood was not as lively as the other two. Only two individuals stated that they voluntarily spent time outdoors on a 'daily' basis, three individuals stated '4 to 6 times a week, two said 'once a week' and two others stated that they 'never' go outside unless they have to. A Regent Park resident conveyed that she felt unsafe about her neighbourhood:

> *To be honest with you, I don't feel very safe when I'm alone outside. Especially at night, I avoid going out altogether…This area is very unpredictable.*

Question #15 from section 3 inquired about how much bearing environmental conditions have on participants' decision to spend time outdoors in their neighbourhood. Out of a possible score of 50 (higher score indicating a greater bearing on decisions to spend time outside), Rosedale-Moore Park scored 21, East York-Danforth Village scored 25, and Regent Park scored 36. Question #16 from section 3 inquired about the physical appearance of the neighbourhood, out of a score of 50 (higher score indicating a high level of satisfaction and vice versa), Rosedale-Moore Park scored 42, East York-Danforth Village scored 34, and Regent Park scored 21. It was important to examine how residents felt about social issues in their neighbourhood as that could also shape perceptions about their environment. Residents were asked how serious a concern are social problems (i.e. racism, violence, poverty, etc.) in their neighbourhood (Question #17 Section 3). Out of a possible score of 50 (higher scores indicating higher concern, and vice versa), Rosedale-Moore Park scored 14, East York-Danforth Village scored 30 and Regent Park scored 43. A personal sense of belonging to the neighbourhood was important to examine as it may provide insights into the social cohesion/relationships (or lack thereof) that may exist in the neighbourhood. Question #6 from Section 3 inquired about this experience, out of a possible score of 50 (higher score indicating 'stronger sense of belonging', and vice versa), Rosedale-Moore Park scored 35, East York-Danforth Village scored 38, and Regent Park scored 31.

3.5: Evaluating Self and Collective Health Status

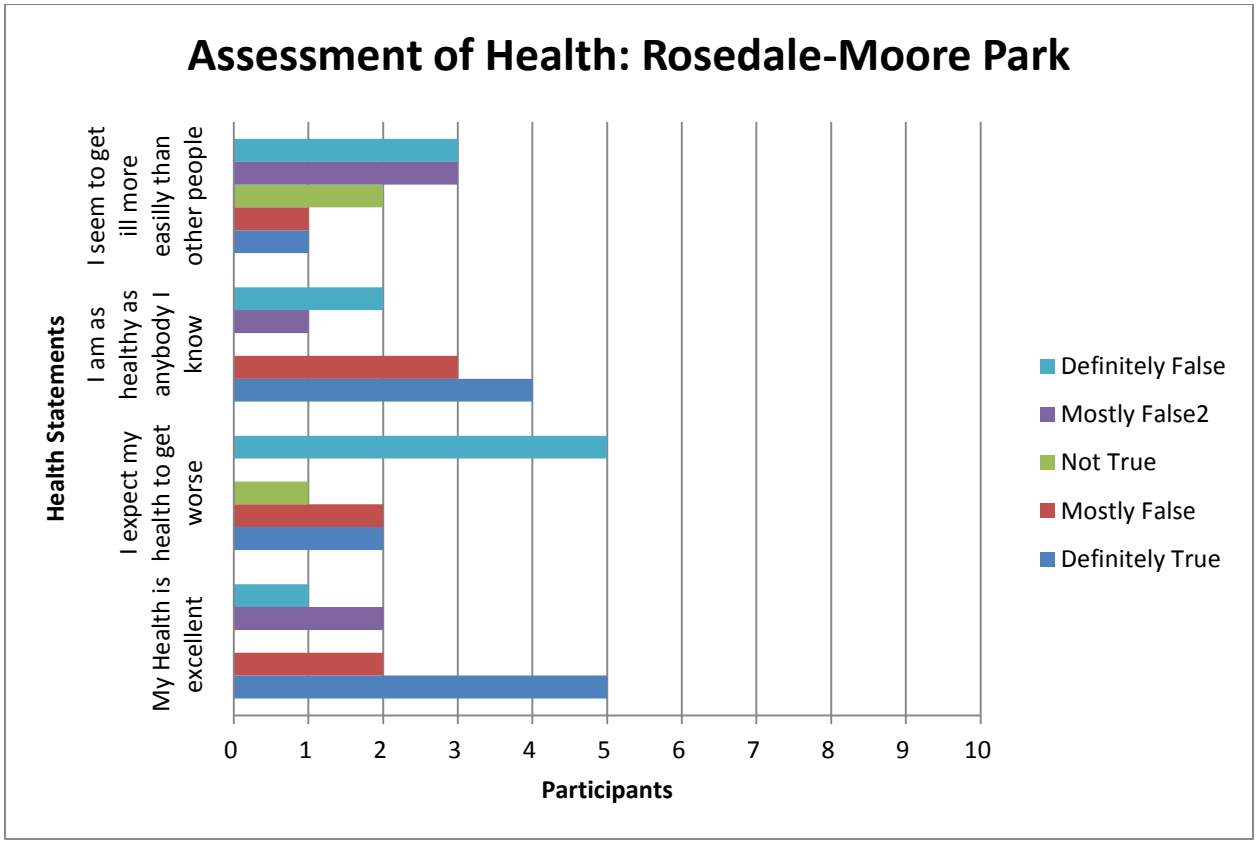
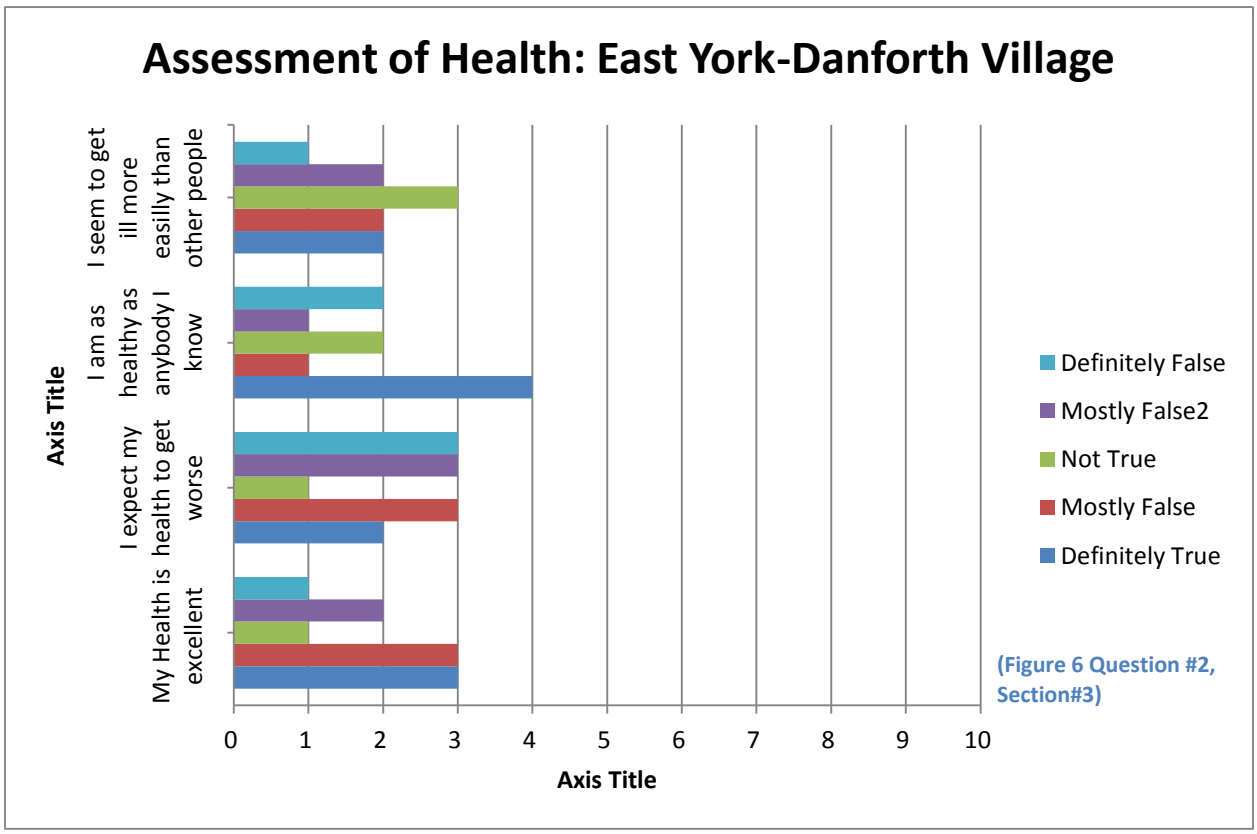


Figure 5 Question #2, Section#3 (above)



(Figure 6 Question #2, Section#3)

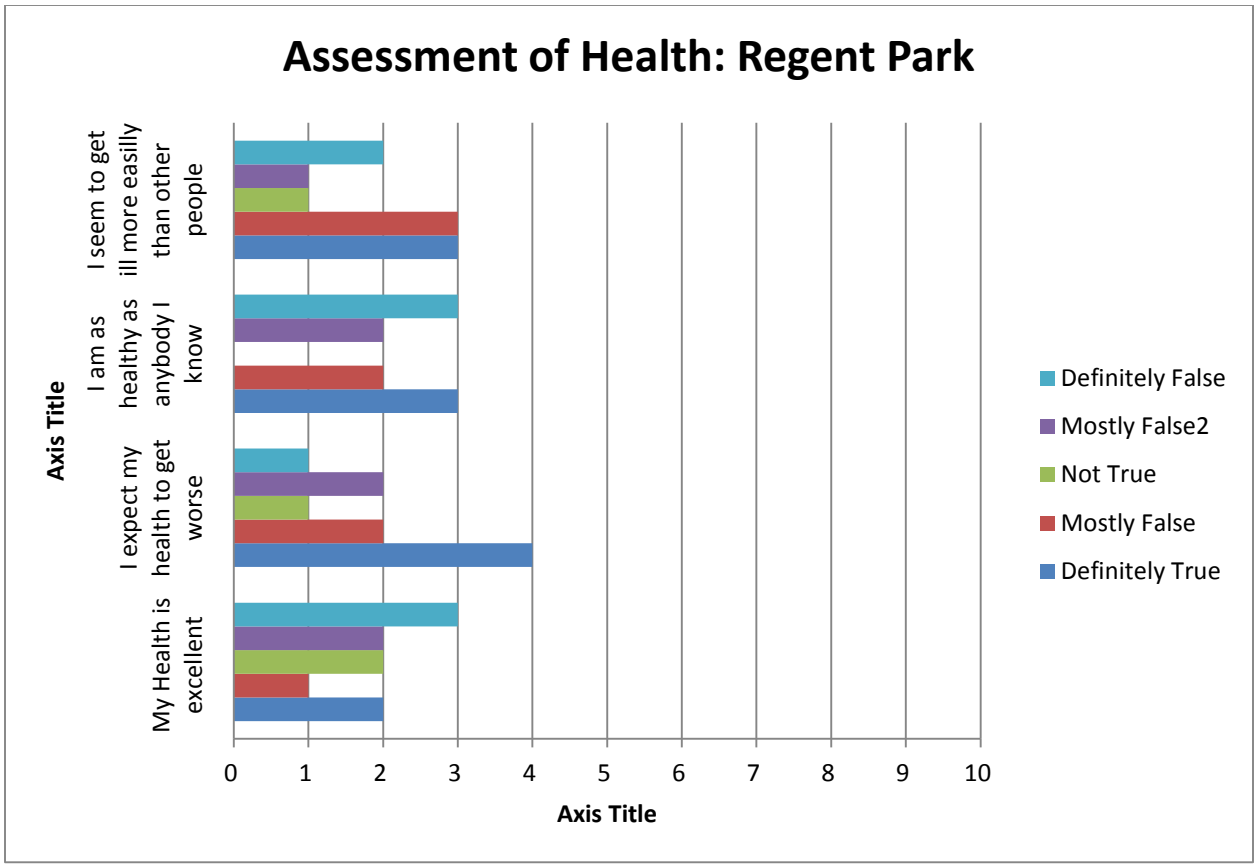


Figure 7 Question #2, Section#3 (above)

Figures #5, 6 and 7 illustrate that there are varying views on how personal health is perceived in relation to others in their surroundings. In the Rosedale-Moore Park neighbourhood, there seems to be a more positive attitude toward personal and collective health, rather than an attitude of alarm and pessimism. On the other hand, the other two neighbourhoods do not exhibit the same level of confidence as far as health outcomes are concerned; they are almost equally divided about whether their health is changing for the better or worse.

3.6: Awareness of Neighbourhood Environmental Issues

Awareness of local environmental issues is important to examine because it suggests that residents possess either a good understanding of environmental threats or, on the other hand, a poor understanding of their surroundings, which may make them more vulnerable to

environmental-risks. Accordingly, residents were asked how informed they felt about potential environmental issues in their neighbourhoods (Question #19 in Section 3). Out of a possible score of 50 (higher scores indicating increased levels of awareness), Rosedale-Moore Park scored 24, East York-Danforth Village scored 24, and Regent Park scored 20 out of 50. It is clear that there does not appear to be much of a significant difference between the three neighbourhoods. Although there was much divergence between some other variables in the study thus far, all neighbourhoods are more or less in agreement that they lack awareness when it comes to environmental issues in their localities. Likewise, the subsequent question is constructed such that it addresses the previous question and attempts to build on the results accrued therefrom. Residents were simply asked whether they wished to be given more information on potential environmental issues in their neighbourhood; in Rosedale-Moore Park, seven individuals stated they would like more information versus three who said it was adequate the way it is; in East York-Danforth Village, eight respondents stated they preferred more information versus two who said it was sufficient; in Regent Park, the same results were echoed from those in East York-Danforth Village.

3.7: Attitudes on Political Efficacy and Expert Opinion

Participants were asked (in Questions #21, 22, 23 from Section 3) to report on their general attitudes toward: political trust, confidence in public officials to regulate environmental hazards, and qualification of experts (i.e. evaluating their competency levels and/or the amount of credibility given to experts when it comes to identifying, evaluating and estimating environmental and health risks). Residents were asked (in Questions #21) how confident they felt in the municipal government's ability to regulate environmental conditions harmful to human health. Out of a possible score of 50 (higher scores indicating higher levels of confidence),

Rosedale-Moore Park scored 40, East York-Danforth Village scored 27, and Regent Park scored 22. Question #22 focused on participants' perceptions about experts and their capabilities in disentangling environmental risk uncertainties. Out of a possible score of 50 (higher scores indicating higher qualification levels assigned to experts, and vice versa), Rosedale-Moore Park scored 40, East York-Danforth Village scored 41, and Regent Park scored 39. Question #23 involved the notion of 'trust' in experts/officials in terms of providing correct and relevant information to residents regarding environmental risks. Out of a possible score of 50 (higher scores indicating higher trust levels, and vice versa), Rosedale-Moore Park scored 43, East York-Danforth Village scored 41, and Regent Park scored 41.

Moreover, Questions #24, 25, and 26 of Section 3 address neighbourhood perceptions regarding expectations from public institutions; specifically, the notion of inclusion and multi-level participation in policy matters is focused upon. Questions #24 is in regards to the level of lay-input acknowledgement when governments make environment-related policy decisions. Participants were asked: to what extent they felt government agencies/policymakers listened to and heeded input from the general public before making environmental policy decisions. Out of a possible score of 50 (higher scores indicate a positive attitude, meaning respondents felt that policymakers do in fact heed public advice, and vice versa), Rosedale-Moore Park scored 25; East York-Danforth Village scored 33; and Regent Park scored 21. Questions #25 explicitly asks whether participants are in favor of having policies designed exclusively according to the environmental conditions that characterize a neighbourhood. Out of a possible score of 50 (higher scores indicating more in favor, and vice versa), Rosedale-Moore Park scored 35; East York-Danforth Village scored 41; and Regent Park scored 41 as well. Finally, Question #26 focuses on equality of opportunity when it comes to input in city-wide environmental policy

decisions; the question asks to what extent participants agree that each neighbourhood should be given equal opportunity. Out of a possible score of 50 (higher score indicating higher levels of agreement, and vice versa), Rosedale-Moore Park scored 41; East York-Danforth Village scored 43 and Regent Park scored 39.

3.8: Future Projections on Neighbourhood Trends

Participants were asked to give their perspectives on how neighbourhood conditions will be defined in the future. Perception on the future neighbourhood (where evaluation is based on current trends) is important to measure because it is telling of optimistic or pessimistic outlooks. Nevertheless, participants were asked to provide their outlooks on a five-point scale ranging from 1 (get much worse) to 5 (get much better); the question read (Question #27 from Section 3): how would you describe the quality of the environment in your neighbourhood over the next five years? Out of a possible score of 50 (higher score indicating optimistic view, and vice versa), Rosedale-Moore Park scored 35; East York-Danforth Village scored 32; and Regent Park scored 32. Based on the following projections, it is fair to say that all three neighbourhoods are optimistically-cautious because the future is not fixed by any means and individuals understand that now more than ever. As one resident put it in Regent Park:

> *The future for this neighbourhood looks good especially when you consider the revitalization that is taking place. But, how can we know for sure that things will change for the better for everyone. There is no guarantee.*

As the results show, environmental-risks and local responses to it are complex and uneven. The next chapter will attempt to analyze these response differences in light of the theories discussed in Chapter one.

Chapter Four: Discussion and Analysis

The place-oriented nature of this research reveals that spatial relationships and the perception of space are not consistent across all areas of the city. The results of this study suggest that making generalizations about urban life as if it were a single homogeneous whole whose structures, existence and experiences were all similar is, perhaps, misguided. Furthermore, quantitative and qualitative findings illustrate that there are underlying differences between neighbourhoods, especially in the way they perceive and understand their environments. At the same time, the data also points to some unanimity (in perception) within and between residents that share the same neighbourhood. Moreover, there are no definite criteria yet established for ascertaining why such differences in perception exist, however there are theoretical mechanisms which guide how they should be interpreted. In explaining these differences, researchers have identified several factors that at times act independently, but, for the most part in concert with other factors to shape risk perceptions (Siegrist & Sutterlin 2014; Slovic, 2000; Xie et al., 2011; Slovic, et al., 2004; Bickerstaff 2004; Slovic & Slovic, 2010; Xie et al., 2013; Sjoberg, 2000). A wide range of perceptual patterns have been observed in studies on different populations with distinct contexts. Each study offers an interesting approach to analyzing the causes and effects judgment processes. This study has sought to further insight into the underlying mechanisms that shape perceptions on neighbourhood identity, quality of life and political engagement. Attitudes toward environmental-risks evolve within a socio-spatial context, however, these attitudes are likely not independent of broader social, institutional and subjective contexts.

Socioeconomic Status (SES)

As alluded to earlier, discrepancies in risk judgments are driven by a host of complex contextual factors, and often intertwined with politics, economics, technology, social structures,

geography and other macro-level processes. One such dynamic that has been theorized to affect risk perception is the relationship between socioeconomic-status (SES) and attitudes toward risk profiles. In this study, SES takes into account education, income, and occupation as one combination; these variables are combined to represent one of three values: high, middle or low. Socioeconomic status has been a recurrent theme in contemporary debates regarding how individuals and social groups perceive the risks they encounter, or may encounter in the future. For example, Flynn, Slovic, and Mertz (1994) suggest that lower socioeconomic-status tends to be highly linked with heightened levels of perceived risk (p.1106). Similarly, other studies have concluded that "higher income, education and homeownership rates have been linked to decreased risk judgements…" (Rossetto, Joffe & Solberg, 2011, p.292). Results obtained from this study seem to corroborate these earlier research findings— associations mentioned above were found in both neighbourhoods (i.e. those with a low SES reported higher levels of perceived risk and those with a high SES reported lower levels of perceived risk). Before proceeding further, it is important to note that quantitative and qualitative outcomes from this research are merely intended for comparative purposes between neighbourhoods (under study) and do not necessarily prove cause and effect relationships between variables and/or events in general. Moreover, with respect to neighbourhood socioeconomic-status stratum, Rosedale-Moore Park (High SES) was 30% more likely to downplay environmental-risks emanating from air pollution, indoor substances, chemical pollution and overall exposure to environmental health risks than in Regent Park (Low SES) (expressed in Questions #7, 10, 11, 12, 14 and 18 in Section 3). Moreover, as one Rosedale-Moore Park resident stated:

> *I moved here so that I don't have to worry about these types of issues* (a reference to risk-producing processes that may lead to negative health outcomes).

Another resident from the same neighbourhood added:

> *This neighbourhood is seen as a very livable place, and it truly is, but not everyone can afford to live in upscale neighborhoods. So I consider myself very fortunate and lucky to be able to call this area home.*

The excerpts expressed by Rosedale-Moore Park residents (above) is interesting because it suggests that spatial preference is relatively unconstrained through expressions of socioeconomic agency. Furthermore, the comments imply that willingness to live in a specific neighbourhood is strongly influenced and shaped by factors such as socio-economic status. Likewise, in this neighbourhood, expectations of environmental security are perceived to be higher because individuals feel that they have direct control, through voluntary space selection, over conditions that affect health outcomes. In essence, security from exposure to harmful environmental conditions is almost seen as a luxury that can only be purchased by some but coveted by all. Socio-cultural theories of risk perception have come up with new insights and a wealth of empirical evidence to explain these results. Socio-cultural theories of risk posit that a lower socioeconomic-status corresponds to higher levels of perceived risk. Part of this is due to the fact that individuals with lower income levels allocate proportionally more of their household budgets on items of necessity; therefore, they cannot afford to be neglectful of dangers in the environment. In view of this supposition, a resident from Regent Park stated the following:

> *I worry all the time about getting sick, I am the only person that works in my family. I am the main provider…I work long hours so that I can support my wife and kids, to put food on the table is a big responsibility.*

In this case, constant reminders of family needs and expectations result in selective attention to potential health and environmental hazards. Continuously reflecting about preconceived notions of illness as well as its implications on accrual of resources reinforce the idea that risk-exposure is an impediment to fulfilling familial needs. Pilisuk and Acredolo (1988) have suggested,

through their own research, that those with lower levels of income tend to report higher dread or concern levels about risks; similar to the Regent Park resident who is constantly worried that he might contract an illness (which may or may not be environmentally influenced).Accordingly, Homer-Dixon (2006) states, higher socioeconomic groups do not have to concern themselves with securing basic amenities such as safe drinking water, food, housing, etc. (p.134). Instead, they become more involved in health and safety programs to protect against unnecessary risks; this is driven by a need to eliminate hazards before they develop into major or serious health risks. Because of the amount of time, energy and resources required for individuals to pursue more health-promoting lifestyles—that is, to enhance their own quality of life by eliminating unnecessary risks, lower socioeconomic groups are often unable to secure environmental goods necessary for reducing environmental-risks (Shrader-Frechette, 2002, p.186). Moreover, individuals' socioeconomic background may influence how they perceive illness, the causes of those illnesses, their capacity to cope with illness and their belief systems about remedying perceived health issues.

> "[P]ersons of higher socioeconomic status possess a wide range of broadly serviceable resources, including money, knowledge, prestige, power, and beneficial social connections, that can be used to one's health advantage. These resources directly shape individual health behaviors by influencing whether people know about, have access to, can afford and are motivated to engage in health-enhancing behaviors" (Phelan et al., 2004, p.267).

The following quote demonstrates how access to informative personal networks can have a positive impact on the relationship between perceived risk and strategic planning.

> *I try to keep informed about certain health issues in general. One of my neighbors is a doctor, he also happens to be a good friend of mine…If there is an issue that I should be concerned about, he is quick to bring it to my attention. The other day he was telling me about forecasts for the summer and they are expecting a hotter than usual summer, so I am trying to figure out how I will deal with it.*

Being aware of an event before it actually occurs can alleviate some of the mystery associated with its development. Perception of risk may also be attenuated if protective measures are adopted in anticipation of risk manifestation. Sometimes, risks are easily perceived and effective interventions are adopted to avoid exposure to them. However, intervention measures to avoid or reduce risks are dependent mostly upon knowledge of the risk and resources required to achieve an acceptable standard of security. For example, cold temperatures associated with winter can pose health risks for some individuals, however there are very few options available for the vulnerable. One of the options, as expressed by the Rosedale-Moore Park resident is to escape it altogether:

> *I can't handle the cold Canadian winters anymore…I get sick very easily when temperatures start to fall. We have a second home in the US. My husband and I leave for Florida five to six months every year to escape the winter. But I love the warmer temperatures in Toronto, plus we have family here. (Rosedale-Moore Park Resident)*

By contrast, a risk can also be perceived to be the direct cause of a particular distress; however, due to economic constraints and lack of available resources to negotiate the circumstances of the immediate environment, perception of that particular risk is likely to be intensified as it serves a constant reminder of one's powerless position. In other words, it is likely that a heightened perception of risk is mutually reinforced by an inability to finance management options and a strong belief that there exists a health risk in the immediate environment. For instance, a participant in the Regent Park sample attributed the poor air quality in the area to her son's health condition:

> *I have a seven year old son who was diagnosed with asthma a year ago. He didn't have it before we moved here and I am afraid that my daughter will also become sick like him. I want to move but I don't have any options right now.*

The sense of powerlessness and frustration conveyed by the Regent Park resident is directly associated with limited economic, technological and sociopolitical means to exercise any decisive control over spatial arrangements. Burch and Robinson (2007) illustrate this point very clearly when they assert, " disadvantaged groups possess much less power in their sociopolitical surroundings, and thus have less reason to believe that they can control or recover from a risk" (p.312). Liu (2001) corroborates this contention and suggests that lower income groups stress more about exposure to risks because of their perceived lack of control, in this regard due to a financial inability to exercise management options (p.200).

Role of Education

Nevertheless, income is not the only determinant of environmental-risk perceptions. However, it is fair to assume at least in part that income, education and occupational classification "are probably interrelated variables since higher levels of income are usually associated with more education and more education leads to professional job experiences" (Slimak & Dietz, 2006, 1702). Although each variable is likely to be interrelated with the other two, it is perhaps useful if education was briefly analyzed in isolation. Studies have demonstrated that education levels have an important influence on individuals' cognitive and behavioral attitudes toward risks (Lemyre et al., 2006; Savage, 1993; Pilisuk & Acredolo, 1988). Furthermore, in the context of this research study, analyzing risk perceptions against education levels provide interesting set of insights. In this research survey, participants were asked about their education levels so that comparisons can be made between neighbourhoods in relation to how they processed risk constructs as a collective. Rosedale-Moore park residents reported the highest levels of education; with 60% of the sample reporting a post-secondary degree (compared to East York-Danforth Village with 50% and Regent Park with 20%). In both the

Rosedale-Moore Park and East York-Danforth Village neighbourhoods, education levels (*Question #5 in Section 1*) seem to be inversely related to the levels of concern/priority (*Figure 1 and Figure 2*) expressed toward environmental-risks/hazards; the higher the education levels, the lower concern expressed. In contrast, this seems to operate in reverse in the Regent Park neighbourhood; concern and priority assigned to environmental-risks/hazards tend to be high, whereas education levels are extremely low.

Some studies have found that "education is the most influential social-structural variable" in determining environmental-risk perception (Slimak & Dietz, 2006, 1701). In the research conducted by Slimak & Dietz (2006), education was, similar to this study, also found to be useful in establishing a context for understanding the relationship between risk/hazard items and attitudes toward them. The inverse relationship between educational attainment and perceived level of risk can be explained with evidence from empirical findings. First, higher levels of educational attainment suggests a better understanding of (environmental) risks, that is, of how they are produced, how they may impact wellbeing, and how they may manifest themselves. Therefore, having general knowledge about the processes of risk enables individuals to constructively express their assessment of problems, needs, and preferences moving forward (Dosman, Adamowicz & Hrudey, 2001, p.309). A broad understanding of the relevant losses, harms, or consequences that may result from exposure to environmental-risks may influence educated individuals to intervene where it is necessary to protect personal (or even) public interests. In essence, understanding the interconnectedness of environmental-risk factors may influence the likelihood of adoption of intervention strategies and therefore lead to psychological adjustments (or attenuation in the level of perceived risk). In other words, the risks become more salient and understood within a personal context.

An example of this was observed in an account of one of Rosedale-Moore Park's residents:

> *For a long time, we used tap water for drinking, cooking and food preparations. But then I started hearing of 'boil water advisories' in the news…I didn't want to take any chances with the water here in Toronto so I had a water filtration system installed in the home. Now I have one less thing to worry about.*

This Rosedale-Moore Park resident decided to take action before any risks from water contamination materialized. There is an implicit understanding that contamination of tap water can pose a health risk to those using the water (self and family members), and that the risk may be limited if a filtration system is installed to effectively remove any contaminants in the water supply. At the same time, socioeconomic-status also appears to contribute to the likelihood of an individual being able to procure risk-reducing apparatuses. Moreover, in a study that sought to investigate the 'value of safety' through willingness-to-pay (WTP) stratagem, McDaniels, Kamlet and Fischer (1992) discovered that the higher the household income, the higher is the probability that the household would be willing to pay (for mechanisms) to avoid or mitigate potential risks. Once again, it appears that socioeconomic factors such as household income, occupational arrangements and education are intertwined in exerting influence on risk perceptions.

Nonetheless, another aspect to consider in incorporating 'education levels' in research is the sense of *autonomy* it offers to individuals. It may provide a secondary reason for evaluating the effect education has on environmental-risk perceptions. The proverb "education is power" is familiar to a lot of people and it is generally used as a motivating tool to encourage 'higher-order' thinking, however it may also have direct implications on risk perception. Drawing on Julian Rotter's *locus of control theory* which posits that,

> "those with strong internal control believe that it is by their own efforts and talents that they will succeed and those with strong external control believe that any success

> or… [misfortune] is down to luck or other external factors…" (Bartlett & Burton, 2007, p.108).

It is conceivable to think that personal bias is elicited in those with a strong locus of internal control (highly educated individuals). Feeling of control may be elicited because educational training and academic achievement is regarded of as a tool for effective decision-making. It is possible that those who acquire more education are generally more inclined to consider themselves more intelligent and therefore less likely to become victims of circumstance. Higher education levels may serve as a pretext for validating more favorable outcomes. It is easy for individuals to equate high educational attainment with forward thinking and vision, rendering themselves 'too smart' or infallible as far as environmental-risks are concerned. Additionally, a study on Canadians' perceptions on health risks found that "college-educated respondents were less likely to rate a risk as high compared with high school graduates" (study cited in: Dosman, Adamowicz & Hrudey, 2001, p.309). In the aforementioned study, it is apparent that the higher the educational attainment of the group, the lower the level of perception for risks, which is identical to the results observed in this study.

Locus of Control

In this research survey, there is a positive relationship that emerges when education, and 'perceived level of control over environmental health risks' are analyzed concurrently. Perceived level of control refers to the extent to which an individual feels they can influence the outcome of a situation (or potential situation). Participants' perception of control was measured using a five-point Likert scale (1 for 'very little control' and 5 for 'very high control'), the results were tallied to represent an overall measure of perceived control for each neighbourhood. Unsurprisingly, the Rosedale-Moore Park sample exhibited a higher level of perceived internal

control when compared to East York-Danforth Village and Regent Park neighbourhoods. In particular, the lowest average sum score belonged to Regent Park, (2.2 out of 5; lowest of all groups), meaning participants in the sample perceived 'little' control over environmental risks. A Regent Park resident expressed how little control she had of her situation:

> *Sometimes I feel like nobody listens to us or wants to listen to what we have to say. When you approached me I was hoping you would be someone from the government so that I can tell them about my problems. I have mold growing in my home and I have reported it to the super* [building superintendent] *but in three months only once someone came to look at it and that was it. I am still waiting…*

Another Regent Park resident (from the same housing complex) proposed a community organization as the only means by which to draw attention to their neighbourhood's most pressing needs:

> *A lot of people from this area have been moved to other places* (participant is referring to the relocation program as part of the revitalization project in Regent Park). *My sister was given a new apartment in Jane and Finch, she wants to come back but they are not letting her. I don't want to move but I want better living conditions…I think we (*the residents*) need to come together to form a group and maybe someone will listen to us. We like this neighbourhood, some changes have to happen immediately.*

Compared to the other two neighbourhoods, the Regent Park neighbourhood conveyed a sense of powerlessness and uncertainty about life in the neighbourhood. For example, participants in the Regent Park sample found it particularly threatening (at first) to even share their motivations out of fear that the research was being conducted on behalf of the Toronto Community Housing authorities. Since the majority of the sample was part of the social housing program, many were afraid of losing their rent-to-geared-to-income (RGI) status or relocated to undesired locations if they were somehow perceived of being critical of management. Nevertheless, some residents were cognizant of the fact that their mismanaged concerns would not be alleviated unless there is some form of internal collaboration. However, in the midst of these real-life experiences and the

nature of ongoing transformation that is taking place, there is an underlying conflict between the degree of economic development of the area and the future state of the neighbourhood. What exacerbates this situation further is a pervasive sense of incomplete control over future living arrangements, with the prospect of not returning to Regent Park if relocated elsewhere in the city.

> *We've been told that we are going to be relocated* (as part of the revitalization process) *but they haven't told us where to yet. I want to stay in this neighbourhood because my doctor is here and my children go to school very close to here. But if it is a better house, I might take it.*

By not being able to determine the future residential location of their choice (as a result of decisions made by authorities acting on behalf of the neighbourhood as a whole), it creates an undertone of frustration and a sense of uncontrollability/vulnerability for anxious residents waiting to be relocated. Residents feel that current neighbourhood conditions affect their physical health, mental well-being, and ability to live a normal life. Residents also recognize that the future state of the (Regent Park) neighbourhood will be considerably different from the present; however, residents exclaim that current conditions are unsatisfactory and need to be improved considering that they still have to reside in their current home for another year or two.

> *Look at this neighbourhood…everything is changing for the better for other people in the neighbourhood…but no one seems to care about this stretch of area…you would think with all these new developments they would also look to make some improvements in these homes for the meantime. The plumbing is failing in most of these homes, there is always a smell in the hallways and inside the homes, I've had leaks coming from the ceiling…*

According to the 'psychometric paradigm', response to risk is also regulated by various psychological factors such as whether an activity is perceived to be voluntary, how controllable the conditions are, familiarity with the situation, and knowledge about the circumstances

(Fischhoff, Slovic, Lichtenstein, Read & Combs, 1978). In addition, these psychological factors either heighten or mitigate risk perceptions depending on the level of controllability, voluntariness, familiarity and or knowledge an individual believes they have in a given situation. For example, if individuals believe they have relative control over events in their life, it is likely that those "individuals are easily led to believe that they have control over risks, a belief that in turn heightens their optimism" and acceptance of potential future outcomes (Hanson & Kysar, 2001, p.244). However, the opposite also holds true: risks that people perceive they have little control over are most likely to cause stress, therefore heightening the perceived seriousness of the threat. In addition, these 'uncontrollable' and "involuntary' risks are less acceptable to individuals and more strongly resisted. In Regent Park, a neighbourhood that has been historically defined by low socioeconomic-status and its affordable housing provisions/initiatives, it is not surprising that individuals feel extremely frustrated and "stuck in a bad situation" according to one resident:

> *When I applied for housing, the first place to be available was here. I took the offer because you have to wait sometimes 2, 3 or 5 years before another place is available. And you know all housing is like this…I am stuck in a bad situation but I hope I get a good home after everything is changed* (resident referring to revitalization).

Many residents occupying social housing units have chosen to live under the conditions to which they have reluctantly agreed upon. Residents have had barely any choice in determining where they would reside or the conditions that would have to be met, both internally and externally. In other words, due to transitionary challenges (for immigrants), harsh economic realities, lack of individual 'capital' (i.e. language, skills, etc.), residents have had to cope with living conditions out of necessity. As a result there is a very pervasive sense of subjection to the will of others, especially considering when mobility and controllability of residential choice is undermined in

Regent Park. Consequently, it is anticipated, according to the psychometric paradigm and other risk theories, that perceptions of risk would be significantly higher, less accepted and considered mismanaged by responsible authorities in the Regent Park neighbourhood. In contrast to Regent Park, a different undertone was detected among residents in East York-Danforth Village and Rosedale-Moore Park neighbourhoods. For example, the topic of air pollution came up in a discussion with a resident from East York-Danforth Village; this was his take on the matter:

> *I don't think it's much of an issue, some people make it out to be a very serious problem, I don't see it that way. The way I see it is that there are a million things in the air that can cause you problems, we live in Toronto…one of the biggest cities in the world, look at the population, the amount of cars, people…we have to accept the facts…thankfully it's not too bad here…but you can't escape it, air is like this everywhere now.*

Commitment to Place

Participants were examined (Q#1 S3) on how they assessed the overall quality of life in their neighbourhoods—that is, overall satisfaction with life, contentment with current life conditions, and the like. Figure 3 illustrates that residents in Rosedale-Moore Park and East York-Danforth Village were more likely to weight 'excellent' or 'good' properties in judging their overall quality of life in their neighbourhoods when compared to residents in Regent Park who were more likely to state that they had a 'poor' or unsatisfactory' quality of life in the neighbourhood. Furthermore, residents in Regent Park were 50% more likely to report that they would relocate to a different area compared to the other two sample who wished to remain in their current locale (Q#3 S3). Moreover, perceived physical or overall appearance of the neighbourhood (Q#16 S3) was significantly associated with assessments of overall quality of life; with Rosedale-Moore and East York-Danforth Village reporting high and satisfactory levels of satisfaction with overall appearance of their neighbourhood (respectively) and Regent Park

conveying unsatisfactory results. Risk research over the years has attempted to delineate why some individuals are relatively content with local environmental conditions and others not so much. Moreover, there is some evidence which suggests that the effect might be mediated by what is called a "'neighbourhood halo effect' in which some individuals show reluctance to attribute" negative qualities to their home or surrounding area (Bickerstaff and Walker, 2001, p.134). This positive attitude towards the immediate environmental may be due to a variety of factors, such as a subconscious desire to avoid feeling vulnerable or exposed to certain hazards as a result of location. When it comes to assessing risk to self and risk to others, risk perception research suggests that individuals have an optimistic bias towards themselves relative to others. There is a tendency for individuals to be idealistic in terms of their exposure-risk prospects, "considering themselves to be less likely than other similar people to suffer from a given hazard" (Crighton et al., 2013, p. 298). For example, a qualitative study on risk perceptions of new mothers corroborated this point, confirming that mothers (in the study) were more likely to regard risks as geographically and socioeconomically concentrated elsewhere. In other words, the optimistic bias was expressed in terms of referring to risks as if they were more densely situated/concentrated elsewhere, other than her home, her household, or her neighbourhood. The study also points out that such an attitude results from a heightened perception of control, although more specifically in the context of indoor risks compared to outdoor ones (Crighton et al., 2013, p. 309).

However, when considering why the 'neighbourhood halo effect' exists in the context of this research, it is plausible that a subtle individualistic and/or utilitarian rationale is at play here. First, it is perhaps not unwarranted to suggest that people tend to place less weight on problems they have a vested interest in. In particular, certain risks can be downplayed or disregarded

because recognizing them could prove to be unfavorable for future financial standings and/or situational stability. For example, in their study *The Effect of Risk Beliefs on Property Values: A Case Study of a Hazardous Waste Site*, McClelland, Schulze and Hurd (1990) found that there can be disagreement between homeowners when it comes to assessing a particular health risk. What is particularly interesting and relevant to this discussion is that McClelland, Schulze and Hurd (1990) discovered,

> "one group believed there was virtually no risk and the other group believed the risk was equivalent to smoking a pack of cigarettes per day. The former group is mad at the latter because they believe that the exaggerated concerns have or will lower property values (p.495).

Similarly, Fowlkes and Miller (1987) evidence these same dynamics in Love Canal, where improper disposal of hazardous waste resulted in the contamination of a neighbourhood and jeopardized the health and well-being of its residents. Soon after the contamination was discovered, there emerged two groups with different value systems and contradictory expectations about the future state of the neighbourhood. Fowlkes and Miller (1987) have grouped them into two categories: the 'minimalist' perspective and the 'maximalists'. The study found that the minimalists (devoid of any major concern) were characterized by their extended length of residence in the neighbourhood, limited social contact with neighbors and emphasis on material considerations. In contrast, the maximalists generally comprised of young homeowners with limited historical attachment to the neighbourhood, they were also characterized by their conservative "assessments of the probability of the presence of risks" due to their roles and responsibilities as parents (Fowlkes and Miller, 1987 p.60). Moreover, attitudes toward environmental-risks are not primarily informed by economic, familial or any other independent consideration. Further, such factors do not operate alone to engender monolithic viewpoints,

rather they act as a mediator which helps shape or inform a particular perspective (Fowlkes and Miller, 1987, p.61).

Responsibility, Investment and the Family

Although there are no known reports of acute environmental contaminations within the three neighbourhoods explored in this study, it is useful to examine the minimalist vs. maximalist undercurrents that may influence environmental-risk perceptions. In Love Canal, the heightened concern for children's health served as a pretext for parents' persistence on relocating to a non-contaminated area. Potentially negative implications for children's future health and the need to protect them from current environmental-risks characterized parents' as belonging to the maximalist group. Furthermore, this paper contends that parents' attitudes toward risks may also be mediated by their caregiving responsibilities and neighbourhood environmental conditions. Burdette and Whitaker (2004) suggest that parents' perceptions on the neighbourhood's physical environment affects whether or not they partake in outdoor activities with their children:

> It may be the parent's perception of neighborhood safety that primarily determines if a parent brings their child to a playground. These perceptions may be based more on aspects of neighborhood disrepair (e.g., graffiti and concentration of vacant residences) than on the actual occurrence of criminal activity. (p.61).

The following quote from a Regent Park resident highlights the tension between allowing her children to play outside and the implications it may have on their wellbeing:

> *Every time they go out to play with their friends I am worried that they will touch something that they are not supposed to… people throw their garbage everywhere.*

Another Regent Park resident highlighted the improvements and additions made to the neighbourhood which eases her concerns when compared to the past.

> *It wasn't always like this…They've made some upgrades to this area, there is a play area for the children, they recently made the aquatic center. It is much more friendlier and cleaner than it was in the past…you see children playing together in the park or in the field…it's nice to see.*

Correspondingly, this study found a similar relationship in terms of participants residing with children (Q#12 S1) and the environmental quality of their neighbourhood having a bearing on decisions to spend time outdoors (Q#15 S3). For example, in Regent Park, seven participants reported living with children and six individuals reported that the environmental quality of their neighbourhood had a 'somewhat' or 'great' influence on their decision to spend time outdoors. In contrast, the other two samples reported that the environmental quality of their neighbourhoods did not have much of an influence on their decisions to spend time outdoors and they were also less likely to live with children. On a more general note, neighbourhood-wide data suggest that living with children relates highly with increased environmental-risk perceptions (i.e. Regent Park sample had the most individuals reporting that they lived with children while simultaneously reporting higher risk perceptions to environmental-risks in questions #7, 10, 11, 12, 14 and 18). For the most part, parents consider themselves as gatekeepers, deciding what their children can/should be exposed to (safe-exposures vs. non-safe exposures). That list of 'safe-exposure' items seems to be decreasing and more attention and concern is directed towards non-safe exposures. Freeman and Tranter (2011) posit that "parents now see the world as a more dangerous and more competitive place than in previous generations, a world in which children's success, or their survival, requires constant parental surveillance, monitoring, guiding, protection and stimulation" (p.25). Due to the fact that parents and caregivers see the world as a more risk-inducing place and the fact that their decisions may have negative or deleterious effects on their children, it is likely that parents feel an increased sense of insecurity in their everyday lives therefore heightening risk perceptions.

On the other hand, Fowlkes and Miller, (1987) explain that "household composition…can be understood as a shorthand reference to what families have at stake in their lives. Older people can ill-afford to believe that their emotional and financial investments in their homes are in jeopardy" (p.61). Although there is some evidence to suggest that as individuals grow older their sense of invulnerability increases and they become more accepting of risks, this study did not yield any significant findings as far as age and environmental-risk perceptions are concerned (Fischhoff, Bruine de Bruin, Parker, Millstein, & Halpern-Felsher, 2009). While household composition and the effects it may have on risk perceptions were highlighted above, it is also important to analyze the ways in which spatial dependence can influence environmental-risk perceptions. In general, minimalists "do not want to believe they are at risk, and they are quite clever at constructing arguments to explain why their risks are lower than those of others" (Weinstein, 2001, p.81). This is especially true if there is a financial commitment and/or if it involves an asset that can generate future economic benefits (i.e. owning property). Likewise, a Rosedale-Moore Park resident offered a very unique and somewhat boastful perspective of his neighbourhood:

> *People move into this area because they want peace of mind…and obviously there is a price that comes with that…it's not a coincidence that this is one of Canada most expensive areas, it offers insulation from most of the problems seen in other parts of the city.*

By associating the value of property in the area to the "peace of mind" proffered by the neighbourhood, this participant has constructed a paradigm to fit their own personal contexts; in other words, safety and superior insulation from risk only exists within the confines of his neighbourhood. What was particularly interesting was that some Rosedale-Moore Park residents would often deflect attention away from potential environmental-risks in their neighbourhood

and avoid drawing parallels between their immediate area and the rest of the city (as witnessed in the excerpt above). For example, a Rosedale-Moore Park resident stated the following:

> *I feel guilty saying this, but you will not see the kind of problems you see in places like Jane and Finch or the other areas in the city. If there is any problem in this area you can bet that it will be resolved immediately because people are very quick to report things that don't seem right to them and the city is even quicker to responding to them. It's the area, it comes with it perks.*

Political Engagement and Coping Strategies

Although this research did not explore the relationship between property relations and civic involvement, there is some evidence to suggest that "neighbourhoods most involved with City Councils are those with the most to protect; that is those in areas with higher median incomes…, higher home values…, and higher proportions of professionals (cited by Moore, 2013, p.129). Downs (1981) supports this contention and asserts that "residents who have made the largest financial or emotional investment in the status quo are normally the most active in neighbourhood organizations" (Downs, 1981, p.174). Thus, having significant assets invested in property may induce a very protective attitude towards one's own neighbourhood. In this sense, individuals become self-interested maximizers and neglectful of other processes that may challenge their worldview. Of course, it is possible that certain areas are in fact less prone to environmental disturbances, hazards and/or risk events (relative risk). Due to limited sensed/detected environmental-risk experiences, it is plausible that individuals will have lower levels of perceived stress. It may also be possible that individuals refuse to acknowledge any personal risk but are seemingly aware of environmental-risks in their neighbourhood. Thus, it is perhaps fair to argue that this fundamental difference in understanding is due to coping mechanisms employed by individuals dealing with matters of risk. Lazarus and Folkman (1984) present two coping strategies that individuals employ in response to environmental risks: they

are problem-focused and emotion-focused. Problem-focused strategies comprise of methods that seek to alleviate the situation or potentially negative outcomes. For example, certain actions or measures are taken to reduce the likelihood of an event. Emotion-focused strategies involve managing the emotions that are associated with perceived risk. Emotions-focused strategies are essentially avoidance-oriented management systems, manipulating the situation to suit a preconceived expectation for the problem. Problem-focused strategies, as opposed to emotion-focused strategies, are shown to have more advantages in terms of coping with risk. Problem-focused strategies seek to improve the situation through practical means while emotion-focused strategies are exercised to cope with an issue but without proactive interventions for change (Brannon, & Feist, 2010, p.122-3).

However, emotion-focused strategies are sometimes the only means by which suppression of risk can be attained, even if the implications of risk are well understood. For example, a Regent Park resident expressed:

> *We live right across the street (Gerrard St)…it is noisy, there is always a strong smell of exhaust and smoke…so far, knock on wood, we haven't had any serious health problems but I know it can't be good for you…it doesn't bother us too much now…we've learned to live with it...I am hoping things change for the better with all the change that's going on in this neighbourhood.*

Another Regent Park resident added:

> *We've lived through all this stuff…the pollution, the noise the violence the trash for many years…I think it will get better for us when this area is knocked down and new buildings are made…we deserve it for putting up with it for all these years.*

Regent Park residents were aware that there are certain concerns around aspects of the environment, both internal and external, that require further consideration as part of any efforts aimed at improving the neighbourhood. However, because residents felt an inherent inability to

personally change the neighbourhood environment in terms of housing, environmental exposure situations, education, welfare, and even social order, some individuals were more likely to interpret their own perceptions in a positive manner in an effort to maintain preferred psychological states. Folkman and Greer (2000) posit that emotion-based coping strategies may contribute to sustaining a sense of psychological or emotional stability. Further, this research has found that Regent Park residents (as observed in the two excerpts above) employ a future-oriented approach, envisioning a future that is better than the present. In particular, the optimism that is engendered by the revitalization project serves as a source of hope. Folkman and Greer (2000) concur that such strategies are often used to redefine future expectations:

> despite unfavorable circumstances… redefining priorities so that they are more closely allied with underlying values, and setting new and valued goals that are concordant with the new priorities…engenders a sense of purpose and meaning, a perception of personal control, and goal-directed coping. To the extent that progress is made towards achieving the new goals, it also increases feelings of mastery and control (p.14).

Future Projections: Realistic Optimism or Illusion

Furthermore, when asked to provide an assessment on the future of the neighbourhood's environmental quality, there was an overall sense of optimism in all three samples (Q#27 S3). In Regent Park, six individuals reported that they envisioned the environmental quality of their neighbourhood to 'get better' or 'much better'. In Rosedale-Moore Park, eight individuals maintained that their neighbourhood will either 'stay the same', 'get better' or 'much better' (compared to East-York Danforth village with seven individuals reporting the same sentiments). The uniformity that unites the three samples in terms of their optimistic outlook is not uncommon in other studies. Weinstein (1989) asserts that "people have an optimistic bias concerning risk" (p.1232); that is, individuals and groups "tend to think they are invulnerable" (Weinstein, 1980, p.806). In addition, it has also been observed that individuals are more likely

to exhibit overoptimistic expectancies regarding future outcomes (Chambers, Windschitl, & Suls, 2003, p. 1343). This notion is often referred to as *unrealistic optimism*, "whereby people seemingly perceive their own future as more positive than the average person's (Harris & Hahn, 2010, p.135). Furthermore, this pervasive sense of positivity often leads to confidence in what is ahead. "Questionnaires that survey Americans about the future have found the majority to be hopeful and confident that things can only improve" (study cited by Taylor & Brown, 1999, p.48). Indeed, there is no one way to address this phenomenon, for there are many explanations about the underlying causes of over-optimism. First, optimistic biases may be a result of efforts in trying to avoid feeling anxious, fearful, or worried about possibilities of harm. Second, individuals may be driven by a competitive desire to view oneself as better than others; acknowledging personal invulnerabilities may induce feelings of inferiority and disapproval of self (Weinstein, 1989, p.1232). However, this paper contends that in some unique cases, future optimism is actually realistic. This is especially true if the present state is perceived to be so dreadful that any forthcoming change would be considered an improvement from current conditions. In addition, optimism may become even more profound when it is assured through institutional commitment of resources for improving the overall conditions of life. The Regent Park neighbourhood exemplifies such a scenario; residents are beginning to witness a departure from representations of old neighbourhood life.

According to the City of Toronto, "Regent Park will be revitalized as a vibrant, healthy and liveable neighbourhood…[t]the plan will physically integrate Regent Park with adjoining neighbourhoods through the introduction of connected pedestrian-friendly, publicly owned streets, parks, and open spaces…[t]he plan encourages a mix of uses that supports a healthy neighbourhood, including facilities, parks, retail…will be a neighbourhood where residents have

a high level of security and safety and convenient access to public spaces" (Toronto City Planning, 2007, p.2). For almost a decade, residents in Regent Park have been frequently presented with information that stresses positive outcomes for the neighbourhood. Most residents have noticed the expansive view of the neighbourhood through large-scale images/models that depict the eventual, complete transformation of the area. It seems as though even if individuals feel cynical about their future prospects of living in the Regent Park neighbourhood, residents cannot help but feel a sense of optimism moving forward. A Regent Park resident:

> *I was told that I have an option of moving to an area that is a 20 minute drive from here. I am scared that I won't be given a unit once everything is built again. I heard someone was moved from the phase one site and they were told they can't return. I don't want to be in that situation, this area is going to be somewhere a lot of people will want to live in. I want to come back when I am moved.*

For Regent Park residents, optimism is not borne out of wishful thinking or *unrealistic optimism*, rather it is based on more tangible evidence of change that is already occurring. Residents can actually imagine a future beyond their current circumstances, a future that is not defined by the neighbourhood precedents of the past. This contention is supported by Slovic (1986) who asserts that "risk judgments are influenced by the memorability of past events and the imaginability of future events" (p.404). Among other things, envisioning a future that is defined by safe, reliable and environmentally sound conditions is a cause for optimism. Current residents do not want to miss out on potential opportunities afforded by the revamped neighbourhood. Ironically, while many residents are discontent with their current situations, they do not see a better alternative other than staying/returning to the neighbourhood and benefitting from its new post-revitalization features. The Regent Park case demonstrates that perceptions of place can change in response to new observations, particularly when future realities converge with new expectations. Moreover, the new environment is more readily accepted because it is more

compatible with imaginations of a comfortable life. As a result, it is likely that the revitalized neighbourhood will be considered 'less-risky' because the elements which were once considered as posing a risk will be eliminated (via reconstruction). Nevertheless, it is important to keep in mind that persistent risks, specifically those existing in the external environment, may be masked by new, well-designed infrastructure and other physical improvements; resulting in lower perceived environmental-risks among new and old-returning residents.

Seeking Information versus Needing Information

A very concerning aspect of environmental-risks is that some threats tend to evade conscious awareness, rendering most individuals to be ignorant/unsuspecting of ongoing or developing processes which may pose deleterious threats to health. Furthermore, some environmental-risks (i.e. radiation risk from radon exposure) tend to elude natural human senses, normally activated in response to danger. Neil, Malmfors and Slovic (1994) capture this point quite well:

> "Human beings have always been intuitive toxicologists, relying on their senses of sight, taste, and smell to detect unsafe food, water, and air. As we have come to recognize that our senses are not adequate to assess the dangers inherent in exposure to a chemical substance, we have created the sciences of toxicology and risk assessment to perform this function (p.198).

Brown (2014) notes that the human brain is hard-wired to react and defend against any perceived risk, especially to dangerous or threatening stimuli (p.A277). However, since a large number of environmental-risks cannot be visually detected or otherwise sensed, it is incumbent upon professional risk assessors to provide, to the best of their abilities, relevant information which the public can then act on. Accordingly, the public must also have an appetite for receiving relevant information. Therefore, it is important to understand individuals' motivations for seeking information on one hand and selectively avoiding or being indifferent to others (Turner, Skubisz,

& Rimal, 2003, p.151). For these reasons, this questionnaire survey inquired about the public's desire for more information on their environmental risk in their neighbourhood. As a precursor, each participant was asked to report on how informed they felt about *potential* environmental issues in their neighbourhood (Q#19 S3). All three samples reported very low scores on knowledge about *potential* neighbourhood environmental issues. Subsequently, the following question asked if individuals wish to be given more information on potential environmental issues in their neighbourhood; to which all three samples responded in favor of receiving more information. Exploring the role of 'information' in relation to environmental-risk is important because it offers insights into the behavioral dynamics underlying risk perceptions. O'Connor, Bord and Fisher (1999) note that

> "[e]nvironmental knowledge may increase or, in some cases, decrease perceptions of risk and thus directly relate to environmental behaviors. Or increases in knowledge may directly affect environmental behaviors by heightening a sense of awareness and obligation and by providing cues for appropriate meliorative behavior… (p.461-2).

Such a stance is rooted in the belief that informing the public (about the presence of environmental-risks) will allow individuals to not only take actions to protect against threats but also assist in effecting pro-safety choices in society. According to O'Connor, Bord and Fisher (1999), "knowing the causes of a problem and the ameliorative options should promote proenvironmental acts independent of risk perceptions and environmental values" (p.462). Other proponents of this view, for example some risk regulators and health risk communicators, maintain that outreach campaigns aimed at enhancing the public's scientific literacy will help to reduce misinformation and provide a solid basis for informed decision making (Covello, 2012, p.368). More specifically, these views propose that risk perceptions would be more accurate or more in line with expert assessments if individuals adjusted their views according to the technical information provided to them. However, Finucane et al. (2000) assert that extensive

efforts have been made to educate the public on the complexities of risk profiles and the value of risk assessment methods, yet it has "failed to move public opinion to coincide with the experts" (p.160). One reason for this failure can be attributed to a lack of appreciation of human nature. Psychological research has documented that once formed, initial judgments/attitudes about a particular object or issue structures how subsequent information is processed and interpreted. New information is considered reliable and informative if it fits in with existing beliefs and assumptions about the particular object or issue, information that is conflicting with one's initial beliefs are dismissed as irrelevant, unreliable or unrepresentative (Slovic, 1986, p.405). Consequently, the need for more human-centered and neighbourhood-specific strategies to addressing environmental-risks will be discussed in the following chapter.

Chapter 5: Policy Implications and Risk Communication

Several practical implications can be drawn from this study. Several of these implications surround the advancement of environmental-risk policies and risk communication strategies. One of the more interesting findings to come out of this research is that perceptions on environmental-risks are closely bound by locational and social positionality, and intertwined with personal experiences, values, expectations and beliefs. Researchers, policymakers and risk communicators ought to be cognizant of these subtle relationships in order to design strategies that both encourage the maintenance of safe living conditions and ensure that instruments are in place to facilitate the reduction of risks. However, in order for risk reduction strategies to have any practical value, those involved in designing them should dismiss any prejudices they may have about the recipients of those initiatives. For example, Eyles (2000) posits that "[e]xperts regard lay beliefs and concepts as distrustful, biased and irrational" (p.461), that is—experts tend to discredit lay individuals' assessments of risk because it is discrepant with their attitudes, which are normally based on statistical data and model-based probability estimations (Slovic 1993, p.226). A somewhat similar propensity, although not as dismissive, is exhibited by lay individuals when it comes to technical estimates of risk. By drawing on Anthony Giddens' and Ulrich Beck's work, Willis and Pearce (2015) contend that:

> [L]ay people are acutely aware of the fallibility of science and other forms of knowledge, both its capacity to general error and its inability to agree over causation, global warming being the most pertinent example (p.461)

As a result, mutual trust between experts and the non-expert public is essential if risk-reduction strategies are going to be effective and successful. Nevertheless, the results of this research demonstrate that confidence and trust in experts and policymakers vary among neighbourhoods, even if they are all situated within one city. Residents in Rosedale-Moore Park demonstrated

high confidence and trust in policymakers and experts while Regent Park residents reported more skeptical views on the two factions (Q#21&22 S3). This paper posits that sociopolitical factors may be particularly significant in determining confidence and trust in policymakers and experts. Neighbourhood residents that perceive themselves to be lower in the sociopolitical hierarchy may have little faith in the political system. For example, a Regent Park resident was quoted as saying:

> *No one comes here and asks: what do you need, what is the problem you're facing, how can we help…It's because there's a lot of poor people in this area, most people are on welfare or some other kind of government program…The rich make all the decisions, you know how it works?*

In addition, they may presume other groups that are higher in the sociopolitical hierarchy to be the creators, managers, controllers and beneficiaries of technologies and activities that create the risks in the first place (Satterfield, Mertz & Slovic, 2004, p.147). Greater efforts must be expended on avoiding, preventing and anticipating such contentions as they arise in different geographical and temporal settings. Perhaps a starting point for addressing these conceptual differences would be to recognize with greater interest the distinct collective identity that characterizes each neighbourhood. The greater the depth to which this collective identity is probed the better the understanding of attitudes on risk items become. Due to the fact that chronicling of experiences occurs through narratives and reflective processes, policy procedures may benefit from paying closer attention to the multiplicity of interests/voices within the city. Although such approaches are critical as part of any policy process, this paper highlights the need for more mindful listening and engaged dialogue with various neighbourhood residents, especially neighbourhoods that feel neglected.

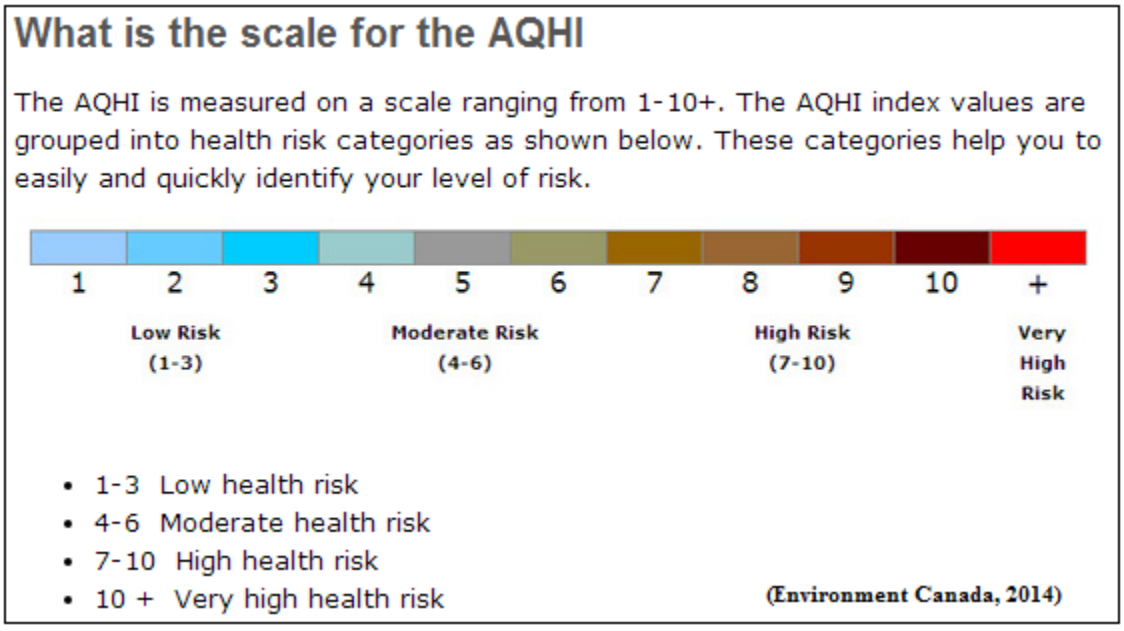
Issues relating to public health and safety are taken very seriously by lay individuals and any hint of passivity on the part of management is likely going to be noticed. This is especially true if residents within some neighbourhoods feel underrepresented or their claims to risk are not taken seriously. Distrust in government/expert officials becomes probable where claims put forth by lay individuals are not supported or even listened to. Lack of trust between lay individuals and policymakers/experts can impede the overall deliberative process; it can jeopardize the reputation of policymakers/experts as 'professional' evaluators of risk situations and therefore "threaten the legitimacy of any policy outcome[s]" (Dodds, 2013, p.74). An even more undesirable outcome can be that citizens refuse to participate in these deliberative processes, or do so half-heartedly because they are unconvinced that their statements would be seriously considered or "because they do not experience the social distribution of knowledge as serving democratic ends" (Dodds, 2013, p.75). Therefore, it is the *process* that requires closer attention because it is the means through which lay individuals and policymakers/experts can understand that risk issues cannot be adequately addressed without input from both sides. Moreover, scholars from science-policy disciplines have begun to recognize that more public participation in discussions over risk and its governance is of benefit to the overall decision-making process. Further, public participation is not only a moral matter, but also an important component of policymaking. Nevertheless, these views have emerged recently and contrast strongly with earlier positions that saw experts and lay individuals as two separate entities with opposing cognitive states. Experts were regarded as more important than lay individuals as sources of knowledge; therefore, public debates were to be determined by experts' opinions or expert-interpreted evidences. This view has been referred to as the 'deficit model' of public understanding of science. In addition, this model considers educational programs to be primary

mechanisms for prompting changes in the way the public views risk issues, in hopes that lay individuals' views become more aligned and supportive of the experts' views (Grundmann, 2008, p.85-6). However, as alluded to earlier in the paper, such efforts have not been successful.

Perhaps, there are some lessons to be learned from the medical profession's experiences with risk management. For example, individuals have come to generally accept the risks stemming from X-rays and prescription drugs. Research suggests that acceptance of these risks are conditioned by views on personal gains and by trust on those that manage the technologies/systems (Slovic, 1996, 269). In the context of this paper, it is possible that the managers of environmental-risks are less trusted, hence these risks are perceived to be higher if the situation (or neighbourhood) is seen as unmanaged or neglected. It may be fruitful to approach this issue in a way that gives neighbourhoods both a voice in agency and participation. Seeing that neighbourhoods vary in terms of experiences and organizational capabilities, it may be useful to create an environmental-risk program where neighbourhoods appoint independent (stand-by) experts that are able to monitor the affairs of the neighbourhood, recognize and report any uncharacteristic changes and essentially act as a liaison between neighbourhood residents and the government. Questionnaire results illustrate that whereas experts are generally trusted by residents to perform risk assessments and provide information to them in a truthful manner, the same level of trust is not nearly as strong towards the government (with the exception of Rosedale-Moore Park in Q#21 S3). Accordingly, results from the questionnaire survey employed in this research reveals that Toronto residents, or at least in the three neighbourhoods considered for study, have an overall positive opinion on experts and 'their ability to disentangle environmental risk uncertainties' (Q#22 S3). Similarly, all three neighbourhoods exhibited a

high level of trust in experts, especially in terms of providing correct and relevant information to residents regarding environmental risks (Q#23 S3).

Understanding the needs and priorities of neighbourhoods is foundational in terms of providing information that is informative, useful and above all, meaningful to its residents. Information on environmental-risks should be supplied on the basis of the information that is reported by each neighbourhood. In other words, risk-related information must be tailored to meet the specific needs of a neighbourhood and reflect the specific situation; this requires familiarity of the residents' preferences and interests. Too often, information on environmental-risk is presented in abstract terms, missing context needed for individuals to make sense of events, encounters and/or circumstances in their surroundings. For example, consider the Air Quality Health Index (AQHI) (below), a health protection tool designed to help Canadian citizens understand and characterize air pollution exposures:



AQHI is supposed to provide risk information so that members of the public can make informed decisions in responding to threats posed by air pollution. However, such information is very

narrow and rarely a sufficient guide for determining subsequent measures. It simply does not provide enough details to make a clear delineation of what a 3 entails in terms of danger to health and what a 6 entails. Without further detail or specification, individuals are left without meaningful assessments to interpret and direct their consequent courses of action. Slovic and Slovic (2010) speak directly to this issue:

> Environmental risks – both the risks we expose ourselves to when we live in the world and the risks of human impacts on the natural world – are often described in language poorly suited to overcome the numbing, desensitizing effects of abstract, quantitative discourse (p.79)

The central objective of risk communicators is to inform individual judgments regarding the possibility of an event. However, risk-related information intended for public consumption is commonly communicated through statistical representations and probability projections. Realistically, this type of communication is best suited for some individuals (i.e. experts) that understand the implications almost intuitively; conversely, it generates little concern in others who do not understand them at all. As far as environmental risk perceptions are concerned, the latter certainly holds true for lay individuals. Increasingly, research from the cognitive sciences have found that the human mind works best when it aligns numerical representations with subjective variables and experiences. Additionally, numerical discourse on its own fails to establish a reasonable apprehension of risk profiles. Slovic and Slovic (2010) explain that environmental risks associated with contemporary environmental issues require both quantitative data and qualitative reasoning via images and narratives. This paper contends that environmental-risk information should strive to address the following nine conditions in order to improve communication to the public: 1) the information should outline in very understandable terms the risk(s) under consideration, 2) the specific geographical area [neighbourhood(s)] where the risk has or will likely occur, 3) provide a reasonable timeframe of when the risk has or will

likely occur, 4) physiological effects that may be encountered at certain risk levels, 5) what steps should be taken to minimize these effects, 6) the information should be available in at least one designated station in each neighbourhood 7) the information should be amenable to comparison across the city and over time, 8) information should also be available in at least one other language (common to the neighbourhood) in addition to English, and above all 9) the information should be pertinent to the specific environments in which the risks are technically observed (Mileti, 1993).

Nevertheless, it is acknowledged that providing information that meets the above conditions is a complex and challenging task. Therefore, efficiency in the way information is managed becomes critical to achieving communication objectives and risk-reducing strategies. Kasperson and Kasperson (2005) advocate for making as much information available to the public as possible. This contention is rooted in the belief that by supplying an endless amount of information, the public will eventually be convinced that officials are acting in the best interest of the people. While full disclosure of risk information has its advantages, it can also be problematic for several reasons. First, individuals may become over-loaded with information which can lead to desensitization and indifference to risk situations because there is just too much information to process at one time. Second risk-information that is not relevant to the needs and concerns of a specific neighbourhood will have to be filtered out because it is inconsistent with the actual experiences of that place, irrelevant information may even cause confusion and frustration. Risk-information that does not validate the lived-experiences of individuals will have little to no impact on improving risk-judgments of the immediate environment. Berinato (2008) probes these very similar questions as he states:

> I want journalists and scientists to unearth the risks I'm not being told about. At the same time, while any one disclosure of a threat may be tolerable, or even desirable, the cumulative effect of so much disclosure is, frankly, freaking me out. So I started to wonder, at what point does information become too much information? Is more disclosure better, or is it just making us confused and anxious? Does it enable us to make better decisions, or does it paralyze us? What do the constant reminders of the ways we're in danger do to our physical and mental health?

In response to these assertions and questions that Berinato poses, Baruch Fischoff offers the following explanation:

> "On the one hand you want disclosure, because it affirms that someone is watching out for these things and that the system is catching risks. But on the other hand, there's so much to disclose that it's easy to get the sense the world is out of control." (Berinato, 2008)

As a result of too much risk-information disclosure, the gap that exists between experts and lay individuals may become even wider. Excessive amounts of information can give the impression to the general public that environmental-risks are chaotic and unmanageable. Lay individuals may deem experts to be incompetent in their practice, and experts may further reason that lay individuals simply cannot apprehend risk issues no matter the amount of information or education efforts expended on them. Thus, communication strategies should be based on real consultation with local/neighbourhood actors; this implies a shift in thinking away from the notion of educating the public (top-down approach) to a more two-way, interactive approach to risk communication. A bottom-up approach would not be suitable as well because it would be naïve to divorce expert involvement in the overall process. Perhaps a bidirectional method of policymaking that would require significant input from many stakeholders is the best option moving forward. Nevertheless, such a method would also necessitate a strong commitment from all parties.

Providing information should not be the guiding principle of risk communication, rather experts/policymakers should focus on the role of exchange as a tool to build ongoing

relationships with target populations. In this regard, the nature of risk discussions changes from arguing whose risk-judgments are right and whose are wrong to accepting that there are truths in both perspectives. Parties can come to appreciate the differences in expertise and experience of each perspective, perhaps resulting in a more fluid communication process. At the same time, developing an understanding of the opposite view can facilitate helpful discourse. Each perspective has its own strengths and weaknesses, the strengths can be leveraged by filling in the weaknesses that opposing parties may possess (or were reluctant to acknowledge in the past). Attitudes toward risks — individually and collectively — are always changing and they are by no means predictable, thus the communication process must be flexible to accommodate these changes. Therefore, "it is not a linear approach to risk communication but one that is multi-way and values both sides of the argument that is most likely to result in some form of consensus" (Drennan, McConnell & Stark, 2015, p.90).

Since lay individuals have neither the means nor the inclination (sometimes) to inquire about environmental-risks, it is incumbent upon experts and policy officials to initiate and develop methods for investigating localized risk-perceptions in neighbourhoods. Given the opportunity to ask questions, express their feelings and describe directly to the experts/policymakers their situational circumstances, lay individuals can come to no longer hold a paternalistic view of experts and policymakers. Likewise, through direct communicative acts, experts can come to better understand some of the underlying dynamics responsible for shaping lay individuals' perceptions to environmental-risks. Experts may gain better insights and appreciate that lay risk perceptions are multidimensional and that variance in those perceptions is often due to psychosocial influences (i.e. combination of psychological and social factors). For example, this study highlighted that socioeconomic status (that is, education, income, and

occupation), sociopolitical realities, individual priorities/concerns (i.e. family wellbeing), quality of life, and the physical condition of neighbourhood were important factors in terms of their contribution to lay assessments of environmental risks. Ultimately, what this means is that through conversations and observations each side can learn to respect the views of the other. However, in order for this to become a reality, Wynne (2009) states that "effective communication between technical experts and lay people…requires them to restructure their regular social relationships" (p.157). By restructuring social relationships, Wynne (2009) is signaling for improvements in the way information is exchanged between the two sides, perhaps through negotiation, dialogue and joint problem solving.

Slovic (1996) puts it very bluntly: "Ultimately, the best way to understand the public's view [on risks] is to ask people directly—by means of one-on-one interviews, focus groups and structured surveys" (p.178).Without embracing new ways of learning and assessing how it is that lay individuals arrive at risk judgments, "experts are left guessing at what lay people need to know, already know, and [what to] make of their messages" (Fischhoff & Kadvany, 2011, p.116). Moreover, there is little chance of getting an accurate assessment of the environmental-risk situation unless the right parties are carefully selected and studied properly. If there is an inaccurate, incomplete or unreliable characterization of environmental-risk in a given neighbourhood, experts/policy officials risk losing the trust of the public they are supposed to serve. Starr (1985) has gone in so far to argue that public attitudes toward risks are more "dependent on public confidence in risk management than on the quantitative estimates of risk" (p.98). If individuals do not feel a sense of security, and more important, do not expect risk managers to diagnose risk factors so that they can be effectively managed and disclosed, the public will experience heightened levels of anxiety and concern. As a result, public fears and

misconceptions regarding environmental-risks can be seen as one of the signs of a 'crisis of confidence', where public trust in government, science, and democratic structures are all strictly challenged (Slovic, Flynn & Layman, 1991). Problems arising from this disconnect can be avoided if the right forms of alliances are in place.

Fischhoff and Kadvany, (2011) contend that relative to the general public, experts/policy officials' families and friends have a good understanding of their positions when it comes to risk-related decision making (p.116). Perhaps, this is because experts are in constant interaction with members of their network, including family and friends. Experts are able to convey information to their family and friends about risks in a timely, precise and balanced manner. Nevertheless, there is always the element of bias from personal relationships with experts/officials; however, it cannot be discounted that the oft-interactions (between experts/officials and family/friends) may lead to transfers of relevant (even objective) information which can help guide risk judgments in a more informed/engaged way. Priority must be given to stimulating discussions and fostering exchange of ideas between experts and lay individuals since conversations regarding risk does not happen naturally, discourse has to be instigated by those seeking to manage risks. This is why a commitment to public participation has direct implications for risk management and public policy. Moreover, the implications are precisely what should motivate experts/officials looking to foster public loyalty and trust.

Significant improvements in risk management strategies can be realized if emphasis is placed upon legitimating the views and experiences of lay individuals in decision making processes. Policy debates and risk assessment narratives have traditionally been dominated by expert framings, governed specifically by scientific, technical or specialized knowledges (Peel, 2010, p.105; Evans, 2014, p.241; Simmons, 2007, p.41; Fischer, 2000, p.42). The disadvantage

with this approach is that it captures or addresses only a limited aspect of risk situations. It does not facilitate an open-minded consideration of the general public's views, and it ignores: "the dynamic and continuously evolving nature of knowledge creation…the subjective, interpretive and meaning making bases of knowledge construction…and it ignores the social interactive basis of knowledge creation" (White, 2002, p.4). Experts and officials cannot pretend that knowledge regarding environmental-risks can be produced without input from all stakeholders, including ordinary citizens from very local levels. Expert knowledge may represent only a subset (or even no subset at all) of the actual prevalence of risk in a specific locale. Therefore, the public, or those belonging to the non-expert/official categories, should not be regarded as collective bodies which ought to be persuaded into accepting strategic conclusions made by 'competent' parties. Rather, lay individuals should be regarded as participants in the ongoing formulation and implementation of risk-reducing strategies. As Fischer (2000) explains, combining the experiential aspect of risk (local knowledge) with the analytical (technical knowledge) can enhance if not challenge some the traditional technical and professional practices in decision making:

> "[n]ot only are the intentions and motives of the locals essential to a proper understanding of a situation, but they also typically possess empirical information about the situation unavailable to those outside the context. While such local knowledge cannot in and of itself define the situation, the 'facts of the situation' are an important constraint on the range of possible interpretations" (p.44).

Lay individuals, specifically those who are relatively more concerned about environmental-risks, are generally inclined to discuss their concerns with others (as highlighted by this paper). Individuals may see invitations for feedback as an opportunity to contribute to the improvement of undesirable conditions. The shift away from traditional expert-centered approaches to policymaking should be rooted in the understanding that people need to feel that they are

connected to the actions and processes that affect their daily lives. This study demonstrated that individuals are in favor of participative decision-making processes and generally support measures that would focus more closely on localized risk issues and localized interpretations of environmental-risk issues (Q#24, 25, 26 S3). Therefore, this shows that it is important for citizens to be recognized as persons of value, that is, their knowledge and experience should be optimized and regarded as being inherently connected to the overall policy system. The need to incorporate the public in matters of policy becomes crucial. Here, public participation entails that citizens are involved in the agenda-setting stage, signaling that residents' concerns are taken into account and 'officially on the agenda' (Hessing, Howlett & Summerville, 2005, p.151). Moreover, the complex nature of what is 'scientific knowledge' should not dictate the nature of interplay between lay individuals and officials, "it should not impede citizens from expressing their voice on ethical concerns, questions of equity and access, and transparency in decision making" (Zhai, Zhu, & Liu, 2013, p.758). These sentiments should be seriously considered and not merely regarded as means to fulfill minimal requirements. Kasperson and Kasperson (2005) state that public participation is viewed differently in terms of expectations and obligations by lay individuals and officials. Public officials tend to prioritize the fulfillment of particular 'public consultation' mandates set by institutional directors, thus, public participation is seen as a means to ensure that a procedural condition is satisfied. In contrast, public participants view the participatory process as involving purposeful action, actions or steps needed to achieve an end (Kasperson & Kasperson, 2005 p.20). It may be viewed as a platform to negotiate what steps need to be taken to reduce environmental-risks or eliminate them altogether (if possible).As individuals and collective members of society, lay individuals' only real hope is to have public

officials recognize that local experiences and discoveries are as important in the policymaking process as experts' inputs.

Conclusion

Toronto, like many other major cities in the world, is known for its multi-cultural and heterogeneous features. A society that is composed of such diverse groups with different experiences inevitably results in different ways of thinking and responding to life events and everyday occurrences. Although there are different degrees to personal experiences and life situations, there is some evidence to suggest that differences in local contexts and mind-sets between urban spaces could, at least, be one way to explain environmental-risk perceptions in the city of Toronto. This research addressed four objectives pertaining to environmental-risk perceptions: 1) to explore perceptions relating to environmental and health risks on a general level 2) investigate how psychological and socio-cultural processes mediate environmental-risk perceptions, 3) study whether shared neighbourhood experiences give rise to any overall consensus in environmental-risk perceptions and, 4) what do these findings imply for policy, risk communication and expert-lay relationships. The study was able to identify a range of factors (psychological and socio-cultural mediators) which contribute to explaining how individuals/collectives acquire specific beliefs and attitudes toward environmental risks.

The socioeconomic status (SES) of urban residents was shown to be an important driver of risk perception. Data analysis revealed an inverse relationship between perceived risk and SES status (SES was derived from household income, education and occupation data); the higher the SES of the individuals in the sample, the lower the level of concern toward environmental-risks. Moreover, sense of control over one's life, and that of one's family was also significantly associated with how the environment was perceived. A high locus of control (whether it was

through economic or social means) translated into lower levels of alarm when it came to environmental risks. Furthermore, land-use features of a neighbourhood (i.e. rental vs. private home ownership) also affected how the collective characterized their neighbourhood. Individuals that have made personal (i.e. economic) commitments to the neighbourhood demonstrated a reluctance to associate environmental-risks to the local area, opting instead to associate latent problems to other areas of the city. Nevertheless, individuals in the three neighbourhood samples were unanimous in their optimistic conceptualizations of future neighbourhood trends. Additionally, there was an overall consensus that more information needs to be disseminated to lay individuals regarding environmental risks. Further, there was a general agreement that neighbourhoods need to be more closely examined for their unique or characteristic environmental (social, economic and physical) properties so that they are better represented in policy decisions.

There are a number of limitations and constraints associated with this research. First, the sample sizes were fairly small and not randomly selected – they were self-selected as purposive sampling was used; therefore the data may not be a true or full representation of the three neighbourhoods studied for this research. Thus, limiting the ability to make statistically valid inferences. Making statistically valid generalizations however was not the objective of this exploratory research. Rather, the goal was to conduct more theoretically informed qualitative research designed to uncover possible associations to further conceptual and theoretical refinement in environmental risk perception research. The scope of this research is limited to the psychological and socio-cultural dimensions of risk perception and generally excludes other aspects that shape risk perception such as media influence and other broader frameworks and developments (i.e. globalization and world events). Furthermore, as alluded to above, one of the

major limitations of the study is its inadequate statistical treatment and interpretation of results, the research employed a basic cross-sectional/neighbourhood analysis to study local perceptive variations and circumstances relating to environmental risk. Additionally, while the lay public's views and sentiments are well represented through firsthand accounts (i.e. questionnaire and semi-structured interviews), what are largely missing, however, are expert testimonies and input from public officials directly responsible for making policy decisions. Finally, the research focused predominantly on the adult population; therefore, insight into the views and attitudes of young people was largely neglected.

Greater effort is needed to evaluate neighbourhood environmental-risk perceptions on a case by case basis. A greater amount of consideration needs to be given to non-physical or non-perceptible aspects of environmental-risks, especially since they may be discounted or ignored. Individuals studied in this research were quick to recognize the perceptible evidences inherent to environmental risks (i.e. air pollution), however, relatively little attention was paid to potentially subtle and elusive threats in the environment (i.e. contaminated food, water). A genuine effort needs to be made to incorporate local knowledge and experiences with particular issues into decision making processes. Doing so would "promote democracy, build trust, increase transparency, enhance accountability, build social capital, reduce conflict, ascertain priorities, promote legitimacy, cultivate mutual understanding, and advance fairness and justice" (Callahan, 2007, p.157). In order to address and respond effectively to the mysteries that characterize environmental-risks, there needs to be a wider consideration of where environmental risks are situated and who encounters them first.

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Appendix A (Questionnaire Results)

Variable	Questionnaire Items	Neighbourhoods					
		Rosedale-Moore Park		East York-Danforth Village		Regent Park	
		/10	%/100	/10	%/100	/10	%/100
Age (Q#2 S1)	18 to 25	0	0	1	0%	0	0%
	26 to 35	2	20%	3	30%	2	20%
	36 to 45	0	0	3	30%	4	40%
	46 to 55	3	30%	0	0%	3	30%
	56 to 65	4	40%	1	10%	1	10%
	66+	1	10%	2	20%	0	0%
Household Income (Q#3 S1)	Less than $10K	0	0	0	0%	1	10%
	$10,001 to $19,999	0	0	1	10%	3	30%
	$20,000 to $29,999	1	10%	2	20%	3	30%
	$30,000 to $39,999	1	10%	2	20%	2	20%
	$40,000 to $49,999	1	10%	1	10%	0	0%
	$50,000 to $59,999	1	10%	1	10%	1	10%
	$60,000 to $69,999	2	20%	1	10%	0	0%
	$70,000 to $79,999	1	10%	1	10%	0	0%
	$80,000 and above	3	30%	1	10%	0	0%
Race/ Ethnicity (Q#4 S1)	Asian	2	20%	1	10%	4	40%
	Black/African Am.	1	10%	1	10%	3	30%
	Hispanic/Latino	0	0%	2	20%	1	10%
	White/Caucasian	5	50%	1	10%	2	20%
	Native American	0	0%	0	0%	0	0%
	Other	2	20%	5	50%	0	0%
Level of Education (Q#5 S1)	None:	1	10%	1	10%	2	20%
	High school, no diploma:	0	0%	1	10%	1	10%
	High school graduate:	2	20%	2	20%	4	40%
	Post-secondary, no diploma:	1	10%	1	10%	1	10%
	Post-secondary degree:	6	60%	5	50%	2	20%
Which occupation is most applicable to your practice? (Q#6 S1)	Upper white collar:	2	20%	1	10%	0	0%
	Intermediate white collar:	2	20%	2	20%	1	10%
	Lower white collar:	3	30%	1	10%	1	10%
	Upper blue collar:	1	10%	2	20%	1	10%
	Lower blue collar:	1	10%	3	30%	3	30%
	None:	0	0%	1	10%	3	30%
	Unknown:	1	10%	0	0%	1	10%

Which statement best describes you or your family's current housing situation? (Q#7 S1)	Renting house/apt: Own house/condo: Renting with roommate(s): Living with family (i.e. siblings, cousins, etc.) Hotel: Homeless: Other: *Public Housing*	3 6 0 1 0 0 0	30% 60% 0% 10% 0% 0% 0%	3 5 0 2 0 0 0	30% 50% 0% 20% 0% 0% 0%	1 0 0 3 0 0 6	10% 0% 0% 30% 0% 0% 60%
How long have you been residing in your current location of residence? (Q#8 S1)	More than 1 year 2 to 5 years 5 to 10 years 10 to 20 years All my life (since I was born)	2 2 2 3 1	20% 20% 20% 30% 10%	2 3 3 1 1	20% 30% 30% 10% 10%	3 3 2 1 1	30% 30% 20% 10% 10%
Do you intend on staying in this neighborhoo-d five years from now? (Q#9 S1)	Yes No Not sure	7 2 1	70% 20% 10%	7 1 2	70% 10% 20%	3 6 1	30% 60% 10%
What is your current employment status? (Q#10 S1)	Employed for wages Self employed Student Unemployed Retired On disability Looking but unable to find work	4 4 0 0 1 0 1	40% 40% 0% 0% 10% 0% 10%	4 3 1 1 1 0 0	40% 30% 10% 10% 10% 0% 0%	3 1 1 2 0 1 2	30% 10% 10% 20% 0% 10% 20%
Do you live alone? (Q#11 S1)	Yes (if yes, skip to section 2) No (if no, please answer question #12)	2 8	20% 80%	2 8	20% 80%	1 9	10% 90%

Who are the people you are currently living with? (Q#12 S1)	Spouse	3	30%	1	10%	1	10%
	Children:	1	10%	2	20%	2	20%
	Spouse and children:	2	20%	2	20%	5	50%
	Siblings:	0	0%	1	10%	0	0%
	Common law partners/significant others:	1	10%	1	10%	0	0%
	Parents:	1	10%	1	10%	1	10%
	Others:	0	0%	0	0%	0	0%

Section 2

(Rosedale)

	Priority				
	Very Low	*Low*	*Moderate*	*High*	*Very high*
Outdoor air pollution	2	3	2	1	2
Occupational exposure to contaminants	4	2	2	1	1
Indoor pollutants	2	2	3	2	1
Pesticides in food	5	2	2	0	1
Contaminated water	6	1	2	0	1
Other: (Please specify)_____					

(East York – Danforth)

	Priority				
	Very Low	*Low*	*Moderate*	*High*	*Very high*
Outdoor air pollution	2	2	1	2	3
Occupational exposure to contaminants	3	3	2	1	1
Indoor pollutants	4	2	0	2	2
Pesticides in food	2	1	1	3	3
Contaminated water	2	2	1	3	2
Other: (Please specify)_____					

(Regent Park)

	Priority				
	Very Low	*Low*	*Moderate*	*High*	*Very high*
Outdoor air pollution	0	0	2	3	5
Occupational exposure to contaminants	1	1	2	3	3
Indoor pollutants	0	2	2	3	3
Pesticides in food	3	1	1	3	2
Contaminated water	2	2	2	2	2
Other: (Please specify)_____					

Section 3 (Question #2)

Rosedale

2. *Please indicate how true or how false the following statements apply to you. (**Please check one box for each statement**)*

	Definitely True	Mostly True	Not True	Mostly False	Definitely False
I seem to get ill more easily than other people	1	1	2	3	3
I am as healthy as anybody I know	4	3	0	1	2
I expect my health to get worse	2	2	1	0	5
My health is excellent	5	2	0	2	1

East York - Danforth

2. *Please indicate how true or how false the following statements apply to you. (**Please check one box for each statement**)*

	Definitely True	Mostly True	Not True	Mostly False	Definitely False
I seem to get ill more easily than other people	2	2	3	2	1
I am as healthy as anybody I know	4	1	2	1	2
I expect my health to get worse	2	3	1	3	3
My health is excellent	3	3	1	2	1

Regent Park

2. *Please indicate how true or how false the following statements apply to you. (**Please check one box for each statement**)*

	Definitely True	Mostly True	Not True	Mostly False	Definitely False
I seem to get ill more easily than other people	3	3	1	1	2
I am as healthy as anybody I know	3	2	0	2	3
I expect my health to get worse	4	2	1	2	1
My health is excellent	2	1	2	2	3

Section 3

Table 2: Profile of Participants in Each Neighbourhood

Variable	**Questionnaire Items**	**Neighbourhoods**					
		Rosedale-Moore Park		**East York-Danforth Village**		**Regent Park**	
		/10	**%/100**	**/10**	**%/100**	**/10**	**%/100**
Overall quality of life in this neighbourhood? (Q#1 S3)	Excellent Good Fair/satisfactory Unsatisfactory Poor	5 3 1 1 0	50% 30% 10% 10% 0%	4 2 2 1 1	40% 20% 20% 10% 10%	1 2 1 3 3	10% 20% 10% 30% 30%
Are you satisfied with staying in this neighbourhood? (Q#3 S3)	Stay in neighbourhood: Move to another neighbourhood: Unsure:	6 3 1	60% 30% 10%	6 2 2	60% 20% 20%	3 6 1	30% 60% 10%
Question #4 S3 was omitted from analysis							

Is this neighbourhood a good place to raise children? (Q#5 S3)	Very good: Fairly good: Neither good/bad: Not very good: Not good at all: Unsure:	6 2 1 0 0 1	60% 20% 10% 0% 0% 10%	5 3 1 0 0 1	50% 30% 10% 0% 0% 10%	1 1 3 2 3 0	10% 10% 30% 20% 30% 0%
How strong is your sense of belonging in your neighbourhood? (Q#6 S3)	1 (not strong at all) 2 3 4 5 (very strong)	1 1 3 2 3	10% 10% 30% 20% 30%	1 1 3 4 5	10% 10% 30% 40% 50%	2 2 1 3 2	20% 20% 10% 30% 20%
How worried are you about contracting an environmental related illness? (Q#7 S3)	1-not worried at all 2 3 4 5-very worried	6 2 1 0 1	60% 20% 10% 0% 10%	5 2 2 0 1	50% 20% 20% 0% 10%	1 0 1 3 5	10% 0% 10% 30% 50%
How often do you voluntarily spend time outdoors? (i.e. take a walk) (Q#8 S3)	Daily 2 to 3 times a week 4 to 6 times a week Once a week Never	4 3 1 1 1	40% 30% 10% 10% 10%	4 2 1 2 1	40% 20% 10% 20% 10%	2 1 3 2 2	20% 10% 30% 20% 20%
How do you perceive the outdoor air quality in your neighbourhood? (Q#9 S3)	1 (very bad) 2 3 4 5 (very good)	1 0 1 3 5	10% 0% 10% 30% 50%	2 2 2 2 2	20% 20% 20% 20% 20%	4 2 1 1 2	40% 20% 10% 10% 20%
How worried are you about the effects of local air pollution on your health? (Q#10 S3)	1-not worried at all 2 3 4 5-very worried	4 3 1 1 1	40% 30% 10% 10% 10%	1 1 1 4 3	10% 10% 10% 40% 30%	0 1 1 3 5	0% 10% 10% 30% 50%
How worried are you about exposures to harmful substances within your home? (i.e. aged water pipes) (Q#11 S3)	1-not worried at all 2 3 4 5-very worried	3 3 1 2 1	30% 30% 10% 20% 10%	3 3 2 1 1	30% 30% 20% 10% 10%	1 0 1 4 4	10% 0% 10% 40% 40%

How concerned should we be about environmental risks (i.e. climate change, pollution, etc.) to our health? (Q#12 S3)	1-no concern at all 2 3 4 5-very concerned	4 3 1 1 1	40% 30% 10% 10% 10%	3 3 0 2 2	30% 30% 0% 20% 20%	1 1 1 2 5	10% 10% 10% 20% 50%
How much control do you feel you have over risks to your health? (Q#13 S3)	1-very little control 2 3 4 5-very high control	0 1 2 4 3	0% 10% 20% 40% 30%	2 0 3 3 2	20% 0% 30% 30% 20%	4 3 1 1 1	40% 30% 10% 10% 10%
How serious is chemical pollution in your neighbourhood? (Q#14 S3)	1-not a serious prb 2 3 4 5-very serious prb	7 1 1 1 0	70% 10% 10% 10% 0%	4 2 3 1 0	40% 20% 30% 10% 0%	3 4 2 1 1	30% 40% 20% 10% 10%
Does the environmental quality in your neighbourhood have a bearing on your decision to spend time outdoors? (Q#15 S3)	1 (no, not at all) 2 3 4 5 (yes, greatly)	5 2 1 1 1	50% 20% 10% 10% 10%	4 2 1 1 2	40% 20% 10% 10% 20%	1 1 2 3 3	10% 10% 20% 30% 30%
How satisfied are you with the overall appearance of your neighbourhood? (Q#16 S3)	1 (not sarisf. at all) 2 3 4 5 (very satisfied)	1 0 1 2 6	10% 0% 10% 20% 60%	2 1 1 3 3	20% 10% 10% 30% 30%	4 3 2 0 1	40% 30% 20% 0% 10%
Are social problems (i.e. racism, violence and/or poverty) a serious concern for your neighbourhood? (Q#17 S3)	1--not a serious con 2 3 4 5- very serious con	7 2 1 0 0	70% 20% 10% 0% 0%	2 2 2 2 2	20% 20% 20% 20% 20%	0 1 1 2 6	0% 10% 10% 20% 60%

How concerned are you about the safety of food and drinking water in your neighbourhood? (Q#18 S3)	1- not a serious con 2 3 4 5 very serious con	6 1 1 1 1	60% 10% 10% 10% 10%	5 2 0 1 2	50% 20% 0% 10% 20%	2 1 1 3 3	20% 10% 10% 30% 30%
How well do you feel informed about potential environmental issues in your neighbourhood? (Q#19 S3)	1 (not infrm at all) 2 3 4 5 (very informed)	3 4 1 0 2	30% 40% 10% 0% 20%	4 3 0 1 2	40% 30% 0% 10% 20%	6 1 1 1 1	60% 10% 10% 10% 10%
Do you wish to be given more information on potential environmental issues in your neighbourhood? (Q#20 S3)	Yes No	7 3	70% 30%	8 2	80% 20%	8 2	80% 20%
How confident do you feel in the municipal government's ability to regulate environmental conditions harmful to human health? (Q#21 S3)	1 (not confdt at all) 2 3 4 5 (very confident)	1 0 1 2 3	10% 0% 10% 20% 30%	2 3 2 2 1	20% 30% 20% 20% 10%	4 3 1 1 1	40% 30% 10% 10% 10%
How qualified are experts in identifying, evaluating and estimating environmental and health risks? (Q#22 S3)	1 (Not qualfd at all) 2 3 4 5 (very qualified)	1 1 1 1 6	10% 10% 10% 10% 60%	1 0 2 1 6	10% 0% 20% 10% 60%	1 1 1 2 5	10% 10% 10% 20% 50%

How much do you trust experts/officials to give you correct information regarding potential environmental risks? (Q#23 S3)	1 (can't be trstd at.) 2 3 4 5 (can be trst a lot)	0 1 1 2 6	0% 10% 10% 20% 60%	1 1 1 0 7	10% 10% 10% 0% 70%	0 1 2 1 6	0% 10% 20% 10% 60%
What is your response to the following statement: "I feel that the government agencies and policymakers listen to and heed complaints from the general public before making environmental policy decisions." (Q#24 S3)	1 (No, not at all) 2 3 4 5 (Yes, Greatly)	2 1 3 2 2	20% 10% 30% 20% 20%	2 1 2 2 3	20% 10% 20% 20% 30%	5 2 1 1 1	50% 20% 10% 10% 10%

To what extent do you agree or disagree with this statement: "Policies should be exclusively designed according to the environmental condition(s) that characterize each neighbourhood." (Q#25 S3)	1 (no, not at all) 2 3 4 5 (Yes, definitely)	1 1 1 2 5	10% 10% 10% 20% 50%	1 1 0 2 6	10% 10% 0% 20% 60%	0 2 1 1 6	00% 20% 10% 10% 60%
To what extent do you agree or disagree with this statement: "Each neighbourhood should be given an equal opportunity to have an input in city-wide environmental policy decisions." (Q#26 S3)	1 (no, not at all) 2 3 4 5 (Yes, definitely)	1 0 2 1 6	10% 0% 20% 10% 60%	1 0 1 1 7	10% 0% 10% 10% 70%	0 1 1 2 6	0% 10% 10% 20% 60%
How would you describe the quality of the environment in your neighbourhood over the next five years? (Q#27 S3)	1 (get much worse) 2 3 4 5 (get much better)	1 1 3 2 3	10% 10% 30% 20% 30%	1 2 3 2 2	10% 20% 30% 20% 20%	2 2 0 4 2	20% 20% 0% 40% 20%

Appendix B (The Questionnaire)

Neighbourhood Attitudes toward Environmental Risks

This questionnaire/survey is an invitation to participate in my Master's major research project (currently being undertaken at York University). The purpose of this study is to investigate how communities differ in their experiences and collective responses to environmental conditions. It is hoped that data gathered during research for this project will provide new insights into the relationship between policy and public opinion. Information collected from your response to this questionnaire will be kept confidential and used only to obtain calculations for your neighbourhood. Altogether there are 27 questions. Please review each question carefully and answer it as precisely as possible. Your participation is completely voluntary and you may abandon this study if you no longer wish to proceed. However, your support is greatly appreciated. Thank you for your time, input and perspective in this very important endeavour.

Section 1

1. Please specify your gender:

   ○ Male ○ Female ○ Transgender

2. Please select the age range that best describes you:

   ○ 18 to 25 ○ 26 to 35 ○ 36 to 45

   ○ 46 to 55 ○ 56 to 65 ○ 66+

3. What is your total household income?

   ○ Less than $10,000 ○ $10,001 to $19,999 ○ $20,000 to $29,999

   ○ $30,000 to $39,999 ○ $40,000 to $49,999 ○ $50,000 to $59,999

   ○ $60,000 to $69,999 ○ $70,000 to $79,999 ○ $80,000 or above

4. Which race/ethnicity best describes you?

   ○ Asian ○ Black/African America ○ Hispanic/Latino

   ○ White/Caucasian ○ Native America ○ Other _____

5. What is the highest level of education you have completed?

   ○ No schooling background ○ Some highschool, no diploma ○ Highschool graduate

   ○ Some post-secondary, no diploma ○ Post-secondary degree

6. Which occupational classification is most applicable to your practice? (*Grant & Chapma, 2008, p.26).*

- ○ Upper-white collar: professional and managerial position, owner of large business
- ○ Intermediate white-collar: skilled nonmanual position, owner of small or medium-sized business
- ○ Lower white-collar: semi-skilled nonmanual position (i.e. salesperson)
- ○ Upper blue-collar: skilled manual position (i.e. self employed craftsman / craftwomen)
- ○ Lower blue-collar: unskilled and semi-skilled manual position (i.e. construction, mechanic)
- ○ None
- ○ Unknown

7. Which statement best describes your or your family's current housing situation?

○ Renting house/apt ○ Own house/condo ○ Renting with roommate(s)
○ Living with family (i.e. sibling, uncle, cousin, etc.) ○ Hotel
○ Homeless (i.e. streets, shelter, car) ○ Other: _____

8. How long have you been residing in your current location of residence?

○ Less than 1 year ○ 2 to 5 years ○ 5 to 10 years ○ 10 to 20 years
○ All my life (since I was born)

9. Do you intend on staying in this neighbourhood five years from now?

○ Yes ○ No ○ Not sure

10. What is your current employment status?

○ Employed for wages ○ Self-employed ○ Student ○ Unemployed
○ Retired ○ On disability ○ Looking but unable to find work

11. Do you live alone?

○ Yes (if yes, please skip to Section 2) ○ No (if no, please answer Question #12

12. Who are the people you are currently living with?

○ Spouse ○ Children (How many:____) ○ Spouse and Children ○ Siblings
○ Common law partner/Significant other ○ Parent(s) ○ Other:_____

Section 2

Based on your experiences and observations **within your neighbourhood**, what do you perceive to be the most pressing environmental concerns requiring greater policy attention? In other words, which items pose the most threat to the safety and wellbeing of you, your family and your neighbourhood (therefore *requiring more* strategic policy attention)? Please indicate (with a check mark) whether each of the following five environmental risk sources should be a very high, high, moderate, low or very low priority for government action. Please list any environmental risk that you feel should have been included below but wasn't in the "Other: (Please specify)" cell.

	Priority				
	Very Low	*Low*	*Moderate*	*High*	*Very high*
Outdoor air pollution					
Occupational exposure to contaminants					
Indoor pollutants					
Pesticides in food					
Contaminated water					
Other: (Please specify)_____					

Section 3

For each question, please choose the option that best reflects your thoughts, opinions and/or experiences **in your neighbourhood**.

1. *How would you* describe the overall *quality of life* in this neighbourhood? (i.e. overall sense of satisfaction with life, contentment with current circumstances, etc.).

   ○ Excellent ○ Good ○ Fair/Satisfactory ○ Unsatisfactory ○ Poor

2. *Please indicate how true or how false the following statements apply to you. (Walters, 2009, p.339).*
   (Please check one box for each statement)

	Definitely True	Mostly True	Not True	Mostly False	Definitely False
I seem to get ill more easily than other people					
I am as healthy as anybody I know					
I expect my health to get worse					
My health is excellent					

3. At this present time, are you satisfied with staying in this neighbourhood, or would you like to move to another neighbourhood? (Baldassare, 1981, p.150).

   ○ Stay in this neighbourhood ○ Move to another neighbourhood ○ Unsure

~~4. All things considered, how do you feel about living in this neighbourhood, are you:~~

   ○ Completely satisfied ○ Very satisfied ○ moderately satisfied

   ○ Slightly satisfied ○ Completely unsatisfied

5. Is this neighbourhood a good place to raise children?

   ○ Very good ○ Fairly good ○ Neither good nor bad

   ○ Not very good ○ Not good at all ○ Unsure

6. Using a scale of 1 to 5, where 1 is not strong at all and 5 is very strong, how strong is your sense of belonging to your neighbourhood? (Kilbride, 2014, p.107)

   ○ 1 ○ 2 ○ 3 ○ 4 ○ 5

7. Using a scale of 1 to 5, where 1 is not worried at all and 5 is very worried, how worried are you about contracting an illness that is environmentally related?

   ○ 1 ○ 2 ○ 3 ○ 4 ○ 5

8. *How often do you* voluntarily spend time outdoors? (i.e. take a walk/jog in your neighbourhood)

   ○ Daily ○ 2 to 3 times a week ○ 4 to 6 times a week

   ○ Once a week ○ Never ○ Other (please specify):_____

9. Using a scale of 1 to 5, where 1 is 'very bad' and 5 is 'very good', *how do you perceive the **outdoor** air quality in your neighbourhood?*

   ○ 1 ○ 2 ○ 3 ○ 4 ○ 5

10. Using a scale of 1 to 5, where 1 is not worried at all and 5 is very worried, how worried a*re you about the effects of local air pollution on your health?*

    ○ 1 ○ 2 ○ 3 ○ 4 ○ 5

11. Using a scale of 1 to 5, where 1 is not worried at all and 5 is very worried, how worried a*re you about exposures to harmful substances within your home (i.e. from heavy metals in old wall paint, aged water pipes, etc.)*

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

12. Using a scale of 1 to 5, where 1 is not concerned at all and 5 is very concerned, how we concerned should we be about environmental risks (i.e. hazardous waste sites, urban air pollution, climate change, radioactivity, chemical hazards, contamination of soil and water—both ground and surface, etc.) to our health?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

13. On a scale of 1 to 5, where 1 is very little control and 5 is very high control, how much control do you feel you have over risks (unexpected situational developments) to your health? In other words, to what extent to you feel you can influence the outcome of exposure to risks?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

14. On a scale of 1 to 5, where 1 is not a serious problem and 5 is a very serious problem, how serious is chemical pollution in your neighbourhood.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

15. On a scale of 1 to 5, where 1 is 'No, not at all' and 5 is 'Yes, greatly', does the environmental quality in your neighbourhood have a bearing on your decision to spend time outdoors? (i.e. playing sports and other leisure activities)

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

16. On a scale of 1 to 5, where 1 is 'not satisfied at all' and 5 is 'very satisfied', how satisfied are you with the overall appearance of your neighbourhood?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

17. On a scale of 1 to 5, where 1 is 'not a serious concern and 5 is a very serious concern, are social problems (i.e. racism, violence and/or poverty) a serious concern for your neighbourhood?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

18. On a scale of 1 to 5, where 1 is 'not a serious concern and 5 is a very serious concern, how concerned are you about the safety of food and drinking water in your neighbourhood?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

19. On a scale of 1 to 5, where 1 is 'not informed at all' and 5 is 'very informed' how well do you feel informed about potential environmental issues in your neighbourhood?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

20. Do you wish to be given more information on potential environmental issues in your neighbourhood?

○ Yes ○ No

21. On a scale of 1 to 5, where 1 is 'not confident at all' and 5 is 'very confident', how confident do you feel in the municipal government's ability to regulate environmental conditions harmful to human health?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

22. On a scale of 1 to 5, where 1 is 'not qualified at all' and 5 is 'very qualified', how qualified are experts in identifying, evaluating and estimating environmental and health risks?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

23. Using a scale of 1 to 5, where 1 is 'cannot be trusted at all' and 5 means 'can be trusted a lot', how much do you trust experts/official to give you correct information regarding potential environmental risks?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

24. *On a scale of 1 to 5, where 1 is 'No, not at all' and 5 is 'Yes, greatly', what is your response to the following statement: "*I feel that government agencies and policymakers listen to and heed complaints from the general public before making environmental policy decisions."

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

25. *On a scale of 1 to 5, where 1 is 'No, not at all' and 5 is 'Yes, definitely', to what extent do you agree or disagree with the following statement: "*Policies should be exclusively designed according to the environmental condition(s) that characterize each neighbourhood"

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

26. *On a scale of 1 to 5, where 1 is 'No, not at all' and 5 is 'Yes, definitely', to what extent do you agree or disagree with the following statement: "*Each neighbourhood should be given an equal opportunity to have input in city-wide environmental policy decisions."

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

27. On a scale of 1 to 5, where 1 is 'Get much worse' and 5 is 'Get much better', How would you describe the quality of the environment in your neighbourhood over the next five years?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

Section 4

The following questions are optional for you to answer; however your input is greatly appreciated. If you choose to answer specific questions, that is totally fine!

How would you evaluate the current environmental situation in your neighbourhood?

Are there any environmental issues in particular that you are concerned about in your neighbourhood? How can they be addressed?

What do you like about your neighbourhood and what would you change?

***Works Cited* (only for Questionnaire)**

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