

2014

The Structures and Practices of Collaboration among Environmental Organizations in Waterloo Region

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The Structures and Practices of Collaboration
among Environmental Organizations in Waterloo Region

by

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Master of Environmental Studies, York University, 2007

DISSERTATION

Submitted to the Department of Psychology
in partial fulfillment of the requirements for
Doctor of Philosophy in Psychology

Wilfrid Laurier University

2013

Felix Peter Munger  2013

Abstract

Background: Studies investigating organizational collaboration report increased goal achievement in the case of collaboration but identify that developing effective collaborations is challenging. An increasing number of researchers and practitioners are applying emerging research tools such as social network analysis to study collaborations and many of those who have applied social network analysis suggest, anecdotally, that it is a useful process tool aimed at increasing understanding of collaboration and informed decision-making among collaborative members.

Aims: The main objectives are to: (1) Empirically study networking and collaboration among environmental organizations in Waterloo Region; (2) Contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations by local practitioners; and (3) Investigate the usefulness of social network analysis as a process tool to improve collaboration.

Method: I used a sequential methods design with two phases. In Phase 1 I obtained and analyzed statistical data representing the level of networking and collaboration among local organizations. Using social network analysis, I produced sociograms (i.e., graphs) and statistical measures of the level of networking and collaboration in the Waterloo Region in 2011. In Phase 2, I conducted three open-ended semi-structured focus groups and seven interviews to discuss collaboration practice and the use of the social network analysis as a process tool. Using a systematic qualitative data analysis approach similar to grounded theory, I analyzed the different aspects related to collaboration practices and the use of social network analysis as a process tool to inform collaboration.

Results: Study findings demonstrate that: (A) the majority of environmental organizations in Waterloo Region are well networked, collaborate broadly, and show a high level of cohesion; (B) environmental organizations in Waterloo Region share similar definitions of collaboration, and tend to apply many of the tasks and steps identified in the literature as good/emerging practice; and (C) social network analysis as a process tool is perceived as useful when assessing and developing organizational collaboration.

Conclusion: The findings reveal that the environmental organizations in Waterloo Region have exemplary collaborative capacity through their networking and cohesion from which other geographic locations could learn. The findings also reveal that collaboration practice, to some degree, differs from theories of good/emerging collaborative practice, potentially due to the fact that theory may be too idealistic while practice may be too realistic, suggesting a need for organizations to move beyond the immediate needs (realities) toward more idealistic practice to increase their collaborative successes and for scholars to potentially adjust their theories to become more realistic and thus increase uptake. Finally, the findings suggest that network analysis has the potential to produce valuable outcomes as a process tool. These findings will be of particular interest for those studying organizational collaboration and the practitioners trying to improve effectiveness of organizational collaboration not just in the environmental field.

Acknowledgements

We never think entirely alone: we think in company, in a vast collaboration; we work with the workers of the past and of the present. [In] the whole intellectual world ... each one finds in those about him [or her] the initiation, help, verification, information, encouragement, that he [or she] needs.—A.G. Sertillanges, (1987, p. 145)

Contributions to the development of knowledge in any discipline, irrespective of the novelty of the knowledge/information produced, never rest solely with the researcher. In fact, despite the notion of independent researcher at the doctoral level, the spirit of this dissertation—just like the topic—is truly one of collaboration.

The work presented here rests on much past and current academic and grey literature. Thus, any new insight presented here has to be understood as a collaboration among many theorists and practitioners who, like me, have made it their goal to increase the effectiveness of people coming together to advance common—and often social—goals. I am humbled by their presence in this dissertation and am very grateful for all the contributions they have (inadvertently) made to this dissertation.

I would like to extend a special thanks to all those organizational representatives who took time out of their busy days to complete the survey, came to meetings, and sat down with me to do an interview or a focus group—I am truly grateful for your participation! After all, this dissertation would not exist if it was not for your honest input!

I would also like to thank my committee – Drs. Manuel Riemer, Robb Travers, Ginette Lafrenière, Mark Pancer, and Angus McMurtry (external examiner).

Furthermore, I would like to express my gratitude to all those practitioners who have influenced my own collaborative practice over the past 15 years since my arrival in Canada. In

particular, I would like to express my sincere thanks to Doris O'Brian, Patrick Smith, Wayne Skinner, and Susan Smither.

It has been a long journey to complete my PhD! Getting it all done required the encouragement, support, and patience of many. Many thanks to Patrick Smith (who planted the seed), Wayne Skinner, Mora Campbell, Sarah Flicker, and Sandeep Agrawal for encouraging me to pursue my dream of further education, to Allison Eady and Elin Moorlag for their editorial and technical support, to Rita Sharkey, and to Robb Travers, Richard Walsh, Colleen Loomis, Terry Mitchell, Mark Pancer, Ginette Lafrenière, Geoff Nelson, and Manuel Riemer for helping me shape my understanding of research and its practice.

I would also like to express my most sincere gratitude to those around me who have supported this endeavor with frequent cheers and moral support. This work would not have been possible without the moral support by my parents Heinz Münger and Margrit Gabathuler, my brother Simon Münger, as well as my friends Patrick Smith and Manuel Riemer.

For their financial support I want to thank my dad Heinz and my grandfather Walter who, unfortunately, is not alive to witness this significant moment of my life (luckily he got to experience many other moments, some of which were more significant!).

Finally, there are four people that deserve most of my gratitude. First, my friend Patrick Smith who believed in me and never stopped to cheer along the sideline during this sometime treacherous journey. Second, my supervisor Manuel Riemer who recognized my curiosity, was a consistent and wonderful believer in my abilities (or was it potential?) to complete this PhD, and who patiently helped me develop from a sub-prepared new doctorate student to become Felix Münger, PhD.

Last but not least, I want to thank my partner Tricia and our daughter Isabelle for being patient with me, for putting up with my anxieties (current and future), and for supporting me without questioning the why of this journey. I could not have wished for a better triad! Thank you from all my heart.

I also wish to acknowledge the financial support by Ontario Graduate Scholarship to my doctoral studies in the fourth year of my PhD program.

If I have seen further it is by standing on the shoulders of giants.—Isaac Newton (1676)

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Glossary of Terms

Actors (also referred to as nodes) describe individuals, groups, organizations, etc. within a social network.

Betweenness describes the extent to which actors lie on the shortest path between other actors.

This measure is commonly applied to illustrate how well positioned actors are within a network actors are well positioned to be movers and shakers within a network (see Chapter 4 Network Statistics).

Cliques describe the existence of subgroups of three or more actors, illustrating actors that create a close sub-network within a given network (see Chapter 4 Network Statistics).

Collaboration (organizational) refers to the process of actively working with another organization on joint projects with a common goal characterized by some level of agreement, and including shared resources such as offices and staff.

Collaboration Effectiveness implies the level to which collaboration goals are achieved.

Collaboration Quality implies the ability to achieve goals such as (a) unification of members, (b) creating new and useful trusting relationships, (c) assembling different resources, skills, expertise, and experiences, (d) recruiting different constituencies, (e) gaining new funding and/or resources, and (f) influencing communities, funders, and policymakers.

Collaborative Capacity refers to the skills and knowledge of good or emerging practice and resources to work collaboratively within organizations and/or networks of organizations.

Decentralized Collaboration means that the network activities (e.g., information sharing) mostly happen directly among the different members and are not channeled centrally by one or two powerful organizations.

Degree Centrality describes the level of connectivity in regard to how many ties a single actor has with other organizations in the network and how many network activities are channeled through this actor. As such, degree centrality is related to the importance and relative power of that actor in the network (see Chapter 4 Network Statistics).

Density describes how each actor is connected to other actors in the overall network, illustrating the level of cohesion and interconnectivity within the network (see Chapter 4 Network Statistics).

Environmental Organizations in this study represent organizations, interest groups, action groups, governmental agencies, committees, advisory groups, clubs, networks,

roundtables, that are either focusing on environmental issues (e.g., conservation authorities) or have environmental issues as part of their mission/vision (e.g., Public Health Agencies).

Explanatory Sequential Mixed Methods Design is a research methods design characterized by a two-phased process where quantitative results are followed up by qualitative results to explain the initial quantitative results.

Geodesic Distance describes the level of distance between organizations in terms of degrees of separation between organizations, illustrating the shortest possible level for every organization to reach any other organization in the network through the organizations that they are connected to (see Chapter 4 Network Statistics).

Group Centralization describes the existence and/or absence of focal actors, illustrating if the network is centralized (one or more main actors) or decentralized (no main actors) (see Chapter 4 Network Statistics).

Hierarchical Structure means that only one organization is at the centre of a collaboration or network.

Mixed Methods Research Design mixed methods research design is the combination of quantitative and qualitative methods rather than using one method alone.

Networking is the exchanging (sending or receiving) information and/or having joint meetings (including action group meetings, roundtable meetings).

Social Network Analysis is a research method that measures the existence and/or absence of relationships between actors. Results are typically represented with sociograms and different social network analysis measures (see Chapters 2 and 4).

Waterloo Region is the geographic area including the city of Cambridge, city of Kitchener, city of Waterloo, township of North Dumfries, township of Wellesley, township of Wilmot, and township of Woolwich.

Sociograms are graphic representations used in social network analysis illustrating the relationships among the actors using points (representing actors) and lines (representing relationships).

Chapter 1 – Introduction

We're entering a crucial time in our history. In coming decades we'll come upon one critical junction after another in rapid succession. The choices we make and the paths we choose at each junction will be irreversible.—Thomas Homer-Dixon (2006, p. 30)

As I write this dissertation in 2013, much of the Western World, despite widespread scientific knowledge of the dangers of global climate change/disruption,¹ continues to pay little attention or mere lip service to the rising level of carbon dioxide (CO₂) in the atmosphere. When Homer-Dixon wrote these words roughly 6 years ago, the level of carbon dioxide in the atmosphere had risen to about 380 parts per million (ppm) (NOAA, 2012). 380 ppm is 30 ppm above the safe upper limit of 350 ppm established by leading scientists such as the climatologist James Hanson (Hanson et al., 2008). While working on the dissertation in 2012, the level of carbon dioxide already passed a record with a monthly mean value of 396.78 ppm (NOAA, 2012) and it is only a matter of time before the critical level of 400 ppm will be reached. Perhaps more disturbing is that global climate change is not the only environmental challenge. In fact, humanity continues to be faced with challenges such as air and land pollution, biodiversity loss (i.e., reduction of the variety of species), resource depletion (e.g., deforestation), and the impacts of invasive species.

We live in a wondrously beautiful but derailed world. Many scientists and environmental activists have been warning for decades that the global environment is deteriorating rapidly, thus possibly jeopardizing the ability of future generations to sustain themselves. In particular, global

¹ In 2013 at the time of writing this dissertation, anthropogenic (i.e., caused by human activity) changes in the global climate due to carbon dioxide in the atmosphere is increasingly being referred to as global climate disruption. The term disruption used in the context of global climate aims at increasing the awareness of the level of danger and complexity inherent in changes in the global climate such as temperatures and storms. Despite the validity of the newer term, in this dissertation I will continue to use the term global climate change.

climate change is predicted to create unevenly distributed multiple problems for the world and humanity including extreme climate events (e.g., hurricanes, heat waves), social changes (e.g., displacements of over 800 million people), and geopolitical impacts (e.g., wars). Action aimed at averting many of the looming disasters is vital, calling for governments, nonprofit organizations, businesses, and communities all over the world to step outside their comfort zones and boundaries to collaboratively develop sound and effective solutions that are multifaceted, include multiple systems, and involve multiple stakeholders. However, collaboration is by no means simple. In fact, studies clearly identify what could be termed good/emerging² practice in collaboration but also that collaboration can be disorganized and potentially counterproductive. This dissertation is an attempt towards strengthen our ability to combine our knowledge, expertise, and experiences through the pursuit of collaborations that are effective.

Collaboration among environmental organization³ in Waterloo Region⁴ has a long-standing tradition. There are multiple examples including, but not limited to, ClimateActionWR, Waterloo Region Environmentally Sensitive Landscapes (ESLs), the Grand River Watershed: Water Management Plan, and the Community, Environmental and Justice Research Group. At a

² I purposely use the term good and/or emerging practice because the more common term of best practice implies a clear superiority of practice that cannot be improved. However, technological progress, for example, has continued to improve practice (e.g., lobotomies as a therapeutic intervention in psychiatry would have been considered best practice in the 1950s) indicating that best practices change. Both the terms good and emerging practices provide a more contextual definition of practice suggesting a possible change and allowing for improvements.

³ Environmental organizations in this study represent organizations, interest groups, action groups, governmental agencies, committees, advisory groups, clubs, networks, roundtables, that are either focusing on environmental issues (e.g., conservation authorities) or have environmental issues as part of their mission/vision (e.g., Public Health Agencies).

⁴ Waterloo Region is a geographic area including the city of Cambridge, city of Kitchener, city of Waterloo, township of North Dumfries, township of Wellesley, township of Wilmot, and township of Woolwich. The Waterloo Region is the organization managing services such as Planning, Housing & Community Services, Public Health, Social Services and Transportation & Environmental Services.

meeting of the Community Advisory Committee of the Community, Environment and Justice Research Group, several attending representatives of local environmental organizations expressed the desire to move beyond a loose network of collaborating environmental organizations to the development of a formalized network such as an umbrella group⁵ while others voiced caution, viewing the current level of collaboration as sufficient. This discussion eventually led to this dissertation.

At the meeting, Dr. Manuel Riemer and I suggested that we could try to analyze the current levels of networking collaboration before attempts would be made to increase collaboration or to create formalizations such as a coalition or umbrella group. Over a period of three years following that meeting, the research gradually grew from studying the local structures of collaboration through the use of network analysis⁶ as one of my PhD comprehensive requirements, into my dissertation to include an analysis of collaboration practices—titled: *The Structures and Practices of Collaboration among Environmental Organizations in the Region of Waterloo*.

In this dissertation, I attempt to answer the following main research question: *How is collaboration among environmental organizations in Waterloo Region structured, understood, and practiced?* To this end, I formed the following three research aims: (1) to empirically study the level of networking and collaboration among organizations addressing environmental issues in Waterloo Region; (2) to contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations by practitioners in Waterloo

⁵ Umbrella groups are examples of formalized collaboration among organizations. They tend to officially connect organizations (often small ones) with similar goals in order to coordinate activities, share resources, and sometimes some form of identity.

⁶ Social network analysis is a research method that measures the existence and/or absence of relationships between actors (for more detail see Chapters 2 and 4).

Region; and (3) to investigate the usefulness of social network analysis as a process tool to improve understanding and to increase informed decision-making regarding collaboration.

In this chapter I will introduce the main topics and areas of this dissertation including collaborative practice as an approach to address complex environmental challenges and the research aims of this study. I will then provide an overview of the study findings, followed by brief discussion of how this study is informed by community psychology. Finally, an overview of the organization of the dissertation is presented.

Collaboration to Address Complex Environmental Challenges

There is an increasing recognition that the impacts of environmental challenges such as land contamination, biodiversity loss, and climate change are some of the most complex issues faced by humanity in the twenty-first century (Gore, 2006; Rees, 2010; Speth, 2005, 2008). Many of today's environmental challenges have reached great complexity because they often include multiple stakeholders (e.g., different levels of government, communities, corporations) and numerous impacts (e.g., health, land productivity) at the different ecological levels (i.e., individual, micro, meso, and macro). Increasingly, scholars insist that solutions need to be found and applied before critical environmental tipping points are reached (Homer-Dixon, 2006; Senge, Smith, Kruschwitz, Laur, & Schley 2008).

To address these complex environmental challenges, governments, researchers, organizations, businesses, and communities are increasingly working in collaboration to develop multifaceted approaches and/or interventions. These include multiple systems and involve multiple stakeholders in order to avoid only addressing the needs of one stakeholder group and to share the limited resources, avoid duplication, and to enhance outcomes. Part of the rationale behind the increase in collaborative approaches is the connection between organizational

collaboration and group dynamics, which claims that collaborative efforts, as opposed to competitive or individualistic efforts, tend to result in superior accomplishments due to increases in creative thinking and the generation of novel solutions.

Not surprisingly, given the increasing attention paid to collaboration and the growing number of organizational collaborations, there has been considerable discussion of collaboration among writers in academic and practice areas including the social (e.g., welfare) and health (e.g., mental health) systems. Yet, at present, there is no agreed upon definition of organizational collaborations. Most definitions refer to long-lasting partnerships or other forms of association among organizations to create a “new structure with full commitment to a common mission” (Mattessich, Murray-Close, & Monsey, 2001, p. 60). In this study, collaboration is referred to as the deliberate processes and actions of a group of individuals and/or organizations working together to enhance commonly agreed upon long-term goals by decreasing duplication and competition and increasing novel approaches to problem-solving by means of a) critical, creative, and synergistic thinking and b) shared commitments, risks, responsibilities, resources, and rewards.

Increasingly, environmental projects and research across North America in fields such as resource management, environmental resource governance, environmental justice, food security, and environmental health are seeing an increase in collaborative approaches that include organizations such as interest groups, businesses, advocacy groups, and governments (e.g., Culley & Hughey, 2008; Davis, 2002; Farquhar & Wing, 2008). At the same time, organizational collaborations face many obstacles; in fact, there is general consensus in the literature that successful collaborations among organizations and their representatives are difficult to achieve (e.g., Nelson, Prilleltensky, & MacGillivray 2001) thus frequently

jeopardizing the intended goals of collaborations. To address the effectiveness⁷ of collaborations, multiple authors have identified facilitators and barriers to collaboration over the past several decades. There has also been a steady growth in collaboration models (e.g., Mattessich et al., 2001; Schulz, Israel, & Lantz, 2003; Sofaer, 2000). Furthermore, scholars have continuously made the case for more empirical research on collaborative effectiveness (e.g., Wandersman, Goodman, & Butterfoss, 2005) and an increasing number of researchers are applying emerging research tools such as social network analysis to study, strengthen, and develop new collaborations (Cross, Dickmann, Newman-Gonchar, & Fagan, 2009; Freedman & Bess, 2010; Prell, Hubacek, Quinn, & Reed, 2008).

Many researchers who have applied social network analysis in the context of organizational collaboration also suggest, anecdotally, that it is a useful process tool aimed at increasing effectiveness of collaborations through increasing understanding of collaboration and informed decision-making among collaborative members (Provan, Veazie, & Staten, 2005). However, to the best of my knowledge, there is no research to date that has systematically examined how participants have perceived the usefulness of social network analysis as a collaborative process tool.

In sum, practice and research indicate an increase in organizational collaborations in North America. Despite their (potential) advantages, collaborations are challenging; suggesting that organizations may benefit from new collaboration tools and advanced models that can increase collaboration effectiveness. With regards to collaboration tools to enhance effectiveness, social network analysis as a tool may in fact support collaborative efforts to increase understanding of collaboration and informed decision-making among collaborative

⁷ Effectiveness implies the level to which collaboration goals are achieved.

members. However, empirical research examining the use of social network analysis as a process tool is only slowly emerging.

Research Aims

The research aims of this study did not develop with linearity. Originally intended as a research project during my doctoral studies (not my dissertation) using social network analysis to study the structure of networking and collaboration among environmental organizations in Waterloo Region, over time (in part due to the increasing complexity of the original study), I decided in 2012 to transform the project into this dissertation by expanding the aims of the study by including practices of collaboration and investigating the use of network analysis as a collaborative process tool. In order to answer the additional research questions, I added interviews and focus groups to the methods of the study, effectively changing the study design to a sequential explanatory mixed methods design⁸ (Creswell & Plano Clark, 2011).

In this study I acquired and analyzed statistical data from local environmental organizations (original study) and then followed up with a select number of organizations to explore collaboration in Waterloo Region with more depth (expanded study). More specifically, in the first phase I used quantitative data to produce a snapshot of collaboration in 2011 through network description and network visualization (i.e., sociograms) by way of social network analysis. In the second phase, I used qualitative open-ended semi-structured focus groups and interviews to a) explain the results of the social network analysis (i.e., structure of the current collaboration) and b) to develop a more detailed, comprehensive, and in-depth understanding of the definitions, values, and practices of collaboration in Waterloo Region.

⁸ An explanatory sequential mixed methods design is characterized by a two-phased process where quantitative results are followed up by qualitative results to explain the initial quantitative results.

The specific aims of this doctoral dissertation are:

1. Empirically study the level of networking and collaboration among organizations addressing environmental issues in Waterloo Region.
2. Contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations by practitioners in Waterloo Region.
3. Investigate the usefulness of social network analysis as a process tool to improve understanding and to increase informed decision-making regarding collaboration.

Study in the Context of Community Psychology

This study is both methodologically and substantively relevant to community psychology for three main reasons. First, although environmental sustainability is relatively new to community psychology, community psychologists such as Bennett (2005), Riemer (2010), Harré (2011), and Reich (Riemer & Reich, 2011) have increasingly focused on this area illustrating the links between environmental sustainability and core community psychology values such as community wellbeing. Second, the topic of collaboration is congruent with values of community psychology, in particular with regards to participatory and value-based approaches to research. However, genuine collaborations have only minimally been implemented in community psychology (Prilleltensky & Nelson, 2009). Thus, the field can profit from further studies on how to develop effective collaborations. This study will supplement the growing body of scholarship on collaboration in community psychology (e. g., Culley & Hughey, 2008; Foster-Fishman et al., 2001; Nelson, Prilleltensky, & MacGillivray, 2001; Trickett, & Ryerson Espino, 2004; Wolff, 2010). Finally, in the spirit of community psychology and its commitment to action-oriented science that aims to create transformative social change (Nelson & Prilleltensky, 2010), the objectives of the proposed study also included actionable results such as information

to local environmental organizations that has the potential to assist organizations to make informed decisions regarding current and future collaboration. In fact, Riemer (2010) suggested that knowledge regarding effective collaboration and the use of social network analysis could be an important contribution of community psychology to advance the environmental agenda.

Organization of this Dissertation

This dissertation is organized around the three rather distinct research aims of the study. As such, each of the research aims has one result and one discussion section. In Chapter 2 I discuss the complexity of environmental challenges and identify the need for a paradigm shift to address environmental challenges through collaboration. This is followed by an examination of the underlying theoretical and practical considerations of collaboration as well as the use of social network analysis as a process tool for increasing understanding of networks (and collaborations) and informed decision-making among network members. In Chapter 3 I focus on the broad methodological issues such as social position, my ontological position, my research approaches including collaboration and action orientation, the overall study design, and the site selection of this study. In Chapters 4 and 5 I discuss the particular phases of the study in more detail including the two methods, sampling, data collection, data analysis, methodological challenges and limitations, ethical considerations, verification and community feedback. In Chapters 6, 8, and 10 I report the findings of the three main study aims while in Chapters 7, 9, and 11, I provide a discussion of the study aim findings. In Chapter 12, the final and concluding chapter, I present a table (Table 20) with the main findings and sub-findings, the practical and theoretical implications, the study's overall limitations and strengths, the transferability of the findings, key topics for future research, strategies for knowledge mobilization, and some personal reflections.

Chapter 2 - Conceptual Framework

In general I would say that collaboration is crucial if we're [environmental organizations in Waterloo Region] going to get anywhere on the environmental front. Energy 2

What are some real benefits [of collaboration]? It's a good question because it's kind of always assumed that collaboration is better.—Justice 2

Collaboration, as a concept and practice, has become ubiquitous in the realm of social change. Social housing services partner with food banks to address the economic challenges of their clients and environmental conservation organizations collaborate with educational services to reach a broader segment of the population. Unfortunately, collaboration is easier said than done. In order to be successful, collaborative projects may do well paying increased attention to both the benefits but, more importantly, the important phases and tasks of collaboration such as goal development, stakeholder inclusion, and relationship development among participants.

This chapter is divided into three sections. In the first section I outline the present state of the environment and discuss the complexity of environmental challenges through the use of the “wicked problems” definition introduced by Rittel and Webber in 1973. Identifying the need for a paradigm shift to address environmental challenges, I then discuss approaches to addressing environmental challenges with a focus on collaboration among environmental organizations. I conclude the section with the first research aim of this study, namely to empirically analyze the level of networking and collaboration among organizations addressing environmental issues in Waterloo Region.

In the second section of this chapter, I present the underlying theoretical and practical considerations of collaboration including characteristics, challenges, and several models and frameworks aimed at increasing collaboration effectiveness. I conclude this section with the

second aim of this study, namely to contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations by practitioners in Waterloo Region.

In the final section of this chapter, I present the use of social network analysis to identify potential collaborative members and discuss its proposed usefulness as a process tool for increasing understanding of networks (and collaborations) and informed decision-making among network members. I conclude this section with the third aim of this study, namely to investigate the usefulness of social network analysis as a process tool.

Collaboration among Environmental Organizations

We're in a giant car heading towards a brick wall and everyone's arguing over where they're going to sit.—David Suzuki

At present, there is little doubt among scientists that the global environment is deteriorating rapidly. The world is facing multiple environmental challenges such as air and land pollution, biodiversity loss (i.e., reduction of the variety of species), resource depletion (e.g., deforestation, loss of land, loss of freshwater, overfishing), the impacts of invasive species, and global climate change. There is a growing recognition among scholars that the current path humanity is on is jeopardizing the ability of future generations to sustain themselves (Millennium Ecosystem Assessment, 2005; Kajikawa, 2008; Rees, 2010; Weaver, 2008).

Global Climate Change

Among the many environmental challenges, global climate change is one of the most complex challenges faced by humanity and the world's ecosystem today and is predicted to have multifaceted environmental, economic, and social challenges (Jerneck & colleagues, 2010; Riemer, 2010; Speth, 2005, 2008, 2012). Andrew Weaver, Canada's leading climate scholar and

a member of the Intergovernmental Panel on Climate Change (IPCC) argues that global climate change will result in unevenly distributed multiple problems for the world and humanity. For example, a worldwide increase in temperature of 0.9 to 1.5 degrees above the 2008 levels is predicted to destroy between nine and 37% of the world's species.

In addition, an increase in temperature will also affect water availability and security, the severity of storms (e.g., hurricanes) and heat waves, and create rising sea levels threatening coastal communities in many parts of the world (Weaver, 2008). This could, according to Speth (2008) displace over 800 million people. Similar warnings have come from environmental activists such as Al Gore (2006) and David Suzuki (Suzuki & Taylor, 2009). What is more, these consequences of an increase in global temperature are predicted to have multiple geopolitical impacts (Paskal, 2010; Speth, 2008). According to political theorists such as Cleo Paskal, global climate change will generate much political tension. A good example of present political tensions as a result of global climate change are the sovereignty claims among the United States, Canada, Russia, Norway, and Denmark over the Northwestern Passages which, due to thinning summer ice, is opening a new sea route that connects the Atlantic and Pacific Oceans and access to previously unreachable natural resources.

Global climate change is also expected to create civil disobedience (e.g., the failure of civic order during a famine due to crop failures or natural disasters), increase worldwide migration (e.g., urbanization due to loss of fertile land), and wars (e.g., civil war between ethnic groups over natural resources), eventually redrawing the world map (Paskal, 2010).

Importantly, there is an increasing recognition that personal well-being and environmental protection are fundamentally linked to one another and that environmental challenges are linked to growing social inequality, neglect, and the erosion of democratic

governance and popular control. For example, Rogers and colleagues (2012) illustrate that social sustainability is dependent on such issues as a functioning ecosystem providing food security, natural resources, as well as the psychological benefits of access to nature and outdoor recreation. At the same time, environmental sustainability dimensions such as the protection of the environment are dependent on social dimensions of happiness, sense of identify and place, as well as hope for the future. The theory that well-being and environmental protection are fundamentally linked to one another is supported by claims from the environmental justice movement (e.g., Agyeman, 2005), activists-scholars such as Gustav Speth (2008, 2012), and those concerned with the link between health and equity within societies (e.g., Wilkinson & Pickett, 2010). A pertinent example is with the use of corn crops for biofuel production to lower carbon emissions in an attempt to help those who have carbon intensive lifestyles as it can increase suffering of those most disadvantaged. In a country such as Mexico, corn-based products (e.g., corn tortillas) are an important dietary staple. However, using corn for the production of biofuels increases the price of corn, leading to food insecurity for lower-income people. In countries where there is a high level of income inequality, this may impact in particular historically marginalized communities and women.

While this is only a partial discussion of the current state of global climate change, there is little doubt among scholars that immediate action is needed to steer clear of further environmental degradation (in particular global climate change) in order to avoid critical tipping points (Homer-Dixon, 2006; Rees, 2010; Senge et al., 2008) and potentially devastating social impacts. The question however remains: What do effective and practical actions and solutions to these many environmental challenges look like?

The Complexity of Environmental Challenges

Environmental challenges such as global climate change are exceptionally complex and can be described as “wicked problems”, a term introduced by Rittel and Webber in 1973 (Kreuter, De Rosa, Howze, & Baldwin 2004; Riemer & Schweizer-Ries, 2012). Generally, the term is used to describe problems that are influenced by a multitude of political, social, and economic systems and exhibit differing and often divergent values, ways of framing of the problem, and approaches to solutions among the many stakeholders (Kreuter et al., 2004; Rittel & Webber, 1973). Many environmental challenges are “wicked problems” by this definition given that they are influenced by a multitude of political, social, and economic system and are categorized by value conflicts, diverse ways of framing the issue, and divergent solutions envisioned by their stakeholders.

Global climate change, for example, is deeply entrenched in issues of political debates (e.g., how political parties use the threat of global climate change in their election platforms), social opinion (e.g., personal attitudes towards global climate change, the level of acceptance of scientific research on global climate change, religious beliefs), economic interests (e.g., oil producing companies and tax collecting regions), and differing ways of framing solutions (e.g., carbon reduction versus carbon storage). While global climate change is arguably the most complex environmental problem, most other environmental challenges such as deforestation, air/land/water pollution, and biodiversity loss are similarly entrenched in multiple complex political, social, and economic systems.

Albert Einstein is thought to have proposed the idea that “we can't solve problems by using the same kind of thinking we used when we created them” (cited by Senge et al., 2008, p. 10). In the case of environmental challenges there does indeed seem to be an increasing

recognition that a paradigm shift or a “necessary revolution” (Senge et al., 2008) is required—one that encourages different thinking in order to address the present-day complex environmental challenges (Rees, 2010; Senge et al., 2008, Weaver, 2008).

Collaborative Approaches to Address Environmental Challenges

If we humans are good at anything, it's thinking we've got a terrific idea and going for it without acknowledging the potential consequences or our own ignorance.—David Suzuki

Most (if not all) complex environmental challenges cannot be solved with simplistic (however terrific ideas) such as panaceas (attempts to apply a single cure-all solution to problems) that address only one system, the needs of one stakeholder group (Kajikawa, 2008), or do not consider the potential consequences. Complex environmental challenges require that any approach and/or intervention to address them be multifaceted, include multiple systems, and involve multiple stakeholders—including considering and acknowledging the potential consequences. The present-day attempt to reduce carbon emissions to achieve energy independence through corn-based biofuels as described above is a good example..

Not surprisingly, international bodies, national and local governments, businesses, non-profit organizations, communities, and universities—to name a few—are increasingly using collaboration in their attempts to create multifaceted and multilevel policies, programs, and projects to address the vast number of environmental challenges through mitigation (activities that help stop the environmental issue), adaptation (adjusting to the environmental issue and decreasing damage), and conservation—a classification used frequently to categorize different types of environmental activities (Swim et al, 2009; Weaver, 2008). What follows is a description of some examples of collaborative efforts at different societal levels (i.e., international, governmental, local, and education).

An example of an international collaborative effort is the IPCC, established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988, which aims to provide the world community with scientific knowledge on global climate change through the collaborative efforts between numerous scientists from 194 countries (IPCC, *no date*; Weaver, 2008). An example of a national collaborative approach includes the 2002 Climate Change Plan for Canada by the National Government that, recognizing that any plan has to be “a made-in-Canada approach based on collaboration, partnership and respect for jurisdiction”, aims to balance economic growth with a reduction in greenhouse gas emissions (Government of Canada, 2002, p. 1). Another example of a national collaborative approach is the 2007 British Columbia’s Climate Action Team that includes representatives from numerous stakeholders such as First Nations, local politicians, the energy industry, the agricultural industry, architecture, academics in environmental studies and political science, and the Chief Executive Officer of the David Suzuki Foundation, which aims to provide expert advice regarding the reduction of greenhouse gas emissions to the government of British Columbia (BC Ministry of Environment, *no date*; Weaver, 2008).

One example of a local collaborative approach within the Waterloo Region is ClimateActionWR, which aims to collaboratively create and implement a community-wide greenhouse gas inventory and reduction plan (Sustainable Waterloo Region, *no date*). Another is the Community, Environment, and Justice Research Group at Wilfrid Laurier University, which promotes meaningful collaboration between scholars and communities through joint decision-making with regards to research projects (CCRLA, *no date*). One other example is the Grand River Environmental Network (GREN), which is a member-driven network of self-declared activists, guardians, and concerned citizens who use consensus decision-making to engage in

environmental advocacy in the Grand River watershed (Grand River Environmental Network, *no date*).

Examples of collaborative community projects include the Ecovillage⁹ *Whole Village* in Ontario and the worldwide movement called Transition Town¹⁰, both of which, through the use meaningful, intentional, and consensus-driven approaches, encourage individuals to collaboratively create sustainable and resilient communities in response to challenges such as global climate change and environmental degradation (Transition Network, 2001; Whole Village, 2011).

Collaborations in Environmental Research

While research collaborations have been particularly prominent in community health and community-based research for health (e.g., Minkler & Wallerstein, 2003/2008), many other areas in academia have seen an increase in collaborations including the various environmental areas (Trickett & Espino, 2004). Examples of environmental research that portray or investigate collaboration and are published in the academic literature in fields such as resource management (Davis, 2002; Prell et al., 2008), environmental resource governance (Culley & Hughey, 2008), environmental justice (Farquhar & Wing, 2008; Jordan & Gust, 2011; Minkler, Breckwich Vásquez, Tajik, & Petersen, 2008; Shepard, Breckwich Vásquez, & Minkler, 2008), food security (Breckwich Vásquez, Lanza, Hennessey-Lavery, Facente, Halpin, & Minkler, 2007), and environmental health (Freudenberg, 2004; Hemphill Fuller et al., 2011; Kegler, Rigler, & Ravani, 2010; Parker et al., 2003).

⁹ Ecovillages can be defined as an intentional housing community of individuals who are aiming towards and committed to living environmentally sustainable lifestyles (Fellowship of Intentional Communities, 2011)

¹⁰ Transition Towns originated in the United Kingdom as community-led responses with the goal to make local communities more resilient to peak oil and global climate change (Hopkins, 2008).

Most of these environmental research collaborations can be grouped into three main categories: (1) activist collaborations; (2) collaborations related to governance and participation; and (3) community-university collaborations. First, activist coalitions are most often developed by community members. One prominent example is the Mothers of East Los Angeles (MELA) coalition. Founded in 1984 by several community activists, the group initially blocked the construction of a maximum-security prison in East Los Angeles by creating a coalition with over three thousand members. Over the years, the group also successfully hindered the establishment of a municipal waste incinerator, created a project to distribute energy efficient light bulbs, and participated in a community-university partnership to study the links between environmental exposure and children's health with two Californian universities (Freudenberg, 2005).

Second, scholars have also observed the emergence of different approaches to environmental governance and public participation in resources management (e.g., Davis, 2002) and hazardous waste management (e.g., Culley & Hughey, 2008). For example, Culley and Hughey describe federally-mandated or legislated local participation in the case of toxic pollution in Sugar Creek, Missouri. Analyzing the different roles and power dynamics among community organizations in the context of the mandated coalition, the authors concluded that, due in part to a lack of governance in the publically organized group, the project largely failed to give local residents and organizations a voice.

Third, an increase in community-university partnerships has been observed in environmental research (Lynn, 2000). This is mainly due to the fact that funding for environmental research by organizations such as the U.S. National Institute of Environmental Health and in Canada both the Canadian Institutes of Health Research and the Social Sciences and Humanities Research Council of Canada increasingly require collaboration (Israel et al.,

2005; Lynn, 2000). However, it is noteworthy to identify that simply requiring collaboration does not automatically result in authentic collaborations. In addition, professional associations such as the American Psychological Association call for an increase in collaborative research by recommending “the development of national and international collaborations with other individuals and associations inside and outside of psychology” in its task force report on global climate change (Swim et al., 2009, p. 8). Examples of community-university research partnerships include Woburn in Massachusetts and Love Canal in New York where collaborative research between community members and university scientists successfully linked exposure to toxic waste and contaminants to physical defects and illness (Lynn, 2000). Similar community-university partnerships exist internationally. One such example is a soil conservation initiative involving two universities, one in Belgium, and one in Ecuador, both partnering with local organizations (Dewulf, Craps, & Dercon, 2004).

Study Aim 1: Identify the Level of Local Networking and Collaboration

Analyzing networking and collaboration data using social network analysis (an emerging tool to assess collaboration—see section 3 in this chapter), my first aim of this study is to empirically analyze the level of networking and collaboration among organizations addressing environmental issues in Waterloo Region.

Collaboration Practice

I think collaboration can be a very good and necessary thing. However, it can also be weighed down with perhaps some barriers. But, ideally you do want to be collaborating and working together.—Participant in Food Focus Group

There is widespread agreement among scholars as well as most practitioners (including the one quoted above) that collaboration—done properly—produces improved outcomes and may be indispensable to address today's environmental challenges.

The Case for Collaboration

Collaboration as a solution to complex problems is by no means exclusive to environmental challenges, and scholars have observed a considerable increase in collaborations in many areas (e.g., health, social services, public administration, education, feminism) throughout North America over the past several decades (Bolland & Wilson, 1993; Israel, Schulz, Parker, Becker, Allan III, & Guzman, 2003; McMurtry et al., 2012; Milward & Provan, 1998; Proven et al., 2005; Strand, Marullo, Cutforth, Stoecker, & Donohue, 2003; Trickett & Espino, 2004; Monk, Manning & Denman, 2003; Peck & Stephens Mink, 1998; Wane & Massaquoi, 2007).

Part of the impetus for the move towards using collaborative approaches to address complex challenges is the connection between organizational collaboration and group dynamics. More specifically, findings on the nature of groups, group development, and the relationships between group members have greatly advanced the general understanding of group dynamics and group effectiveness over the past decades (Johnson & Johnson, 2009). In a 1989 meta-analysis of studies on collaboration versus competition, Johnson and Johnson (2009) found that collaborative efforts, as opposed to competitive or individualistic efforts, tend to result in superior accomplishments. The meta-analysis also found that collaboration in groups increased the following activities; that is (a) willingness to take on and persist with difficult tasks, (b) critical thinking and metacognitive thought, and (c) creative thinking and the generation of novel solutions.

Similarly, in studies focused on group dynamics done by Muzafer Sherif and colleagues (Sherif, 1954; Sherif, 1958; Sherif & Sherif, 1953; Sherif, Harvey, White, Hood, & Sherif, 1953), it was found that when people are brought together for the sake of exposure, this simple contact will often increase competitiveness and negativity between groups, but that working together toward common goals eases prejudice and tension among groups. More recently, authors such as Don Tapscott and Anthony Williams (2010), James Surowiecki (2004), and Scott Page (2007) have identified that multiple advantages of working in groups. Tapscott and Williams (2010) discuss the importance of collaboration and networked intelligence in the post-industrial world. Surowiecki (2004) illustrates that people working in groups where the members are independent, diverse, and the group is decentralized, make better decisions than experts. Furthermore, Page (2007) conducted a series of experiments and found that groups, in particular those with diverse group members (i.e., demographic difference, difference in expertise, and difference in intelligence) almost always did better than either experts alone or a group of expert or highly intelligent people.

In essence, the argument for collaborative work is that its results are superior to that of solitary work and that these results are being generalized from group dynamics (i.e., individuals collaborating) to the work of organizations collaborating in comparison to organizations working alone. In the context of environmental collaboration, collaborative work (i.e., collaboration among local environmental organizations) is thus considered superior to solitary work (i.e., local environmental organizations work in competitive/individualistic fashion).

There are, however some critical voices worth mentioning with regards to collaboration. For example, Longoria (2005) and Koontz and Thomas (2006) suggest the use of caution regarding the unconditional embracing of collaboration as a panacea to all challenges. Longoria,

for instance, suggests that the growing use and popularity of organizational collaboration is due to the powerful symbolic qualities of collaboration and is not based on actual outcomes. The author suggests that those engaging in collaborations need to be critical by considering the symbolic and ideological perceptions of collaboration and by clarifying the intentions, practices, and outcomes of their collaborations.

One critique of collaboration includes the suggestion that collaborations which are built on consensus do not produce better outcomes compared to individuals or experts making their own decisions because the aim for consensus can suppress the needed diversity of opinion (Coglianese, 1999). This is an important consideration because more often than not, collaborations that are based on consensus models tend to be promoted as the preferential model of collaboration thus more attention needs to be paid to this. Another critique of collaboration comes from Lanier (2010), a pioneer in the field of virtual reality, who suggests that in the virtual world, online collaboration through open source and open content have not resulted in superior innovation but has stifled authentic voices and resulted in dismal failures comparing virtual collaboration to Maoism. His critique seems to be a neo-liberal response to the collective aspect of collaboration and interdependence, and as Tappscott and Williams (2010) point out, Lanier seems to confuse collaboration among relatively independent individuals with the stifling results of Soviet style communism.

What these critical voices have in common is the fact that they base their criticism on the practice of collaboration, not the notion of collaboration per se. In other words, the authors point out that certain practices of collaboration (e.g., blindly embracing collaboration, using consensus models, and coercing people) may have negative outcomes. However, in my view, these

important critiques are not an argument against collaboration per se but they in fact strengthen the argument for increased attention that needs to be paid to the practice of collaboration.

Overall, it should come as no surprise that, according to Foster-Fishman, Salem, Allen, and Fahrbach (1999) there has been an increase in scholarly articles and practice-focused books on collaboration. There has also been an increase in funding agencies requiring collaboration through the active inclusion of local communities and other relevant stakeholders (Israel, Lantz, McGranaghan, Kerr, & Guzman, 2005; Mattessich et al., 2001; Wandersman et al., 2005). In the context of academia, approaches to collaborative research are historically rooted in action research, initiated by Kurt Lewin in the 1940s (Minkler & Wallerstein, 2008). Contemporary research approaches that are collaborative in nature include participatory action research (Fals-Borda & Rahman, 1991; Park, Brydon-Miller, Hall, & Jackson, 1993), action research (Reason & Bradbury, 2001), value-based partnerships (Nelson et al., 2001), transformative research and evaluation (Mertens, 2009), sustainability science (Jerneck et al., 2010; Kajikawa, 2008; Riemer & Schweizer-Ries, 2012), complexity science (Homer-Dixon, 2006; McMurtry, 2010; Westley, Zimmerman, & Patton 2007), empowerment evaluation (Fetterman, Kaftarian, & Wandersman, 1996), community owned and managed research (Heany, Wilson, & Wilson, 2007), community-based participatory research (CBPR) (Minkler & Wallerstein, 2003), feminist approaches to research collaboration (Monk, Manning & Denman, 2003; Peck & Stephens Mink, 1998, Wane & Massaquoi, 2007) and interdisciplinary research (Klein, 2004; McMurtry et al, 2012; Repko, 2011).

The commonalities among these forms of research are in their action-orientation and collaborative principles including actively involving multiple stakeholders such as service providers, services users, and funders.

Characteristics of Organizational Collaborations

Building on existing the literature on collaboration, in this section I will discuss forms and characteristics of collaborative work, followed by a discussion of the working definition of collaboration used for this study. Forms of organizational collaborations generally include approaches such as organizational partnerships (Labonte, 2005), coalitions (Sofaer, 2000), alliances (Butterfoss, Goodman, & Wandersman, 1993), and consortia (Bailey, 1992). Mattessich and colleagues (2001) observed that collaboration is often used interchangeably in the literature with other terms such as networking (sharing information), cooperation (informal interaction with no shared mission), or coordination (some formal affiliation with some shared mission and some shared resources). While each form (i.e., networking, cooperation, and coordination) tends to have similar short-term and long-term goals, the distinction between the terms is important to note (for a detailed comparison see Mattessich et al., 2001, p. 61).

Despite their differences and lack of a clear and common definition of collaboration (Longoria, 2005), these forms of collaborations by and large imply long-lasting associations among previously independent members to create a “new structure with full commitment to a common mission” (Mattessich et al., 2001, p. 60). Membership commonly includes a broad level of stakeholders including (but not limited to) concerned and affected community members, community leaders, community-based organizations, professional organizations, government agencies, private businesses, research institutions, funding agencies, and institutions of higher learning in a variety of combinations (Butterfoss et al., 1993).

Collaborations also typically have clear collaborative structures and shared risks, responsibilities, resources, and rewards and—most importantly—tend to have similar short-term goals and long-term outcomes (Mattessich et al., 2001; Wolff, 2010). The key short-term goal is

to unify partners by bringing together a range of different resources, skills, and expertise (Allen, 2005; Gray, 1989; Israel, Lantz, et al., 2005; Johnson & Johnson, 2009; Klein, 2004; Provan et al., 2005; Repko, 2011; Wandersman et al., 2005) to create synergy (Lasker, Weiss, & Miller, 2001) or collaborative advantage (Lank, 2006) that will help the collaborating partners accomplish more than any one person or group could have done independently. The desired long-term outcomes of organizational collaborations are to address complex problems and elicit systemic change (Foster-Fishman, Berkopwitz, Lounsbury, Jacobson, & Allen, 2001). Outcomes can include effectiveness of services, political influence (e.g., demonstrating and developing public support and critical mass), organizational scope (e.g., engaging in new and broader issues, learning from other organizations), recruitment of diverse stakeholders (e.g., politics, business, marginalized communities), utilization of emerging resources, and developing trust among organizations and communities (Lank, 2006; Wandersman et al., 2005).

In this study, collaboration is defined as the deliberate processes and actions of a group of individuals and/or organizations working together to enhance commonly agreed upon long-term goals by decreasing duplication and competition and increasing novel approaches to problem-solving by means of a) critical, creative, and synergistic thinking and b) shared commitments, risks, responsibilities, resources, and rewards.

Challenges of Organizational Collaborations

There are several important interrelated issues linked to organizational collaborations: (1) there is a lack of clearly identified logic between the use of collaboration and the long-term outcomes; (2) long-term outcomes are influenced by more factors than merely the existence of a functioning collaboration; and (3) the symbolism and ideologies of organizational collaboration have the potential to overshadow difficulties and barriers of collaborations; (4) power dynamics

often play into collaborations; and (5) the practice of developing and maintaining effective organizational collaboration is a difficult task.

First, there seems to be a lack of clearly identified logic between the use of organizational collaboration and the long-term outcomes in the community (Lasker et al., 2001; Provan et al., 2005). Second, and related to point one, long-term outcomes are influenced by more than the existence of collaboration—whether it is functioning or not. Therefore, an effective collaboration does not routinely lead to successful long-term outcomes, nor does the lack of a collaboration lead to unsuccessful long-term outcomes (e.g., Mattessich et al., 2001). For example, in the absence of funding, even a well-functioning collaboration might not be successful in achieving its long-term goals. Third, authors such as Longoria (2005) caution that the dominant symbolic qualities and ideological values surrounding organizational collaborations potentially overshadow the lack of conclusive empirical data confirming a relationship between organizational collaboration and long-term outcomes. Further, this disconnection is suggested to hinder critical thinking and deliberate collaborative engagement. Fourth, issues of power (including gender dynamics), race and class, historical patriarchal systems, and Eurocentric perspectives of knowledge and expertise are often present in collaborations, as many critical scholars such as feminist scholars point out (hooks, 1982, 1989, 1990, 2003; Monk, Manning, & Denman, 2003; Ng, 1993; Peck & Stephens Mink, 1998).

Finally, developing and maintaining effective collaboration is a difficult task (Gray, 1989; Gruber, Homburg, Irrek, Kristof, & Prose 2002; Longoria, 2005; Mattessich et al., 2001; McMurtry et al., 2012; Wandersman, et al., 2005; Wolff, 2001). In fact, there is widespread recognition that even successful collaborations are burdened with challenges and barriers. Aside from different ways of framing problems among the different stakeholders, other typical

challenges can include participants who are not truly willing to collaborate, a history of communities being exploited (e.g., Aboriginal peoples, women, racialized communities), vague goals, and difficult group dynamics (power imbalances, conflict, etc.) to name a few (e.g., see Delhi, 2008; Gray, 1989; Heaney et al., 2007; hooks, 1990; Lafrenière, Diallo, & Dubie, 2007; Mattessich et al., 2001; Nelson et al., 2001; Provan et al., 2005; Staggenborg, 2012; Stoecker, 2008; Strand et al., 2003; Wallerstein, Polascek, & Maltrud, 2002; Wandersman et al., 2005; Wolff, 2011).

In the context of environmental collaboration, common observations of challenges include differences in how problems and goals are framed by the diverse stakeholders (Bouwen & Taillieu, 2004; Dewulf et al., 2004; Gray, 2004), barriers related to power and decision-making (Culley & Hughey, 2008), and conflicts that surface between local, regional, and government stakeholders (Davis, 2002). These challenges are by no means comprehensive. Suzanne Staggenborg (2012) for example describes in her book *Social Movements* that even organizations with similar goals such as Greenpeace, the Sierra Club, and the World Wildlife Fund are often distinct in their ideologies and strategies and may be in competition with each other with regards to membership and funding, thus making collaboration exceptionally challenging.

Given these considerations of multiple outcomes and numerous challenges, many authors maintain that organizational collaborations would undoubtedly benefit from a more systematic investigation (Israel et al, 2003; Parker et al., 2003; Rubin, 2000; Trickett & Espino, 2004; Wallerstein et al., 2002; Wandersman et al., 2005). This raises the following questions: (1) What factors are to be considered in order to create successful collaborations; and (2) What models exist to assist and evaluate organizational collaborations?

Accordingly, the next part of this section focusses on several collaboration models and frameworks that attempt to include relevant collaboration factors. Some of the models also provide suggestions for evaluation.

Collaboration Models and Frameworks

Many authors have attempted to identify the determinants of collaborative success and outcomes by identifying facilitating factors and barriers to collaboration effectiveness in the form of models, frameworks, guides, and tools (e.g., see Butterfoss et al., 1993; Foster-Fishman et al., 2001; Kumpfer, Turner, Hopkins, & Librett, 1993; Parker et al., 2003; Sofaer, 2000; Wandersman et al., 2005; Wolff, 2011). The majority of publications on collaboration are in health (Schulz et al., 2003; Sofaer, 2000; Wallerstein, Oetzel, Duran, Tafoya, Belone, & Rae, 2008), social/human services (Gray, 1989; Mattessich et al., 2001), environmental and sustainability sciences (Kajikawa, 2008; Selin & Chavez, 1995), and community psychology (Nelson, Amio, Prilleltensky, & Nickels, 2000).

What follows are brief descriptions of three of the models/frameworks that have been proposed to conceptualize collaboration for the purpose of assisting collaborative development and/or assessing collaborations. The list is by no means exhaustive, although an attempt has been made to represent a diversity of approaches. The three models were selected due to (a) their comprehensive nature, (b) their reputation and recognition in organizational collaboration (i.e., Mattessich et al., 2001 and Schulz et al., 2000), (c) their foci on different collaborative issues such as assisting practitioners (Mattessich et al., 2001; Nelson et al., 2000); (d) their ability to evaluate collaborations (e.g., Schulz et al., 2001), and (e) their capability to conceptualizing values principal to collaboration (Nelson et al., 2000).

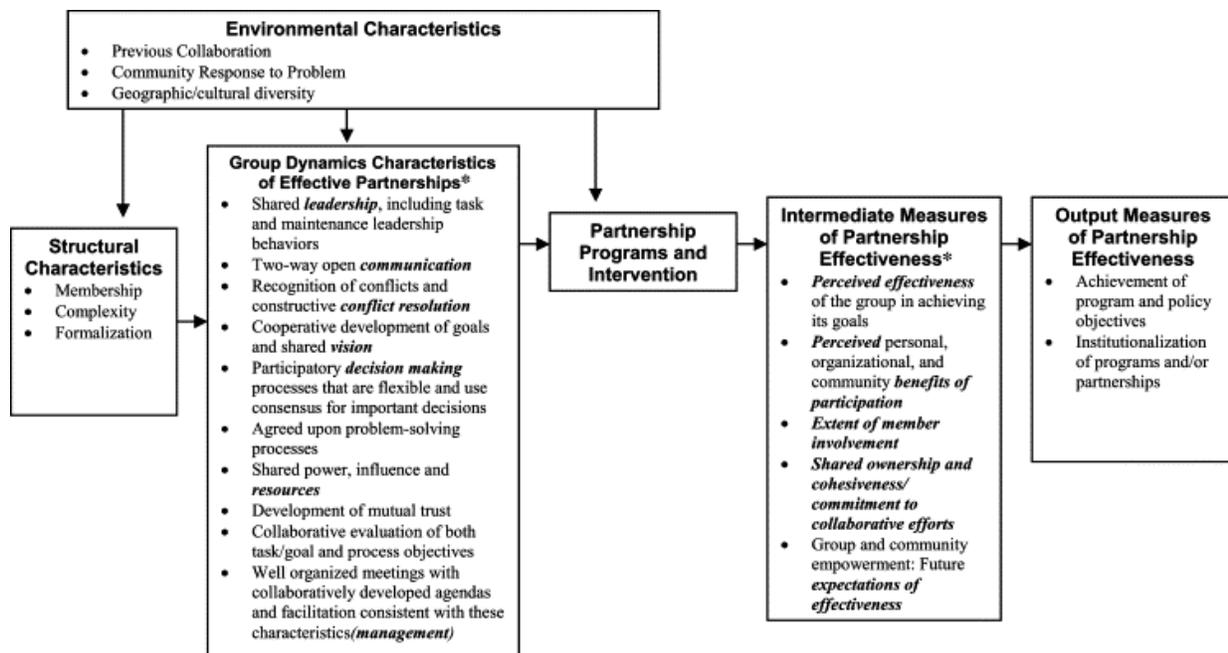
Examples of models and frameworks. The report put forward by Mattessich and colleagues (2001) is primarily aimed at assisting organizational collaborations. Based on a comprehensive and systematic review of 18 research studies on collaboration (purposefully avoiding published manuals and non-research publications), the authors identify success factors and provide a collaboration inventory to assess collaborative structure and capacity. While the authors claim that their work is not a manual for collaboration, it presents 20 success factors and a chapter on how to apply them in collaborations.

The factors identified are structured within six main dimensions, namely: (1) environment (i.e., collaborative history, group legitimacy, and the social and political climate); (2) membership characteristics (i.e., respect, stakeholder diversity, view of benefits to all involved, willingness to compromise); (3) process and structure (i.e., ownership, broad and diverse layers of membership, openness towards and willingness to change collaborative structures, ability to adapt, sufficient balance between changing needs and collaborative capacity); (4) communication (i.e., formal communication channels, informal communication channels); (5) purposes (i.e., clear and realistic goals, common vision, separate purpose); and (6) resources (i.e., sufficient staff, money, materials, and time, competent leadership).

Another example of a model to assist in collaborative work is the “partnership development model” proposed by Nelson and colleagues (2000). Based on six steps, the model aims to support consultants in education and psychology in the implementation of value-based collaborations. The six steps include: (1) creation of the partnership; (2) clarification of values, visions, and principles; (3) identification and merger of strengths; (4) the act of collaboratively defining the problem; (5) the act of collaboratively developing the program; and (6) collaborative evaluation of the program.

Another example, aimed largely at assessing collaborations in community-based participatory research, is the conceptual framework by Schulz and colleagues (2003) based on their work with leaders in the field and on Sofaer's (2000) seminal guide for collaboration. Their framework, shown in Figure 1, is divided into three parts, namely (1) general partnership characteristics (e.g., environmental, structural, and group dynamics); (2) program/intervention; and (3) measures of program/intervention effectiveness (intermediate and output measures). Among the general partnership characteristics, the authors include environmental characteristics (history of collaboration and its diversity), structural characteristics (e.g., membership, formalization), and group dynamics (e.g., trust, conflict resolution). Following the program/intervention, the authors include both intermediate measures of effectiveness (e.g., perceived effectiveness of the group, perceived community benefits, shared ownership) and output measures of partnership effectiveness (e.g., achievement of program objectives and institutionalization of program/intervention).

On the whole, the majority of resources, models, and frameworks for collaboration tend to focus strongly on managing group dynamics and processes (e.g., trust, communication, and power), ways of assessing/evaluating collaborations, and specific stages of the development of collaborations. The three models described above nicely illustrate the focus on group processes and group dynamics in terms of Dimension 3 (process and structure) and Dimension 4 (communication) put forward by Mattessich and colleagues (2001) and the general partnership characteristics (in particular group dynamics) put forward by Schulz and colleagues (2003). Schulz and colleagues (2003) also focus largely on developing a framework for assessing and evaluating the collaboration processes, structures, and outcomes as do Mattessich and colleagues (2001) through their collaboration inventory.



* From Johnson and Johnson 1982, 1997. Italicized and bolded items were derived from Johnson and Johnson, and also included in Sofaer 2000. Other items were derived from Johnson and Johnson, and are not included in Sofaer's model.

Figure 1. Copy of conceptual framework for assessing partnerships in community-based participatory research by Schulz and colleagues (2003). From "Instrument for evaluating dimensions of group dynamics within community-based participatory research partnerships," by A. J. Schulz, B. A. Israel, and P Lantz, 2003, *Evaluation and Program Planning*, 26(3), p. 251. Copyright 2013 by Elsevier. Reprinted with permission.

In terms of process, Nelson and colleagues (2000) conceptualize the collaborative development of educational programs as a somewhat staged process through their use of steps. However, while many models and frameworks (including but not limited to the ones presented above) provide important empirical and practical insight into collaboration most tend to overlook important components such as evaluation of collaboration type, organizational readiness (including organizational cultures), analysis of stakeholders and membership, and collaboration

goals. Moreover, only a handful of models of collaboration (e.g., Gray, 1989; Selin & Chavez, 1995) conceptualize collaboration as a process of change over time.

Process model for organizational collaboration. Based on multiple years of reviewing and synthesizing scholarly and practice-oriented literature on collaboration in policy research (e.g., Cox, 2000), public administration (e.g., Provan & Milward, 2001; Wartburton, Everingham, Cuthill, & Bartlett, 2008), health (e.g., Butterfoss et al., 1993; Lasker et al., 2001), community health (e.g., Parker et al., 2003), health prevention (e.g., Kumpfer et al., 1993), human/social service delivery (Foster-Fishman et al., 2001; Milward & Provan, 1998), environmental sustainability (Kajikawa, 2008), environmental health (e.g., Freudenberg, 2004; Lynn, 2000), and group dynamics (Johnson & Johnson, 2009; Napier & Gershenfeld, 1999), I co-developed a process model of collaboration with Dr. Manuel Riemer. Not included in this review were more critical perspectives such as feminist discussions with regards to collaboration, collaborative scholarship, and activism among feminist geographers (e.g., Monk, Manning, & Denman, 2003), women's studies and literary criticism (e.g., Peck & Stephens Mink, 1998), and scholars in education (e.g., hooks, 2003; Ng, 1993) who focus on important aspects such as reflexivity, positionality, power, gender dynamics, intersectionalities of identities, and challenging the Eurocentric perspectives of feminism and collaboration. In addition, the review did not include the overlapping but distinct area of collaborations among and between individuals from different disciplines (i.e. multidisciplinary, interdisciplinary, and transdisciplinary collaborations) as described by scholars such as McMurtry (McMurtry et al, 2012), Klein (2005), Klein (2004), and Repko (2011).

The goal of the collaboration process model is to provide academics and practitioners with a tool that is intended to be practical and accessible while based on empirical evidence to

the degree available in the reviewed literature. This model (shown in Figure 2), is both a synthesis of the literature on collaboration and a response to the identified limitations of existing models such as evaluation of collaboration type, organizational readiness, analysis of stakeholders and membership, and contextualizing collaboration as a process of change. We considered it important to conceptualize collaboration as a process, one that includes stages which change. Stages of change can include (but are not limited to) formulations of an ideas, including collaborative partners, determining goals, developing plans, and implementing plans as a group. Stages of change can also include (but are not limited to) participants' own perspectives of collaborative work (e. g. the perceived value of collaboration, goals of collaboration, trust towards collaborative partners) as well organizational perspectives and policies regarding collaboration (e. g., policies, legal requirements).

In order to conceptualize the dynamic change process, the collaboration process model applies the Transtheoretical model by Prochaska and DiClemente (1984) as an overarching framework. Also known as the Stages of Change model, the Transtheoretical model describes the change process (from no change to full change) in five distinct and non-linear stages providing strategies and processes to move through these stages. While conceptualized as an individual health behaviour change model, the model has also been conceptualized and applied in organizational contexts. For example, Prochaska, Prochaska, and Levesque (2001) consider the Transtheoretical model a valuable concept for organizational change management, and Whelan-Berry, Gordon, and Hinings (2003) applied it as a framework to analyze an organizational change management project.

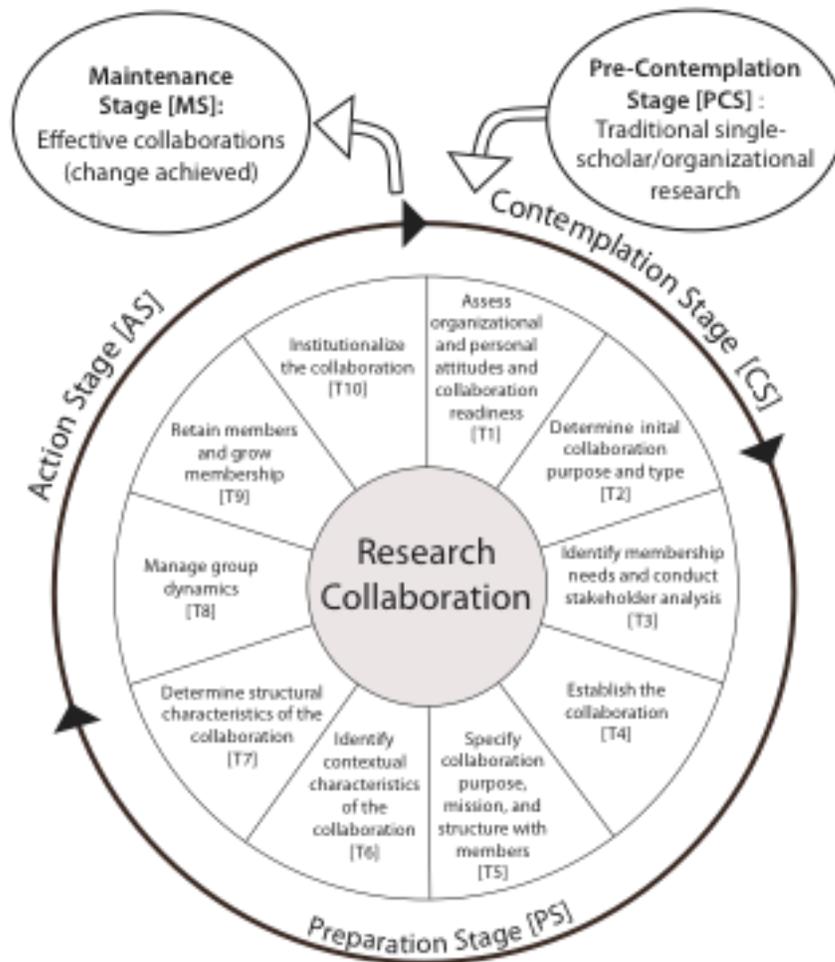


Figure 2. Collaboration process model by Münger and Riemer (2012).

The collaboration process model includes all five stages of the Transtheoretical model in the context of moving from single organizational work towards equitable and sustained organizational collaboration. As such, the model moves from Pre-contemplation (reliance on the traditional single-organizational work) to Contemplation (starting to consider organizational collaboration), Preparation (gearing up and establishing collaboration), Action (managing and institutionalizing collaboration and its membership), and Maintenance (sustaining the collaboration). While the collaboration process model implies linearity, the authors recognize

that change is often not linear and believe that the potential risk of rigidly conceptualizing the progression of collaboration in such an idealized abstraction is outweighed by the advantages of considering the most critical task at the different stages in order to create effective collaborations.

Our literature synthesis identified ten different collaboration tasks (T1-T10) that are linked to the five stages of change: assess organizational and personal attitudes and readiness (T1); determine initial collaboration purpose and type (T2); identify membership needs and conduct stakeholder analysis (T3); establish the collaboration (T4); specify collaboration purpose, mission, and structure with members (T5); identify contextual characteristics of the collaboration (T6); determine structural characteristics of the collaboration (T7); manage group dynamics (T8); retain members and grow membership (T9); and institutionalize the collaboration (T10). For a more detailed description of the model see Münger and Riemer (2012) and Chapter 9 in this dissertation.

In sum, while collaborations have the potential to increase outcomes of approaches to complex problems, their success is based on multiple facilitating factors and barriers. Following the above models, many of which are based on research-based evidence, would suggest the existence of collaboration theory and a standard of good and/or emerging practice¹¹ in collaboration. In other words, paying attention to facilitators and purposefully avoiding barriers

¹¹ I purposely use the term good and/or emerging practice because the more common term of best practice implies a clear superiority of practice that cannot be improved. However, technological progress, for example, has continued to improve practice (e.g., lobotomies as a therapeutic intervention in psychiatry would have been considered best practice in the 1950s) indicating that best practices change. Both the terms good and emerging practices provide a more contextual definition of practice suggesting a possible change and allowing for improvements.

though the use of standardized ways of approaching collaboration would suggest an increased chance of successfully reaching the ultimate goals of collaborations. Thus, the degree to which organizations follow collaboration theory and good and/or emerging collaboration practices provides the first study proposition.

Study Aim 2: Identify Local Collaboration Practice

Analyzing qualitative data collected through interviews and focus groups, my second aim of this study was to contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations by practitioners in Waterloo Region.

Social Network Analysis as a Collaborative Process Tool

We argue that the technique of [social] network analysis can assist community leaders, whether they are from the public or nonprofit sectors, in building and sustaining local networks in areas such as health and human services, environmental planning,—

Provan, Veazie, Staten, & Teufel-Shone (2005)

Social network analysis is increasingly being applied in a wide spectrum of areas (Borgatti & Foster, 2003). Applications have been done in fields such as the social sciences, natural sciences, health sciences, communication studies, and economics including subareas such as knowledge management, social capital, power mapping political networks (Fredericks & Durland, 2005).

The main concepts in network analysis are actors (individuals, groups, organizations, etc.) and their relationships (also referred to as ties or links) within a social network (e.g., Luke & Harris, 2007). Wasserman and Faust (1994) define a network as “a finite set or sets of actors and the relation or relations defined on them” (p. 20). While often critiqued as a research method that is merely descriptive, Borgatti, Mehra, Brass, and Labianca (2009) argue that social

network analysis allows for critical statistical analysis (see Chapter 4). As a research method and tool, social network analysis lends itself well to studying organizational collaboration with its focus on measuring the existence and/or absence of relationships between actors (Borgatti & Foster, 2003; Luke & Harris, 2007). However, some authors, such as Cross, Borgatti, and Parker (2002) identify the high level of investment and time needed for organizations to use social network analysis internally arguing for the necessity to identify situations where the social network analysis would produce sufficient value.

If collaboration practice is vital to the level of success of organizational collaborations, then tools that assist collaborative practice may be fundamental to their effectiveness. In the final section of this chapter, I discuss social network analysis and its proposed usefulness as a process tool for increasing understanding of networks (and collaborations) and informed decision-making among network members (a detailed discussion on social network analysis can be found in Chapter 4).

Social Network Analysis to Study Networks and Collaborations and Membership

Over the past decade, scholars such as Cross and colleagues (2009), Freedman and Bess (2010), and Prell and colleagues (2008) have used social network analysis to empirically study the effectiveness of collaboration. Others have used social network analysis to identify potential collaborative members and to increase understanding of existing organizational collaborations of organizations (e.g., Friedman, Reynolds, Quan, Call, Crusto, & Kaufman, 2007; Holman, 2008; Provan et al., 2005).

In the literature on collaborations, building membership (including membership assessment, identification, and selection) is considered an important step to creating effective organizational collaborations (e.g., T3: membership identification and stakeholder analysis in

Figure 2 process model above). More specifically, authors clearly advise collaborative membership to include all necessary skills (e.g., leadership, group negotiation), expertise (e.g., policy development, research methods), and experiences (e.g., exposure to environmental toxins). Furthermore, it is generally suggested that membership also include members from the community such as ‘movers and shakers’ in the community (e.g., well-connected advocates), members representing important policy organizations (e.g., public health staff), business and unions, professional groups (e.g., physicians, academics), and prominent organizations (e.g., local media, faith organizations) (Mattessich et al., 2001; Sofaer, 2000; Wolff, 2010).

Analysis of practice suggests that once membership needs are identified, many collaborations tend to select their membership based on familiarity instead of to “open up the problem analysis and problem solving process to a wider range of people and organizations” (Sofaer, 2000, p. 18). Scholars in environmental resource management support Sofaer’s observation. Reed and colleagues (2009), for example, argue that despite its importance, thorough stakeholder analysis prior to membership selection tends to be neglected because “stakeholders are often identified and selected on an *ad hoc* basis” (p. 1933). This kind of membership selection, according to Reed and colleagues has “the potential to marginalize important groups, bias results and jeopardize long-term viability and support for the process” (p. 1933).

To avoid such uninformed and biased selection of collaboration members, Reed and colleagues (2009) propose a three-step approach to selecting members: identifying stakeholders, differentiating between and categorizing stakeholders, and investigating relationships between stakeholders. In order to identify existing relationships among stakeholders to ensure marginalized voices (i.e., individuals and/or organizations) will not be overlooked or to identify

conflicts between stakeholders, Reed and colleagues (2009) suggest using social network analysis.

Social Network Analysis to Understand and Strengthen Collaboration

Aside from stakeholder selection to develop new networks, network analysis has also frequently been used to examine the effectiveness of organizational collaboration (Cross et al, 2009; Durland & Fredericks, 2005; Luke & Harris, 2007; Valente, Coronges, Stevens, & Cousineau, 2008) and a handful of researchers have used network analysis to strengthen existing networks and coalitions (Cross et al., 2009; Freedman & Bess, 2010; Holman, 2008; Milward & Provan, 1998; Provan, Huang, & Milward, 2009; Provan, Veazie, Teufel-Shone, & Huddleston, 2004). In particular, many of these researchers also suggest that network analysis is a useful process tool for increasing understanding of the network and informed decision-making among network members (Friedman et al, 2007; Holman, 2008; Milward & Provan, 1998; Provan et al., 2005). At the time of developing this dissertation study (2010), little systematic research had been published which examines how network members (i.e., collaborative organizations) and communities have perceived (a) the usefulness of network analysis in understanding the current level of collaboration among collaborative partners and (b) the potential of network analysis to improve and/or formalize existing collaborations.

Study Aim 3: The Use of Social Network Analysis as a Process Tool

Analyzing qualitative data collected through interviews and focus groups for Study Aim 2, my third aim of this study was to investigate the usefulness of social network analysis as a process tool to improve understanding and to increase informed decision-making regarding collaboration.

Chapter 3 - Methodology

This dissertation has three chapters concerned with the methodology of this study. The first chapter (below) focusses on broad methodological issues such as social position, my ontological position, my research approaches including collaboration and action orientation, the overall study design (i.e., two phased mixed methods research design), and finally the site selection of this study. Chapters 4 and 5 will discuss the particular phases of the study in more detail.

Methodology

Postmodern research paradigms, such as constructivism hold that neither research nor researchers in the social sciences can be completely objective, but rather are guided by multiple personal theoretical frameworks (Butler, 2004). For this reason, many theorists such as Heron and Reason (1997), Lincoln (1995), Mertens (2009), and Watt (2007) call for critical reflexivity among researchers. Often also referred to as standpoint epistemology, this critical reflection includes positionality (social position) and epistemological standpoint (fundamental beliefs) to allow researchers to highlight “the importance of self-awareness, political/cultural consciousness, and ownership of one’s perspective” (Patton, 2002, p. 64) or, in the words of Creswell and Plano Clarke (2011), “philosophical assumptions need to be made explicit and discussed” (p, 50). Below I will first provide my social position and will then situate myself as a scholar in the context of this study in terms of my ontological position.

Social Position

The personal impetus for my current interest in research of environmental challenges began in my childhood. Growing up in Switzerland, I was exposed to Waldsterben (often translated as forest decline but more literally translated as dying [sterben] forests) in my early

teens. Based on observations from the 1970s, several European countries, including Germany and Switzerland, experienced an increase in discussion related to Waldsterben during the 1980s. Air pollution, acid rain, and pests such as the bark beetle were believed to be some of the main reasons contributing to forest decline and the topic caused much debate within my community, at school, and at our dinner table. The year of 1987 was also significant. I was 16 years old when news of the nuclear meltdown in Chernobyl spread through Europe. Watching the plume of radioactive smoke travelling towards Europe created much anxiety and discomfort among many Europeans, including my family. While the European forests did not decline as much as feared and the radioactive plume never reached Switzerland, the thought of Europe without any forests and the potential radioactive threats were vital in developing my awareness of the vulnerable relationship between nature and human beings.

My early career trajectory led me to work with vulnerable individuals as a psychiatric nurse and addictions counsellor, but over time I started to focus on the social determinants of health (Raphael, 2009) working with communities and different stakeholders creating organizational and community level interventions related to health and well-being. As a result, much of my work shifted towards collaboration. One of my first experiences of collaboration was when I was leading an Aboriginal peer project for Toronto Public Health. In this project, an Aboriginal clinician and I deliberately and successfully shifted decision-making and financial powers from the mainstream organization to a steering committee entirely comprised of Aboriginal service providers and Aboriginal key stakeholders. Soon thereafter, I joined the Centre for Addiction and Mental Health to collaborate on the development of the Scarborough Addiction Services Partnership. The project, now in existence for over 10 years, has gained much attention as a notable example of the development and implementation of community-

based services using collaborative decision-making for its funding allocations. These two examples taught me how to bring people together in politicized environments by mediating consensus within highly varied objectives in order to create collaborative infrastructure. Finally, over the past two years, I have reviewed and synthesized numerous scholarly and practice-oriented writings on collaboration that resulted in an article on university readiness for collaborative research (Eckerle Curwood, Münger, Mitchell, MacKeigan, & Farrar, 2011) and a collaborative process model (Münger & Riemer, 2012).

This study represents, in some sense, an amalgamation of the two areas of interest (i.e., the environment and collaboration) and two values (i.e., the protection of the environment and collaboration as a valuable tool to develop solutions to complex challenges). Moving from the role of a practitioner in the community, I set out to empirically investigate collaboration among environmental organizations. I believe that the local environmental organizations have a great deal of important information to share with each other but also that their collective experiences of collaboration can provide useful learnings for organizations, researchers, policymakers, and activists in the environmental movement.

As a white, well-educated, European male, my social position is clearly one of power and privilege relative to others in Canadian society. In the context of environmental research, it is notable that research has consistently identified several variables that predict environmental concern including age, gender, education, socio-economic status, residence, and political ideology (Agyeman, 2005; Buttel, 1987; Lubell, 2002). For example, reviewing environmental sociology publications, Buttel (1987) and Jones and Dunlap (2010) identify that support for the environmental movement has historically been and continues to be, restricted to young, well-

educated, affluent, liberal-minded, urban dwellers, and those employed outside of large industries.

Similarly, Agyeman (2005), in summarizing existing literature, identifies that traditional environmentalists—as opposed to people working in environmental justice—are predominantly male, of middle or upper-middle class, well educated, and white. Further, according to Krauss (1994), gender discrepancies are traditionally common within mainstream environmental movements, with “women’s groups” being considered radical and/or outliers and thus often excluded from the public sphere and blocked from policy making processes (Krauss, 2004). Reviewing literature on environmental activism, Lubell (2002) identifies many of the same variables as Krauss (i.e., middle or upper-middle class, well educated, and white) but adds that being female and nonminority status is now becoming more dominant within environmental justice-related activism. One of the explanations for the latter is explained by Krauss (1994), who points to the effect that differing social biographies can have on chosen collective action, and how the diverse lived experiences of women influence their definition of environmental justice differently than those of the white, male middle-class leadership. One example of this supported in the literature is how women’s identities as mothers impacts the strong interest in environmental justice (Bell & Braun, 2010; Culley & Angelique, 2003; Peeples & DeLuca, 2006).

There is increasing evidence that an “elitist” view of environmentally concerned citizens is simplistic and imbalanced. For example, Uyeki and Holland (2000) found that people with lower socio-economic status, lower education, and African-Americans showed more pro-environmental attitudes. Nevertheless, many of the traditional variables of environmentally concerned citizens usually found in the literature are largely congruent with my own social

position as a white, middleclass, educated, liberal-minded, nonminority, urban-dwelling man, and thus explain, to some degree, my personal trajectory towards environmental justice issues.

Finally, in the context of research on collaboration among environmental issues, my position locates me as both an insider and an outsider (for a discussion on the identity of insider versus outsider, see Fine 1994 or Humphrey 2007). On the one hand I am an insider because, according to the evidence on environmental concerns and activism, environmental organizations are expected to be run by individuals with similar social and cultural positions. At the same time I am an outsider because due to my role as a doctoral student, local environmental activists and representatives of organizations are likely to perceive me as a scholar and not an activist.

Ontological and Epistemological Position

As a scholar, my ontological position—my beliefs about reality and truth (Blackburn, 1996; Guba & Lincoln, 2005, Strega, 2005)—is primarily informed by postmodern research paradigms, namely critical theory and constructivism (Guba & Lincoln, 2005). As such, I believe that versions of reality are always located in a particular social, cultural, historical, political, economic, and gendered context (Guba & Lincoln, 2005; Lincoln, 1995) and are co-constructed by researchers, communities, and/or individuals (Guba & Lincoln, 2005). Consequently, my epistemological position holds that I, as a researcher, co-create value-mediated knowledge with research participants. While this ontological position primarily informs my identity as a scholar, in this particular study I use a pragmatist approach as discussed next.

According to authors such as Creswell, Klassen, Plano Clark, and Smith (2011) and Greene (2007) applying mixed methods designs in research poses a methodological challenge for researchers because quantitative methods such as surveys and questionnaires are associated with

positivism while qualitative methods such as interviews and focus groups are associated with postmodern research paradigms such as critical theory, constructivism, and participatory worldviews. The approach recommended by Creswell and Plano Clark (2011) suggests that researchers use multiple shifting paradigms during a mixed methods research study. While I generally acknowledge the methodological challenge of using both postpositivist and constructivist methods in a mixed methods research design, I subscribe to a pragmatist approach (i.e., combination of both paradigms) over multiple paradigms that shift during a research study. The reasons for this are that a) through incorporating both paradigms, pragmatism supersedes biased loyalty to particular paradigms (in my case critical theory and constructivism), b) focuses on consequences of actions, c) is centred on problems, and d) is oriented towards real-world practice (Creswell & Plano Clarke, 2011; Patton, 2002). Pragmatism also allowed for me to keep my postmodern research paradigm (i.e., critical theory and constructivism) in particular when analyzing the qualitative data while incorporating postpositivist methods such as network analysis (Onwuegbuzie, 2005).

Furthermore, the research objectives were congruent with this description of pragmatism. As such, I recognized that while the quantitative methods in this study (i.e., descriptive statistics and in particular network analysis) are intended to produce one objective reality of the current collaborative structure among environmental organizations, the qualitative methods (i.e., interviews and focus groups) provide rich detail related to collaboration, multiple realities and perceptions of the advantages and challenges of collaboration, as well as subjective understandings and meanings of the quantitative results of the collaborative structure identified using network analysis. Furthermore, my research focus is on consequences of actions (i.e., positive and negative outcomes of collaborations), is problem-centered (e.g., environmental

sustainability is central to the research), and real world oriented (i.e., producing actionable results for the local environmental organizations).

Research Approach

Aside from critical theory, constructivism, and pragmatism, two additional and equally important dimensions increasingly inform my practice as a scholar. First, I believe in the importance of scholarly work to be action oriented through tools such as action research introduced by Kurt Lewin in the 1940s (Minkler & Wallerstein, 2003/2008), transformative research and evaluation (Mertens, 2009), and feminist approaches to research aimed at challenging hierarchical structures and creating societal change (e.g., Monk, Manning, & Denman, 2003, hooks, 2003; Dominelli, 2013; Wane & Massaquoi, 2007). Second, I generally attempt to apply participatory approaches such as community-based participatory research (Minkler & Wallerstein, 2003/2008), participatory action research (Fals-Borda & Rahman, 1991; Park et al., 1993; Reason & Bradbury, 2008), value-based partnerships (Nelson et al., 2001), sustainability science (Jerneck et al., 2010; Kajikawa, 2008), and community owned and managed research (Heaney et al., 2007). Consequently, I am also collaborative in my research and seek to meaningfully involve stakeholders in the research processes and try to frame research questions and findings in a way that encourages and empowers individuals and communities to create action. In the following section, I will describe both collaboration and action orientation of this study in more detail.

Collaboration

First, the impetus of this study stems from local environmental organizations. As the co-director of the research group, Dr. Manuel Riemer had asked representatives of local organizations dealing with environmental issues to contribute to the research foci of the research

group. Many of the participants eventually also became participants in this research. More specifically, during a community meeting of the Community, Environment, and Justice Research Group in March 2010, several attending members expressed the desire to move beyond a loose network of collaborating environmental organizations towards the development of a formalized network such as an umbrella group.¹² However, some attending members voiced caution because they perceived the current level of collaboration among environmental organizations as functional and felt that further collaboration could be too time consuming, thus suggesting that the network should be analyzed before attempts are made to create formalization such as a coalition or umbrella group. At the meeting the decision was made to conduct a study on the level of collaboration among environmental organizations in Waterloo Region in order to help the members of the Community Advisory Committee to make informed decisions regarding future collaboration. Second, at several stages in Phase 1 of the study, stakeholders and research participants were engaged. For example, stakeholders reviewed, provided feedback, and approved the tools to collect network data among environmental organizations and actively contributed in binding the network (i.e., identified relevant local environmental organizations).

Orientation toward Action

During the study, I ensured communication of the network analysis through multiple presentations and reports of the results to all relevant stakeholders as proposed by authors such as Friedman and colleagues (2007) in the case of network analysis. Furthermore, in order to achieve higher levels of collaboration effectiveness, representatives of environmental organizations were engaged in multiple discussions aimed at initiating collaboration

¹² Umbrella groups are examples of formalized collaboration among organizations. They tend to officially connect organizations (often small ones) with similar goals in order to coordinate activities, share resources, and sometimes some form of identity.

improvements throughout the study. The results of Phase 1 were presented to representatives of participating organizations at two separate meetings. Two meetings were necessary because introductions of the organizations and the presentation of the finding took up most of the first meeting, leaving little time to discuss the findings among the participants. In addition to discussing the findings, time was spent at the second meeting to discuss impressions of the graphs and results, reflections on the level of connections among organizations, and discussing potential actions stemming from the results. I also authored a report that was distributed to the participating organizations in July of 2012.

Finally, with the input and assistance from representatives of several local organizations (i.e., Greening Sacred Spaces Waterloo Region, the Green Rocket, the Social Planning Council Kitchener-Waterloo: Community Information Centre Waterloo Region, the Grand River Environmental Network, ClimateActionWR / Sustainable Waterloo Region, and the Sunfish Lake Association), I led the organization of a networking meeting which took place on December 5, 2012. Just over sixty organizational representatives attended the two hour networking event, resulting in several smaller working groups focussing on distinct goals identified during the main meeting. One of these goals included working with the Region of Waterloo to develop a Green Hub, namely a publicly available physical space such as a local store front at the new transportation hub in Kitchener where environmental organizations can exhibit their work and reach out to the public. This again led to an invitation to work with the City of Kitchener to plan and implement networking opportunities on 2013 Earth Day for environmental organizations and a follow-up meeting in September 2013. For an overview of the study timeline including collaborative / participatory and research actions see Table 1.

Table 1

Study timeline including collaborative and research actions

Year	Month(s)	Community Action / Collaboration	Research
2010	Mar	Suggestion for research by environmental organizations	
2010	Mar - Aug		Background research
2010	Nov	Review and approval of survey tool by members of the advisory committee of the Community, Environment and Justice Research Group Identification of sampling frame	
2010	Dec		Ethics approval
2011	Jan		Invitation letter to potential participants
2011	Feb		Email and phone contact to potential participants
2011	Feb - Jun		Consent: organizational
2011	Apr - Aug		Consent: individual
2011	Feb - Aug		Survey data collection
2011	Sep - Dec		Quantitative data analysis
2012	Jan - Apr		Quantitative data analysis
2012	April		Ethics modification approval
2012	May - Jun	Presentations of results to participants (two presentations)	
2012	July	Distribution of community report	
2012	July – Dec		Interviews and focus group data collection
2012	Dec	Networking event one	
2013	Jan - June		Qualitative Data analysis
2013	Apr	Presentation at City of Kitchener Earth Day Event	

By involving representatives of environmental organizations in both the development and analysis of the research, I hoped to increase engagement, project sustainability, and, most

importantly, collaborative effectiveness among participants. Finally, as identified by local organizations, I also spearheaded the development of an online database of environmental organizations called the Green Directory aimed at informing community members, organizations, businesses, and academia of the variety of different environmental organizations, their contact information, addresses, missions, services, and so on.

Study Design

The research question, research aims, and design of this study did not develop in a linear fashion. While originally conceptualized as a one of my PhD comprehensive exams, the study became increasingly more complex, leading to the following main research question: *How is collaboration among environmental organizations in Waterloo Region structured, understood, and practiced?* Toward this end, I formed the following three research aims:

- (1) Empirically study the level of networking and collaboration among organizations addressing environmental issues in Waterloo Region;
- (2) Contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations by practitioners in Waterloo Region; and
- (3) Investigate the usefulness of social network analysis as a process tool to improve understanding and to increase informed decision-making regarding collaboration

Given the changes in the research question and aims I decided to complement the quantitative data with qualitative methods, namely interviews and focus groups. This effectively changed my study design from a one phase study using quantitative data only to a mixed method study. More specifically, to effectively answer the research question and achieve the research goals, I added a second qualitative phase to the study. The subsequent sequential (two-phase) explanatory, mixed methods research design was intended to acquire and analyze quantitative data from local

environmental organizations and then to follow up with a select number of organizations to explore collaborative questions such as successes, processes, challenges, and strategies in more depth. In the first (original) phase of the study, quantitative data provides an overview of the organizational variables (e.g., size, type, and goals) through descriptive statistics and produces a snapshot of current collaboration structure and level through network description and network visualization using network analysis. In the second (expanded) phase of the study, a maximum variation sample selection procedure based on the results of the first phase with regards to variables such as organizational size, centrality, and perspectives of collaboration (for more detail see Table 4), is applied to identify participants for qualitative semi-structured focus groups and interviews in order to a) explain, compare, and critically examine the results of the network analysis (i.e., structure and level of the current collaboration) and, more importantly, b) to provide a detailed, comprehensive, and in-depth understanding of the conceptualizations, practices (including the use of network analysis as a process tool), and structure of collaboration in the Waterloo Region.

Mixed Methods

This study employs a mixed methods research design. Often described as the “third methodological movement” (Tashakkori & Teddlie, 2003, p. 5) after the development of quantitative and qualitative methods, mixed methods is believed to have its origins in the 1980s in areas such as sociology, evaluation, nursing, management, and education primarily in the United States, the United Kingdom, and Canada (Creswell & Plano Clark, 2011). One important factor that led to the use of mixed methods is the recognition that the “complexity of our research problems calls for answers beyond simple numbers in a quantitative sense or words in a qualitative sense” (Creswell & Plano Clark, 2011, p. 21) thus highlighting the idea that the

amalgamation of both methods is superior to using one method alone in order to understand a given research problem (Creswell et al., 2011).

A mixed methods research design works well with the objective to investigate how collaboration is understood, practiced, and structured among environmental organizations because the two different methods provide two different and distinct ways of illustrating collaboration. In this particular case, the quantitative methods (in particular network analysis) produce snapshots of collaboration at the point of the research through network description and network visualization. Based on static snapshots, the qualitative methods (i.e., focus groups and interviews) on the other hand provide a more holistic understanding of collaboration, which often cannot be identified through numeric information (Pancer, 1997) by presenting a detailed, comprehensive, and in-depth understanding of the context and meaning of collaboration (Creswell et al. 2011; Lincoln, 2010; Nelson, Ochocka, Janzen, Trainor, & Lauzon, 2004; Patton, 2002; Strega, 2005).

Due to a multitude of considerations such as fixed versus emergent design, analytic logic, timing, priority, point of interface, phases, and theoretical and conceptual orientations (Creswell et al., 2011) there are multiple ways to conceptualize the different ways of classifying mixed methods research designs (e.g., Creswell et al., 2011; Greene, 2007; Patton, 1990). For example, Creswell and Plano Clark (2011) describe six major prototypes of mixed methods research designs: 1) convergent parallel design, 2) explanatory sequential design, 3) exploratory sequential design, 4) embedded design, 5) transformative design, and 6) multiphase design. In this study, I apply the third major prototype, namely the explanatory sequential design.

Explanatory Sequential Mixed Methods Design

An explanatory sequential mixed methods design is characterized by a two-phased process where quantitative results (Phase 1) are followed up by qualitative results (Phase 2) to explain the initial quantitative results. The rationale for this approach is that the qualitative results that are based on the quantitative data provide a deeper understanding of research problems (Creswell et al., 2011; Creswell & Plano Clark, 2011). This particular mixed methods design is most congruent with the study due to its sequential nature. More specifically, the analytic logic of the study is such that the qualitative dataset (interviews and focus groups) builds on the results of the initial quantitative dataset (survey).

This particular study has the following additional characteristics as they relate to mixed methods design. The point of interface (also called integration) between the methods is twofold. First, integration of the methods occurs during data collection. Using a strategy of “connecting” (Creswell & Plano Clark, 2011) I use the results of the quantitative strand to determine the collection of the qualitative method in particular in terms of the sample selection for the interviews and focus groups. This approach is termed “emergent design” by Creswell & Plano Clark (2011). Second, both methods are combined during the final step when both datasets had been collected and analyzed through a process of comparing and synthesizing the results in the discussion component of the study. Figure 3 is a diagram of the procedures applied in this study.

This particular study also has two areas that are not completely congruent with typical explanatory sequential mixed methods designs. First, explanatory sequential mixed methods designs are generally used by quantitative researchers and thus prioritize the quantitative component of a study (Creswell & Plano Clark, 2011).

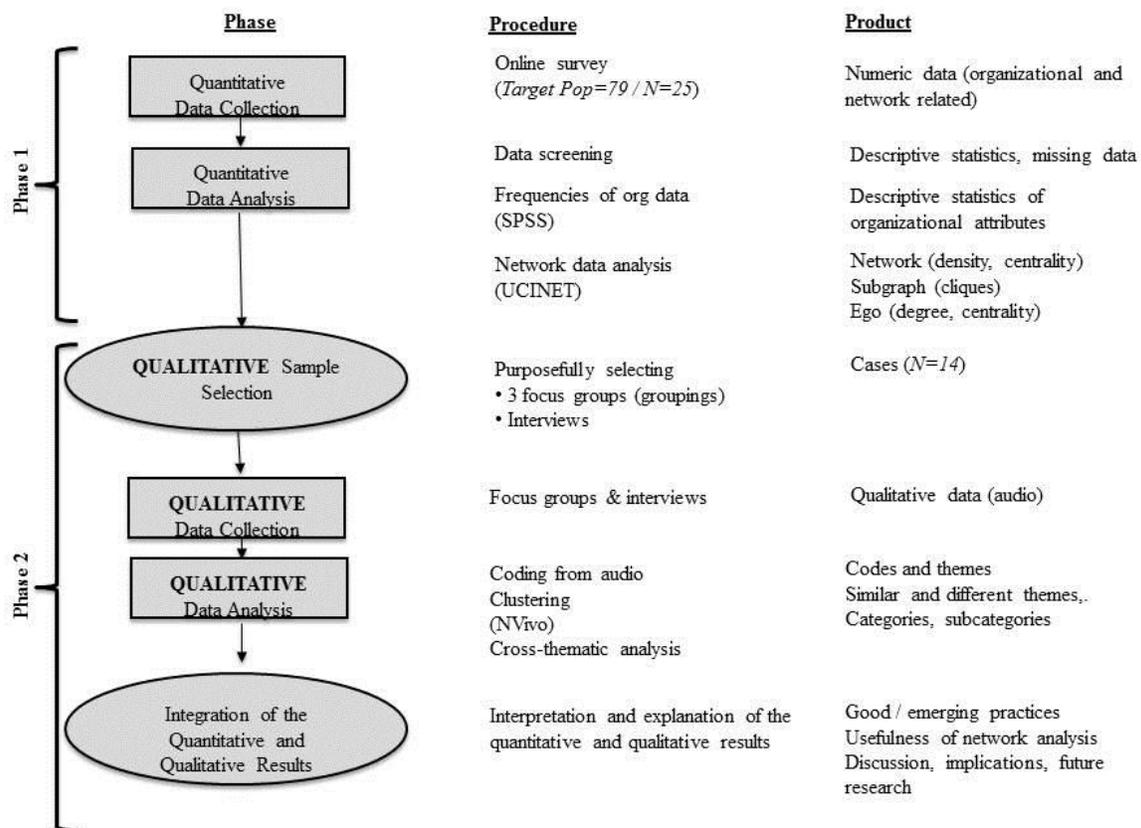


Figure 3. Diagram of Study Procedures.

In the case of this study, however, priority is put on the qualitative methods (i.e., interviews and focus groups). More specifically, given the large network, it was clear to me from the outset that the network analysis would not likely produce a complete network, a suspicion that was confirmed (for more information see Phase 1 validity section). Furthermore, the main research questions are not focused on the quantitative results but on the qualitative results such as meaning, practice, and experiences. As a result, this particular component of the design is most congruent with the “participant-selection variant” whereby the investigator

focuses on the qualitative methods “but needs initial quantitative results to identify and purposefully select the best participants” (Creswell & Plano Clark, 2011, p. 86).

Second, given the sequential shift of methods from quantitative to qualitative and the often quantitative priority of such a mixed methods research design, Creswell and Plano Clark (2011) encourage investigators to shift their worldviews from a postpositivist worldview to a constructivist worldview during the research (Creswell & Plano Clark, 2011). However, as discussed earlier, I subscribed to a pragmatist approach in the context of this study throughout, rather than shifting from one worldview to another.

Challenges of explanatory sequential mixed methods designs. Despite the fact that this mixed methods design is considered comparatively straightforward, the design nevertheless tends to have four main challenges: 1) the time consuming nature of the design; 2) not knowing the participant selection procedure of the qualitative phase until the quantitative phase is completed which can make research ethics approval difficult; 3) not knowing which quantitative results need to be explained during the qualitative phase due to the emergent nature of the research design; and 4) the fact that an investigator needs to create criteria for participant selection in the second phase (Creswell & Plano Clark, 2011).

Several of these challenges apply to this study. In terms of challenge one, I was fully aware of the time-consuming nature of this type of research design and had scheduled adequate time to complete both phases. Challenge two and four (participant selection criteria and procedure) were not an issue in my research as I predetermined the participant selection criteria as well as procedure (see Table 4 for Phase 2 sample selection) and asked participants in Phase 1 if I could contact them again. Similarly, challenge three (which quantitative results to follow up during the qualitative phase) was not an issue as I planned to follow up on the overall results

(i.e., sociograms of the level of collaboration) that were predetermined and the interview questions were sufficiently broad which did not pose ethical dilemmas.

Given the sequential (two-phased) nature of the study and the use of two distinct methods (quantitative and qualitative methods) which require different considerations such as the target population, sampling procedure, ethical considerations, data collection, analysis, and limitations, I will present the two phases separately. In Chapter 4 (Quantitative Method), I discuss Phase 1 of the study; that is the phase of the study focused on the structures of networking and collaboration in Waterloo Region using quantitative data. In Chapter 5 (Qualitative Method), I discuss Phase 2 of the study; that is the phase of the study focused on the practices of collaboration and the use of network analysis as a process too using qualitative data.

Site Selection

There were multiple reasons for selecting Waterloo Region, Ontario (Canada) including its population spread throughout a mixture of urban and rural areas, diversity of industries, and a multitude of environmental efforts. First, the region has a population of just over half a million individuals with a continuing increase in its diverse ethno-cultural makeup (Statistics Canada, 2007) spread throughout several mid-sized municipalities (Cambridge, Kitchener, and Waterloo) and four rural townships (Wellesley, Woolwich, Wilmot, and North Dumfries). Second, the Waterloo Region's economy is based on farming, manufacturing industry (e.g., automotive, furniture, food), banking and insurance, knowledge industry (e.g., Research in Motion/Blackberry), and the region hosts two universities and one college (Region of Waterloo, 2010a). Third, over the past years, Waterloo Region has seen a growth in the amount of environmental organizations in general and several collaborative efforts among a broad cross-section of environmental organizations (ranging from community-based to governmental

organizations) had been launched in the region such as the ClimateActionWR (Sustainable Waterloo Region, *no date*) and the Community, Environment, and Justice Research Group at Wilfrid Laurier University. While there was a lot of interest, movement, and collaboration among local environmental organizations there was no umbrella group or other structure of formalized collaboration as of the December 2011.

In sum, the Region of Waterloo can be seen as representing typical mid-sized North American regions that are not as densely populated as major metropolitan areas (e.g., Toronto) but are also not largely dominated by rural areas and farming. As such, there is the potential that findings from this study may be transferable to similar regions in North America. At the same time, in terms of the environmental work, this region was exemplary. As such, for the purpose of this study, the region also provided access to an example of what may be possible for other regions. The limitation of using an exemplary case is the fact that other regions may not be at the same stage thus limiting the transferability of the findings.

Chapter 4 - Phase 1: Quantitative Method

In Phase 1 of this study I collected and analyzed quantitative data in order to identify the level of networking and collaboration among environmental organization in Waterloo Region through network description and network visualization using social network analysis (see Chapter 6 for results and Chapter 7 for discussion). This phase of the study corresponds with the first aim, namely to empirically study the level of networking and collaboration among organizations addressing environmental issues in Waterloo Region.

In this chapter, I present methodological issues related to Phase 1 including sampling frame, data collection, and data analysis. This is followed by a discussion of challenges and limitations, ethical considerations, and data verification and community feedback of Phase 1.

Sample

The target population of this study depended on several factors because the boundaries of a network (as conceptualized by the theory) are an important methodological design issue related to sampling in social network analysis (Foster-Fishman et al., 2001; Luke & Harris, 2007). In particular, social network analysis tends to work with bounded full, pre-determined networks (e.g., a class of 20 students), in order to represent the truest possible analysis and illustration of any given network. With input from the Community Advisory Committee of the Community, Environment, and Justice Research Group, I developed the following inclusion criteria related to (1) organizational goals (i.e., organizations that work towards and promote environmental protection), (2) organizational type (i.e., non-profit organizations such as government agencies, charitable organizations, academic institutions, voluntary organizations, conservation associations, and groups, networks, associations, or interest groups), and (3) location in Waterloo Region (i.e., including provincial or national organizations with a local chapter/office).

Building on work by the United Nations World Summit on Sustainable Development (2002) and with further input from the Community Advisory Committee of the Community, Environment, and Justice Research Group, I categorized environmental foci to include agriculture (e.g., community supported agriculture), conservation (e.g., biodiversity), energy (e.g., green buildings), transportation (e.g., carpooling), waste and pollution (e.g., waste education), water (e.g., water reduction strategies), health (e.g., air quality), environmental education and development (e.g., sustainable community development), environmental interest group (e.g., green community), technologies (e.g., biotechnologies), food (e.g., food safety/justice), environmental justice (e.g. globalization), and other (e.g., media, law) in this study.

Recruitment

After several weeks of internet searches, conversations with key stakeholders, and emails requesting key stakeholders to identify appropriate organizations, a sampling frame was identified (including numerical identifiers, contact information, etc.) of 79 organizations in Waterloo Region that fit these criteria and formed the bounded network ($n=79$). I decided to aim for an inclusive sample; that is including all 79 organizations in the study. This decision was important as social network analysis requires bounded networks to represent a valid picture of a network (see above). A research assistant and I then used this sampling frame / bounded network and contacted the organizations by email and mailed senior organizational leaders such as executive directors invitation letters including two \$5.00 gift certificates to a local Coffee Shop (one for each of the future participants completing the surveys) to recruit the organizations for the study in January 2011 (appendix 1). Providing incentives, in particular those that are not tied to participation, has been identified as increasing the level of participation in research. For

example, Edwards and colleagues (2002) reviewed 292 randomized controlled trials and found that the response rate in mail surveys that included financial incentives as compared to surveys without such an incentive was double and doubled again with unconditional (not tied to participation) financial incentives.

Following the invitations including the gift certificates, the research assistant or I contacted the organizations per email and/or phone starting in February 2011 and, if applicable, explained the details of the study using the script (appendix 2) and provided an opportunity for potential participating organizations to ask questions. If an organizational representative exhibited interest in having her/his organization participate in the study, we emailed her/him an organizational consent form (appendix 3) for review and encouraged them to ask further questions before agreeing to provide organizational consent.

Informed consent. To better understand the course of the sample recruitment, a note about informed consent is in order here. In this study I applied two levels of informed consent. The first level was organizational informed consent. I assumed that if participants were to answer questions related to their organization, they needed permission from their organization. Thus, in order to protect the participant, I ensured that they had approval from their organization through requesting organizational informed consent provided by a senior manager within the organizations such as an executive director or the chair of the board of directors. Organizations provided informed consent from February 16, 2011 to June 29, 2011. The second level of informed consent was aimed at the organizational representatives identified by those providing organizational informed consent; that is those individuals who completed the actual surveys. This informed consent was linked to the online survey. Individuals provided informed consent between April 7, 2011 and August 10, 2011.

When providing organizational informed consent, we also asked the person to identify two individuals for the particular organizations who, if agreeable, would best represent the organization and should complete the study survey. Starting in April of 2011 whenever organizational informed consent was given, the research assistant or I contacted these individuals by email and/or phone, informed them that their organization had agreed to participate in the study and that they had been identified by a senior manager as a potential participant who could represent their organization well and we encouraged them to participate in the study. Again, informed consent was collected prior to data collection, this time from the individual participant (appendix 4). Participation in the study was voluntary and participants were informed of their right to withdraw from the study at any time and to completely withdraw their information from the study¹³.

From February 2011 to July 2011, the research assistant and I continued to contact organizations on our list and the respective representatives in order to encourage them to participate in the study. By late July of 2011, in a final effort to increase participation, Manuel Riemer sent out a final email encouraging his community contacts to participate in the study and/or to encourage other eligible community organizations to participate. Shortly after the email we closed the survey. During the five months of trying to encourage organizations to participate, it had become clear that many of the 79 organizations and groups would not participate in the study; the final tally was 27 individuals responding to the survey.

¹³ On a side note, in many cases (in particularly in the case of smaller organizations) it was the same person who completed the survey who also provided organizational informed consent.

Non-Response Issues and Analysis

At least three main issues can be associated with the lack of participation in the study. The first issue may have been that many organizations and groups did not have the time or resources to complete the demanding process, which involved completing organizational informed consent, individual informed consent, and the survey. The issue of resources may have been a problem for both small and larger organizations. However, it is likely that it may have been particularly relevant for the approximately 50% of the 79 organizations/groups that were in fact interest groups (i.e., groups of loosely connected individuals with similar interests that meet on a somewhat regular basis) rather than organizations. The problem, of course, may have been that most of these interest groups are guided by volunteers who will try to focus their limited time and resources on issues related to the cause of their group rather than spending it on a study that does not directly advance their cause. The second issue related to low response rate is connected to size and resources but lies in the fact that several of the listed groups were in fact subgroups of groups. To be more specific, among three of the groups related to the local universities there were a total of 18 subgroups. Each of these subgroups was headed by student volunteers, which may have found it even harder to find time and resources to complete the study or may have thought it more appropriate for their 'parent' group to participate. The 18 subgroups represent approximately 22% of the entire target population. The third issue identified is that at least three organizations/groups were in fact networks or a collective of people/groups working on environmental issues and thus may have had a hard time (or simply could not) responding behalf of the network.

The initial response rate was 27 of 79 organizations. Of those 27, one of the organizations completed only the organizational and individuals informed consents and one

organization completed very little of the actual survey (less than 30%); thus I removed these two organizations and their answers prior to data analysis (see data analysis). Thus, the final response rate was 31.65% (25 of 79 organizations). While this response rate is problematic for the purpose of social network analysis (in order to provide a true picture of a network, social network analysis tends to apply complete networks) the provided responses can still be analyzed and provide a reasonable network picture nonetheless. This is particularly important because the primary purpose of this study is to apply social network analysis to create a one-time snapshot of collaboration to engage organizations in both a dialogue about collaboration among each other and to identify organizations to interview during the second stage of the study.

Sample Distribution Phase 1¹⁴

In terms of organizational foci, among the 25 responding organizations there was a wide range of answers. Five organizations identified as focusing on environmental education, five on energy conservation, three on environmental justice, three on issues of food and agriculture, three on natural conservation, two on transportation, and four on other areas. Throughout this document, I will refer to results related to specific organizations as, for example, ‘Organization Education 1’ or ‘Organization Transportation 2’ to provide some level of description as to the focus of the organization. Similarly, when referring to participants in Phase 2, I will label the participant ‘Transportation 2’ or ‘Energy 2’. These labels correspond with the identifications of the organizations; that is the participant ‘Transportation 2’ is a representative of the ‘Organization Transportation 2’ from Phase 1. Participants in the focus groups will be labeled

¹⁴ Generally, descriptions of samples should be reported in the respective result chapters. However, given that this study has two samples and because I present sample two in the methods chapter for Phase 2 to avoid duplication, I decided to describe the Phase 1 sample in this methods chapter.

participant from ‘Natural Conservation Focus Group’, ‘Energy Conservation Focus Group’, and Food & Agriculture Focus Group’. I purposely chose to use descriptors rather than simply ‘Organization 1’ or ‘Participant 1’ because these provide context (i.e., the environmental focus of the organization and the organizational representative). Allowing organizations multiple answers, fourteen identified focusing on environmental education, twelve identified as an action group, ten identified as an advocacy group, and eight identified as a local community organization (for more detail and other foci see Figure 4).

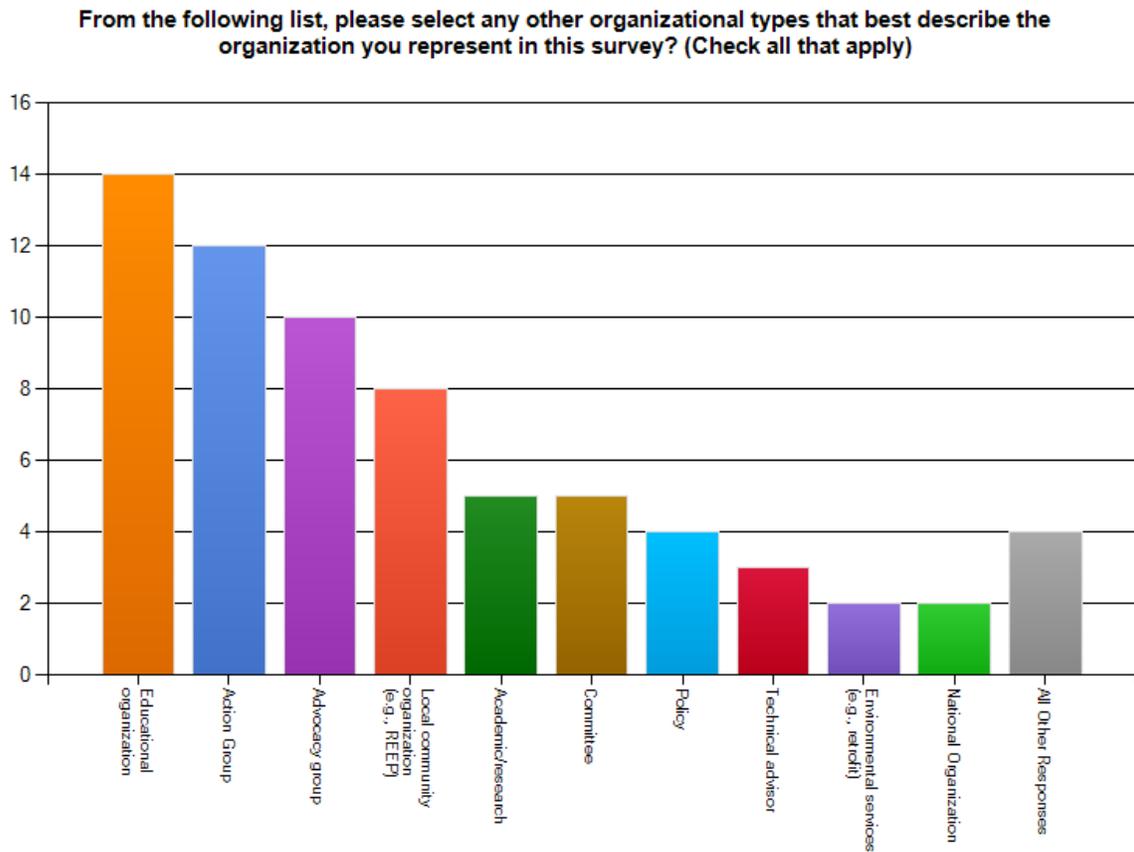


Figure 4. Organizational Type.

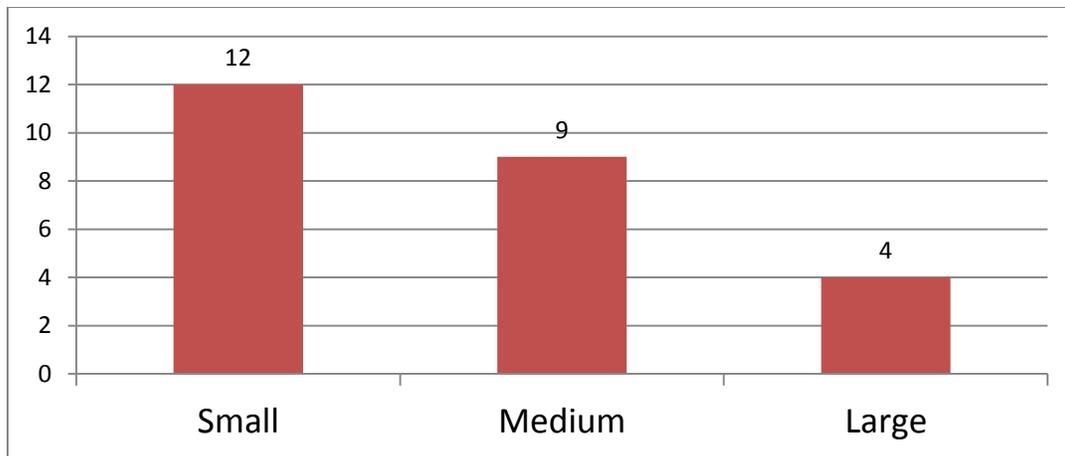


Figure 5. Organizational Budgets. Small budget, < \$50,000 annual funding; medium budget, between \$50,000 and \$500,000; large budget, > \$500,000.

Almost half of the organizations were less than five years old, approximately 60% were less than ten years old, and six organizations were older than 25 years. Annual budgets of the organizations ranged from less than \$5,000.00 to over \$500,000.00 per year; almost half had less than \$50,000.00 and only four had over \$500,000.00 (Figure 5).

When asked about achieving their environmental goals, 72% of organizations felt that they were successful (52%) or very successful (20%) while only 28% felt they were somewhat successful. No organization reported not being successful.

Finally, the majority of organizations generally felt that collaboration provides advantages such as optimizing existing resources, enhancing influence in the community. At the same time, they also identified some potential challenges such as issues in dealing with partners and that collaboration is time consuming (for more detail see Chapter 8).

Data Collection

For this study the online survey tool SurveyMonkey was used (SurveyMonkey, 2010) with close-ended questions using Likert-type scales as well as open-ended questions (for the survey tool please see appendix 5). Measures include organizational attributes (i.e., size, type, goals, openness to collaboration, perceived effectiveness of the network, and perceived need for a formalization of the network) and network measures. Network measures include levels of communication (i.e., sending and/or receiving information, joint meetings), collaboration (i.e., existence of informal agreements, non-financial formal agreements, financial formal agreements, shared resources, and if a staff/volunteer of the organization in question is a member of the board of directors or stewardship body), trust (i.e., which organizations are most trusted), prestige/reputation (i.e., which organizations are admired the most), and future collaboration (i.e., which organizations the organization hopes to collaborate with in the future). These variables were selected because they provide broad and measurable data of organizations and have been successfully used by other researchers such as Provan and colleagues (2009). The tool was tested with one community member using the “think-aloud” cognitive interviewing method (Willis, 1999).

Due to the participatory approach to the research, I decided, in partnership with the Community Advisory Committee of the Community, Environment and Justice Research Group, to also collect organizational information such as addresses, mission, services, hours, and eligibility for the purpose of developing a future public database called Green Directory with relevant information. Organizations were able to choose which information can be published in the database. Data collection occurred between April 2011 and August 2011 inclusive. The

distribution of the 25 responses over the five months was as follows: 50% occurred in April, 30% in May, 12% in June, and one response each in July and August of 2011.

Data Analysis

Prior to data analysis, I reviewed and cleaned the data noting actions in a data cleaning log. First, I reviewed answers provided by all participating organizations on SurveyMonkey. Realizing that one organization only completed the organizational and the individual informed consents but failed to provide answers to the actual survey, I removed the organization and its data from the dataset prior to downloading the data. I then downloaded the data as comma separated files. Upon reviewing the data, I observed that one organization had completed less than 30% of the survey (the 30% existed of only demographic data and no data related to communication and networking), thus I removed the organization from the main dataset.

Organizational Attributes

Data were analyzed using Statistical Package for the Social Sciences (SPSS for Windows, 2001). I analyzed organizational attributes such as size, type, goals, openness to collaboration, perceived effectiveness of the current network, and perceived need for a formalization of the network to create descriptive statistics, in particular frequencies.

Network Data

The main concepts in social network analysis are actors (individuals, groups, organizations, etc.) and their relationships (also referred to as ties or links) within a social network (e.g., Luke & Harris, 2007). Wasserman and Faust (1994) define a network as “a finite set or sets of actors and the relation or relations defined on them” (p. 20). Quantitative network data are typically dyadic in nature because social network analysis observes a value for each pair (dyad) of actors (e.g., the existence or absence of a relationship between two actors) (Borgatti &

Foster, 2003) and in the analysis, computer-based procedures and techniques are applied (e.g., Bodin, Crona, & Ernstson, 2006).

In the literature, authors generally describe three main approaches to data analysis in social network analysis: (1) network visualization; (2) network description; and (3) stochastic and longitudinal networks (e.g., Bender-deMoll, 2008; Luke & Harris, 2007). First, instead of providing numerical data to illustrate the results (e.g., tables), those applying social network analysis often use graphic representations called sociograms (developed by Jacob Moreno in 1934) to illustrate the relationships among the actors using points (representing actors) and lines (representing ties) (Carrington, Scott, & Wasserman, 2005). The example in Figure 6, a sociogram by Provan and colleagues (2004) depicts the referral links of local agencies that provide different health and social services to people with chronic disease. As can easily be identified at first glance, two organizations play important roles given their location and multiple linkages to other organizations. Easily identifiable are also organizations that are at the periphery and only marginally or not at all connected to the overall network.

Second, network description focuses on three levels of analysis (network, subgraph, and individual) (Luke & Harris, 2007). On the level of the network, the complete network is being analyzed including network attributes such as the overall connectedness and hierarchy. On the level of the subgraph, a subset of actors and their ties that create a particular subgroup or clique are analyzed for their characteristics. Finally, on the level of the individual or ego-networks, the position of an individual actor within the network and the roles are analyzed (Borgatti & Foster, 2003). For a visual overview of the three levels of analysis and some measures see appendix 6. Third, because social network analysis is descriptive in nature there has been a move to expand its applications in the development of “stochastic network modeling methods, which can be used

to test network hypotheses” as well as methods to analyze network data that are longitudinal (Luke & Harris, 2007, p. 76).

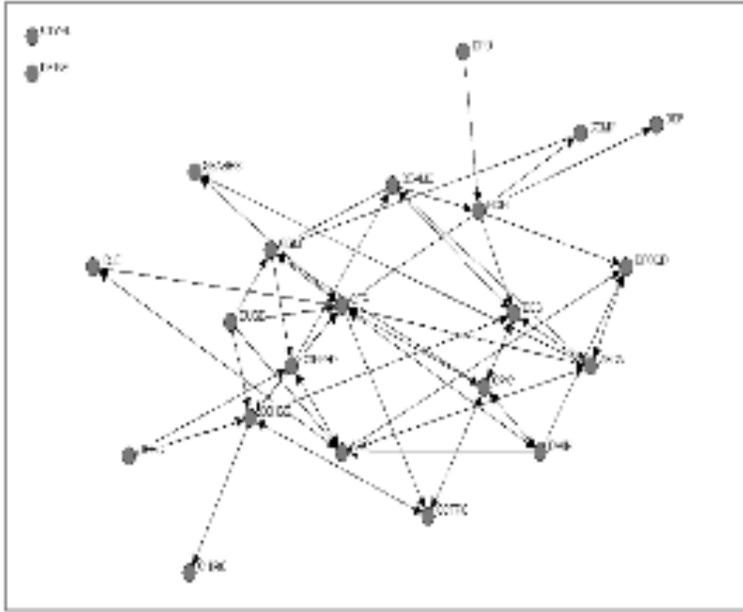


Figure 6: Depicting the referral links of agencies that provide different health and social services to people with chronic disease. From “Network Analysis as a Tool for Assessing and Building Community Capacity for Provision of Chronic Disease Services,” by K. G. Provan, M. A. Veazie, N. I. Teufel-Shone, and C. Huddleston, 2004, *Health Promotion Practice*, 5, p. 178. Copyright 2013 by SAGE Publications. Reprinted with permission.

While network analysis can produce many intricate, complex, and powerful examinations of social structures and has grown in terms of range of applications in the social and natural sciences (Durland & Fredericks, 2005; Hanneman & Riddle, 2005; Luke & Harris, 2007), the analyses and findings illustrated in this study are quite basic. More specifically, the analysis of networking and collaboration in this study is concentrated on sociograms and descriptive

analyses including density, geodesic distance, and network centralization at the network level. On the level of the subgraph, I analyzed subsets of actors and their links to identify cliques. Finally, on the level of the individual organizations, I analyzed the position of organizations within the network and resulting roles focusing on degree centrality.

In preparation for analyzing the data, I established two main matrices to represent two bounded networks. First, I established a matrix for analysis that includes the 25 participating organizations and their answers in terms of all 79 organizations (N25 by N79). While only 25 organizations responded to the survey, these 25 organizations identified their level of communication, networking, and collaboration with all 79 organizations, thus creating some interesting graphs of networking and communication among organizations. For a discussion of the usefulness and limitations of analyzing this network see below. Second, I established a matrix for analysis that included only the 25 organizations (N25 by N25).

I used UCINET software (version 6.380) (Borgatti, Everett, & Freeman, 2002) for computation of network data (i.e., networking and collaboration) and NetDraw (Version 2.119) (Borgatti 2002) to generate sociograms (i.e., visualizations) of the network. I selected UCINET for several reasons. First, the authors of the program, in particular Borgatti and Freeman, have published widely in the field of social network analysis in the social sciences. Second, Hanneman and Riddle, two sociologists, developed a free online textbook on social network analysis based on the UCINET program and its free datasets (Hanneman & Riddle, 2005). Third, UCINET comes with NetDraw, a free integrated program that can create sociograms of networks based on data computed on UCINET.

Network Visualization

The first step in this analysis was to create basic sociograms¹⁵ (Carrington, Scott, & Wasserman, 2005; Wasserman & Faust, 1994) using NetDraw. Sociograms are graphs produced using network data to visually depict the relationships between actors in a network through the use of points (actors) and connections (lines) between the actors in a two-dimensional space (Wasserman & Faust, 1999). For examples see Figures 7, 8, and 9 below. Hanneman and Riddle (2005) suggest that visual inspections of sociograms can instantly suggest some significant important features of networks. While somewhat vague, sociograms can identify, on a broad level, how organizations are linked to each other and can answer some questions such as who focal actors are in the network or how fast information would travel among organizations in this network.

In this study I use basic spring embedded visual approximations of the level of networking and collaboration among the 25 participating organizations to create the sociograms (see Chapter 6). Spring embedding algorithm moves actors in a graph close if the actors have connections among each other (Hanneman & Riddle, 2005). I then develop a basic spring embedded visual approximations of the level of networking and collaboration both among the 79 organizations. Using the node attribute tool in NetDraw, organizations that participated in the study ($n=25$) were coloured differently from organizations that did not participate in the study ($n=54$) (Figures 11 and 12).

¹⁵ To ensure the confidentiality of the participating organizations, names of the organizations have been removed in the sociograms.

Network Statistics

Second, I ran multiple analyses in UCINET to identify several characteristics of the networks. Among overall network statistics, this includes density, geodesic distance, and group centralization. I then analyzed the data for cliques. Finally, on the individual actor statistics, I analyzed degree centrality and betweenness (Luke & Harris, 2007; Wasserman & Faust, 1994, Hanneman & Riddle, 2005) (see Table 2 for an overview).

Density of the network was analyzed to illustrate the ratio of actual ties versus possible ties describing cohesion and interconnectivity among network members (i.e., how well connected they are (Hanneman & Riddle, 2005; Luke & Harris, 2007; Wasserman & Faust, 1994). Geodesic distance was analyzed to illustrate the level of distance in terms of degrees of separation between actors. Geodesic distance is defined as the distance between two actors in a network in terms of “the lengths of any shortest path between them” (Wasserman & Faust, 1995, p.161. More specifically, if actor A has a direct relationship to actor C, reaching actor C is easy and has a distance of one. If actor A has to go through actor B to reach actors C because actor A does not have a direct relationship with actor C, the distance is two. In any connected network, any organization will at some point reach any and all other organizations in the network. Hence, geodesic distance describes the shortest level for every organization to reach any other organization in the network (Hanneman & Riddle, 2005).

Group centralization was analyzed to illustrate the existence and/or absence of important actors in the network. Essentially a view of degree centrality (see below) but applied to the entire network, group centralization can illustrate how hierarchical or decentralized a network is through the existence or absence of focal actors, namely actors that are very well connected

compared to others (Hanneman & Riddle, 2005; Luke & Harris, 2007; Wasserman & Faust, 1994). For an example of a hierarchical network see the star graph (Figure 8) above.

Cliques were analyzed to illustrate if there are substructures in the network. Cliques are a common occurrence in social network analysis aimed at identifying the existence and/or absence of groupings of three or more actors, illustrating actors that create a closed network within a given network (Luke & Harris, 2007; Wasserman & Faust, 1994). For an example of a clique in a network see Figure 9 (bridged network). The actors A, C, and B produce a clique. Hanneman and Riddle (2005) suggest that networks with small and/or large cliques or those without cliques can be very different in their functioning. For example, the existence of cliques may indicate that organizations are isolated from the larger network (Hanneman & Riddle, 2005). The authors also suggest that understanding cliques in a network can help understand “how a network as a whole is likely to behave” (p. 171). For example, if a network is structured around two main cliques, conflict may exist or develop. However, if there are areas of overlap between the two cliques, potential conflict may be diffused and mobilization may increase. Provan and colleagues (2005) proposed identifying cliques and subgroups of three or more as a useful tool in social network analysis to strengthen community partnerships. For example, the strong relationships among members of a clique can be applied to the larger network or the “activities and goals of the network as a whole can be accomplished through the existing clique structure” (p. 609).

Degree centrality was analyzed for each organization in order to illustrate the different positions of organizations in the network. Degree centrality is a measure of the amount of connections each actor has and describes the position and characteristics of a single actor, highlighting its importance in the network (Hanneman & Riddle, 2005; Luke & Harris, 2007;

Wasserman & Faust, 1999). In other words, high degree centrality often means higher influence for actors, that is, central actors can be the dealmakers and brokers, and have power, influence, prestige, and prominence in the network. Figure 8 provides an example where actor A has high centrality. From among the many different measures that calculate centrality of actors, I applied Freeman's approach which is considered the most basic and widely used approach (Hanneman & Riddle, 2005). In work with community organizations, Provan and colleagues (2005) suggest that this measure, combined with community knowledge, can identify important organizations to address particular issues within a community and may be useful in building future connections given their often leadership-like positions in a network. The authors also suggest that highly connected organizations (i.e., those with high degree centrality) may be important organizations when attempting to build higher density by connecting organizations on the outside to those on the inside.

Betweenness was analyzed to describe the extent to which actors lie on the shortest path between pairs of other actors (Hanneman & Riddle, 2005; Wasserman & Faust, 1999). This measure is commonly applied to illustrate how well positioned actors are within a network actors are well positioned to be movers and shakers within a network (Hanneman & Riddle, 2005; Luke & Harris, 2007; Wasserman & Faust, 1994).

The three sociograms below are intended to provide the reader with insight into some of the different types of networks, sociograms, and measures in social network analysis. In Figure 7 all actors are all connected to each other. This network would have a density of 1. In Figure 8 a star network is displayed. In this network all organizations are connected to actor A only. This network would have a very low density and actor A would have very high centrality. In Figure 9

a network is illustrated where actor A connects actors C and B to D, which is connected to all other actors. Actor A in this network plays an important role.

Table 2

Overview of social network analysis measures used in this study

Network Level	Measure(s)	Explanation
Overall network measures	Density	Describes how each actor is connected to other actors in the overall network, illustrating the level of cohesion and interconnectivity within the network
	Geodesic distance	Describes the level of distance between organizations in terms of degrees of separation between organizations, illustrating the shortest possible level for every organization to reach any other organization in the network through the organizations that they are connected to
	Group centralization	Describes the existence and/or absence of focal actors, illustrating if the network is centralized (one or more main actors) or decentralized (no main actors)
Group measures	Cliques	Describe the existence of subgroups of three or more actors, illustrating actors that create a close sub-network within a given network
Individual actor measures	Degree Centrality	Describes the level of connectivity in regard to how many ties a single actor has with other organizations in the network and how many network activities are channeled through this actor. As such, degree centrality is related to the importance and relative power of that actor in the network
	Betweenness	Describes the extent to which actors lie on the shortest path between other actors. This measure is commonly applied to illustrate how well positioned actors are within a network actors are well positioned to be movers and shakers within a network

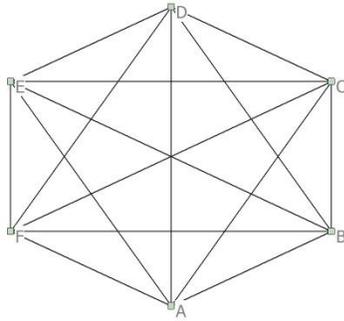


Figure 7. Fully Connected Network.

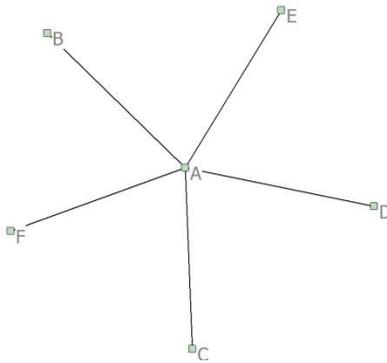


Figure 8. Star Network.

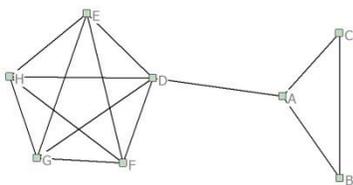


Figure 9. Bridged Network.

Methodological Challenges and Limitations

There are several methodological challenges and limitations of social network analysis that warrant discussion at this stage. These challenges and limitations are related to the target

population and the sample. Salient concerns with social network analysis are the validity, reliability, measurement error in the data, (Wasserman & Faust, 1994) all of which are discussed below.

Validity

Threats to the validity of a study in social network analysis can come about at both the sampling stage, as well as the research/measurement phase. In terms of the target population of the study, the boundaries of a network are a vital methodological design issue (Foster-Fishman et al., 2001; Luke & Harris, 2007; Wasserman & Faust, 1995). As discussed earlier, the target population; that is the original network of 79 organizations may have been too ambitious and unrealistic leading to a low rate of response of less than 30%. This, in turn required me to reconsider my approach. As a result, I created two bounded networks (see discussion above): $n=25$ and $n=79$. The first network includes only the 25 participating organizations. The second network includes all 79 organizations whether or not they provided data for the study. This second set of analyses is possible because the participating organizations were also asked to provide information about their collaboration with organizations that did not participate in the study.

The challenge is that both networks provide limited perspectives of networking and collaboration. In terms of the first network ($n=25$) the limitations of these results are that less than one third of existing organizations completed the survey. Generally speaking, the low response rate is problematic for the purpose of a network analysis because in order to provide a true picture of a network, networks analysis needs a complete network; that is a “finite set of actors” (Hanneman & Riddle, 2005; Wasserman & Faust, 1994, p. 32). Hence, while the results in this network represent a fairly accurate picture of collaboration and networking among the 25

participating organizations, the results in this category do not show organizations that are also connected to the 25 organizations but are not included in the analysis, leaving an incomplete picture of collaboration among all 79 local environmental organizations. The usefulness of these results is that they theoretically present a concise view of the level of networking and collaboration among the 25 organizations, including central players, and those on the margin.

The second network ($n=79$), shows the level of networking and collaboration among all 79 organizations. This is possible because the 25 organizations that completed the survey also identified their relationships with the 54 organizations that were missed. The usefulness of these results is that the overall picture can still be relatively accurate and informative, albeit not complete. Through the use of unconfirmed ties as proposed by Foster-Fishman and colleagues (2001) and Mandarano (2009), any time one organization identified that they collaborate with another organization, the relationship showed up in a representation of the network as existing. Hence, if an organization that participated (e.g., organization A) identified collaborating with an organization that did not participate (e.g., organization B), organization B is represented in the overall network as collaborating. The challenge, of course, is that if a second organization that did not participate (e.g., organization C) has a relationship with organization B, this relationship cannot be known through the survey and would thus not show up in the network. Nevertheless, the usefulness of representing such a network structure is that it can illustrate how the 54 organizations that did not participate are potentially linked to the 25 organizations that participated in the study. I was also able to make some assumptions about which organizations might be the most central players and which organizations are at the margin. While I presented multiple findings related to the Full Network ($n=79$) during the presentations to the participants

and in my community report (see below), I decided to limit these results in this dissertation given their limitations.

Further, there is another challenge related to the study's validity that may impact the results; that is self-selection bias. There is ample evidence of self-selection bias in paper and online surveys (Olsen, 2008). At a response rate of fewer than 30% it cannot not be ruled out that those who participated may have similar characteristics on how they and/or their organizations perceive collaboration. Without evidence to back this up, I would assume that those organizational representatives with a positive attitude toward, positive experiences with and a high level of collaboration may have been more likely to respond to the survey, possibly shifting the results towards the positive, as they related to the perceived benefits of collaboration and amount of collaboration. As a result, the low response rate may indeed have created a bias in the results, affecting the construct validity of the study.

Nevertheless, in the case of this study, such results can still be useful, given that this study approached social network analysis results as the first phase of a broader study that was aimed at developing a detailed, comprehensive, and in-depth understanding of the conceptualizations, practices, and structure of collaboration. Struggling with similar issues of, among other things, a low response rate, Robert Case (2013) conducting a similar study using social network analysis to study water activism, suggested that “survey results can be usefully taken as a viable if imperfect estimate—a reasonable caricature—of at least a core component of the social networks underlying water activism” (p. 144-145).

The description “reasonable caricature” seems an apt depiction in the case of my own study and this was supported through feedback from participants. In fact, during Phase 2 of the study, I engaged in members checking (also called respondent validation) (Maxwell, 2005).

Members checking helps to reduce the risk of misinterpretation during analysis of data by methodically obtaining feedback from participants during analysis. More specifically, member checking happened as I conducted the interviews and focus groups in Phase 2 when presenting the results of Phase 1 through the reactions by the participants to the sociograms that I presented.

Reliability

Reliability of data in social network analysis is a concern with *repeatability* throughout data collection. According to Wasserman and Faust (1994) one approach to lower this threat is to use ratings or full rank orders for measures instead of simply confirming the existence or absence of links—an approach that was implemented in this study. While I used ratings in the data collection phase, I was not able to test the reliability of the network measures through test-retest assessments, because the social structure of a network changes over time and, more importantly due to insufficient time and resources of the study and among the participants. An important component of reliability is a concern with accuracy, particularly when the study includes extensive self-reporting.

Accuracy is a concern given that participants self-report and are asked to recall, for example, their interactions with other organizations. In fact, according to Wasserman and Faust (1994), research suggests that approximately half the reports of interactions between individuals tend to be erroneous in some way. In order to address this reliability threat, I used a nearly complete list of organizations in the questionnaire, which is, according to Foster-Fishman and colleagues (2001) better than relying on memory and the study allowed both confirmed and some unconfirmed ties. A confirmed tie exists when both actors report the same relationship. An unconfirmed tie exists when only one node reports the relationship. Generally, only confirmed ties tend to be included in social network data analyses (Provan et al., 2004). However, in this

study I followed the lead of researchers such as Foster-Fishman and colleagues (2001) and Mandarano (2009) and used unconfirmed ties if they related to “a form of exchange that occurs at the organizational level (e.g., resource exchanges, joint ventures), is not dependent upon the variable behavior of employees, and implies reciprocity” (Mandarano, 2007, p. 883). As a result, in this study the unconfirmed ties were treated the same as a confirmed ties.

Measurement Error

Finally, measurement errors occur because the collection and representation of the ties within the network through measurement may in fact differ from the true structure of the network (Wasserman & Faust, 1994). This is the case when organizations are either accidentally omitted in a study or are absent because the respondents failed to provide data or are unwilling to participate. Given the number of organizations and the resources of many of the smaller organizations, we were not able to collect data from all potential organizations. While this posed a sizeable threat to validity of the network findings, the—albeit incomplete—findings were still useful for several reasons as discussed above. First, even an incomplete representation of the level and structure of current collaboration may be a useful tool as a starting point to discuss collaboration in more detail during the second and more important phase of the study (interviews and focus groups). Second, incomplete data may also still be useful to identify cliques and organizations that are not connected to the network (which is identified as one of the perceived strengths of social network analysis) and to determine the sample for the second phase of the study (i.e., focus group participants).

Ethical Considerations

Within Phase 1 there were four specific ethical challenges, namely consent, data integrity and presentation, anonymity and confidentiality, and risks and benefits generally not encountered

in standard social science research. These ethical challenges were be carefully considered and addressed. Ethical approval for Phase 1 was provided by Wilfrid Laurier University Research Ethics Board on January 19, 2011 #2627 (see appendix 6). All activities were implemented as described in the application to the Research Ethics Board.

Consent

In terms of informed consent, while potential research participants are relatively experienced with participating in typical research surveys, Borgatti and Molina (2003) argue that, given the novelty of social network analysis as a research tool, potential participants do not yet understand the possible consequences. Such consequences could include an altered (positive or negative) perception of the participant and/or organization. As a solution, when visible on, for example sociograms, this study followed the advice of particular diligence in communicating the potential consequences (Borgatti & Molina, 2003) by including examples of a sociogram illustrating organizations in the consent form. The hope was that this prompted participants' awareness of the way results are communicated in social network analysis.

Data Integrity and Presentation

Engaging in social network analysis posed two particular ethical problems related to data. First, given the attempt to understand a Full Network ($n=79$), any missing data decreases the integrity of the data collected due to the significance of every node in a network (Borgatti & Molina, 2003; Kadushin, 2005). For example, if an individual in a network connects two otherwise unconnected sub-groups but is not included in a study, the result will show two fully unconnected sub-groups. Unfortunately, due to the participation rate I was not able to recruit the full number of potential participants limiting the integrity of data for part of the results. By

bounding the network using only the participating organizations, I was able to uphold the integrity of the data to some degree (see result sections).

The representation of social network data also poses an ethical issue because, when using sociograms, it is difficult to ensure confidentiality, particularly in the case of small networks. Even if the actors are de-identified (for a discussion on how this study balanced confidentiality with the transformative research design see below), study participants are often able to identify participants on graphs by, in the context of this study, finding their own organization and making conclusions about other organizations that are showing as related to them (Borgatti & Molina, 2003; Kadushin, 2005) highlighting a potential threat to anonymity and confidentiality of participants, which is further discussed below.

Anonymity and Confidentiality

Social network analysis generally does not permit for anonymity because data collected has to be identified and assigned to participants in order for researchers to define relationships between participants (Borgatti & Molina, 2003). In the context of this study, this meant that I could not permit anonymity of organizations and their representatives because data has to be assigned to organizations but, at the same time, the study was able to ensure anonymity for organizational participants who completed the surveys on behalf of their organizations. Generally, the information collected is not sensitive and, thus, the risk to participants was minimal although, particularly in the context of very small organizations with only two or less employees and a board of directors, full anonymity could not be guaranteed as others might deduct which staff or board member completed the survey. Participants and participating organizations were also informed that they have the option to request certain information to not be made public in the Green Directory.

As a result, social network analysis requires clear communication on the part of the researcher(s) to inform participants of the inability to keep full anonymity and obliges researchers to take particular steps to protect confidentiality by carefully managing all the data, by replacing participant names with identification numbers or pseudonyms, and by ensuring confidentiality when illustrating study results (Borgatti & Molina, 2003; Kadushin, 2005). However, fully protecting confidentiality poses a considerable dilemma, particularly in the context of transformative research paradigms as discussed by scholars such as Lincoln (1995) and Mertens (2009) because if all the results provide fully de-identified graphs, the ability to ensure transformative changes diminishes. Thus, to ensure the transformative aspect of the study, I provided graphs that contained names of organizations in order to increase participants' understanding of the network (see benefits section for a more detailed discussion). These graphs were only provided to the study participants in the form of confidential presentation. In any future academic presentations and publications only de-identified graphs will be used to illustrate concepts or findings. Finally, in the context of the information collected for the Green directory, organizations had the option to decide if information can be published in a database.

Risks and Benefits

Kadushin (2005) argues that researchers are more likely to experience direct benefits (e.g., publications) from performing a social network analysis than the participants. As identified earlier, social network analysis is a potentially powerful catalyst for change (Borgatti & Molina, 2005; Provan et al., 2004), which, in the context of this study, meant discussing the network of organizations. As a result, in order for this study to directly benefit organizations, the participants needed a full understanding of the network and its functioning. I therefore displayed results in graphs that include names of organizations. Revealing names of organizations

potentially increased the risks to participants as the absence of confidentiality might have negatively altered the perceptions of other organizations towards the organization. To lower this risk, I reported unobtrusive network results including organizational names to the larger group for communication, past collaboration, openness to collaboration, perceived effectiveness of the network, and perceived need for a formalization of the network.

In addition, despite the safeguards identified above, when findings were reported to the participants in meetings and focus groups, the participants were informed that they can refuse to engage in discussions. Prior to the presentations and/or discussions, I established ground rules that included (but were not limited to) respect, equality, and group confidentiality. Anticipated benefits to participants included a deeper understanding of network effectiveness, potentially leading to better understanding of how to overcome challenges to collaboration, and tools and methods to systematically investigate collaboration effectiveness (for results see Chapters 10 and 11).

Verification and Community Feedback

The network results of the survey were shared with representatives of participating organizations in three ways; through meetings, a community report, and during focus groups and interviews. First, I organized two meetings with participating organizations. The first meeting took place in May 2012 and included 19 individuals representing 18 of the 25 participating organizations. Most of the meeting was spent presenting the results including organizational attributes, sociograms, and density, geodesic distance, cliques, group centralization, and degree of centrality. The second meeting was planned as an extension of the first meeting and took place in June 2012. This meeting included 10 individuals representing 10 organizations. The bulk of the second meeting was spent on discussions including impressions of the sociograms

and results, reflections on the level of connections, and discussing potential actions stemming from the results and a general sense of wanting to increase networking and collaboration.

Next, I distributed a community report to the participating organizations titled *Collaboration and Networking among Environmental Organizations in Waterloo Region: Summary of Findings* outlining the findings, meeting discussions, and proposed actions.

Furthermore, I presented the participants of the focus group and interview with copies of the sociograms of the overall networks and specific sociograms and network results (i.e., density) for their particular area of focus (e.g., sociogram of organizations working on energy for the focus group on energy) or their organization (e.g., identifying their location on the sociograms). I used this opportunity to ask questions related to the results of the social network analysis to provoke responses.

Overall, participants at the meetings, focus groups, and interviews were not surprised by the finding, thus affirming most of the results. In particular, the participants highlighted several important points. For example, the participants agreed that both data sets ($n=25$ and $n=79$) and the sociograms represent the level of networking among local environmental organizations well, confirming that the Full Network and the associated sociograms likely underrepresent the actual level of networking and communication. For a more detailed analysis on the feedback to the social network analysis results, see Chapters 6, 10 and 11.

Chapter 5 - Phase 2: Qualitative Method

In Phase 2 of this study I used qualitative research methods (Creswell, 1998; Lincoln, 2010; Maxwell, 2005; Miles & Huberman, 1994; Strega, 2005, Glaser & Strauss 1967) to develop a detailed, comprehensive, and in-depth understanding of: (a) collaborative practice among participating organizations (see result Chapter 8 and discussion Chapter 9); and (b) the perceived usefulness of social network analysis as a collaboration process tool (see result Chapter 10 and discussion Chapter 11). This phase in the study corresponds with the second research aim, namely to contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations, and the third study aim, namely to investigate the usefulness of social network analysis as a process tool to improve understanding and to increase informed decision-making regarding collaboration.

In this chapter I present methodological issues related to Phase 2 including the sample, data collection, and data analysis. While a description of the sample is generally presented in the results chapters, I will discuss the sample of Phase 2 in this chapter to avoid duplication in the three result chapters that follow (Chapters 6, 8, and 10). This is followed by discussions related to the challenges and limitations as well as ethical considerations of Phase 2 of this study.

Sample

This phase of the study used a purposeful sampling procedure. In terms of the target population, the main inclusion criterion was that participants needed to have participated in Phase 1 of the study (i.e., have completed the online survey). Among the participants of Phase 1, I aimed at applying a maximum variation selection procedure in order to include the greatest amount of different perspectives on the main phenomenon under study in the target population (Creswell & Plano Clark, 2011; Maxwell, 2005; Miles & Huberman, 1994; Patton, 2002) to

provide many different voices regarding collaboration such as processes, advantages, and challenges. Following Maxwell's (2005) suggestion, I aimed at selecting members of organizations who represented variations that are relevant to the collaboration such as centrality, size of organizations, openness to collaboration, and perceived effectiveness of current levels of networking and collaboration among organizations in Waterloo Region. The rationale behind these variables is that they likely influence interpretations of the current level of networking and collaboration, shape collaborative practice, and impact the perception of the usefulness of social network analysis as a process tool.

Overall, 14 individuals participated in either interviews or focus groups representing 56% of the entire sample of 25 organizations. Specifically, I conducted interviews with seven participants and three focus groups with a total of seven participants.

Interview Sample

In order to achieve a maximum variation sample, a two-tiered approach was used for selecting participants based on the results of Phase 1. First, I devised a participant selection matrix based on the following two dimensions: organizational attributes (i.e., organizational size, openness to collaboration, perceived effectiveness of current network) and the network measure on collaboration (i.e., centrality) (see Table 4). While many organizations among the target population that were well connected (i.e., high centrality) agreed to participate in interviews, it was much more difficult to convince organizations that were less well connected to participate. While I aimed at conducting more interviews, due to the fact that some organizations were identified several times and some organizations declined to participate in the study, the intersection between the two dimensions resulted in seven interviews.

Focus Group Sample

Second, using the network visualizations (i.e., sociographs) and measures from Phase 1, I decided to focus on three types of groups namely energy, food systems, and conservation. I chose these three groups because these three had different levels of connectivity and collaboration among their organizations (for details see Chapter 6). Attendance for the focus groups included two participants for two of the groups and three participants for one focus group.

Data collection

Following the identification of the sample, I sent all study participants an email with a letter outlining the modification of the study (appendix 7). I then contacted the appropriate organizational representatives per email and/or phone and explained the details of the second phase of study and provided an opportunity for organizational representatives to ask questions (appendix 8). If an organizational representative showed interest in participating, I emailed potential participants an addendum to the original consent form (appendix 9) for review and encouraged the potential participant to ask further questions before agreeing to participate in the study. When I met with those participants who agreed to participate in the study, I explained the study and asked them to complete the informed consent form prior to data conducting the interviews and focus groups.

All interviews and focus groups were conducted in person in locations chosen by the participants. Interviews and focus groups were conducted between July 2012 and October 2012, with one additional interview conducted in December 2012. Overall, interviews ranged from range 45 to 62 minutes with an average of just over 53 minutes while the three focus groups lasted 52, 55, and 67 minutes.

Interview Guides

Throughout all interviews and focus groups, I applied a general qualitative research approach aimed at discovering elements, conceptualizations, patterns, and regularities, following the basic principles outlined in a Grounded Theory approach, and utilizing the *Constant Comparative Method* (CCM) throughout all stages of the process (Denzin & Lincoln 2005; Miles & Huberman, 1994; Patton, 2002). In order to ensure structurally comparable inquiry between the interviews and focus groups, I used an interview and focus group guide (appendix 10) with semi-structured and open-ended questions (Maxwell, 2005; Patton, 2002; Reinharz, 1992). These two interview guides were almost identical. Broadly speaking, the main areas of the interview guides included topics such as: (a) definitions, practice, values, and outcomes of collaboration, practice (general questions); (b) examples of collaborations; (c) processes of collaboration; and (d) the usefulness of network analysis as a process tool.

Interview Questions

The interviews and focus groups were divided into three parts: general questions, questions related to collaborative practice, and questions related to the use of social network analysis. Prior to starting with the questions, I prompted the participants to describe their view and/or definitions of collaboration. This was followed by a brief presentation of a general definition of collaboration and an attempt to find sufficient common ground between the two definitions to ensure that all participants were consistently informed on the concept (i.e., collaboration) which was necessary for the purpose of analyzing the data. During the interviews and focus groups I also spent some time discussing the networking sociograms (see Chapter 6, Figures 11 and 12). Furthermore, in the focus groups and in some interviews, I presented the participants with sociograms illustrating the level of collaboration among the different groups

(i.e., energy, food, and conservation). Both actions were intended to remind participants of the sociographs, the process of using social network analysis, and as a starting point for reflection on their part and a conversation for the interviews and focus groups

General questions included how they defined collaboration, if they valued collaboration, and the perceived advantages and disadvantages of collaboration. I also used questions to elicit confirmation of organizational effectiveness and community outcomes that were accomplished through organizational collaboration. I also asked the participants what actions could be taken and resources should be provided to increase the effectiveness of and increase the level of local organizational collaboration. In order to investigate collaboration practice, I asked participants how they go about developing organizational collaboration, if organizational collaboration is seen as a process, and activities, steps, strategies, and approaches used when developing collaborations.

Finally, I investigated the use of social network analysis as a process tool. During the interviews and focus groups, depending on how well participants recalled the main sociograms, I spent some time discussing the sociograms showing the level of connections among environmental organizations in Waterloo Region through networking. In the focus groups and in some interviews, I also presented the participants with sociograms illustrating the level of collaboration among the different groups (i.e., energy, food, and conservation). Both actions were intended to remind participants of the sociographs and the process of using social network analysis. I asked participants if and how communicating the networks analysis results (i.e., sociograms and network measures) of the level of regional organizational collaboration through the multiple presentations facilitated improved understanding of the collaborative structure and informed thinking regarding collaboration and decision-making. I also asked the participants to

provide feedback regarding the process of using social network analysis and how the process and the use of social network analysis could have been improved.

Sample Distribution Phase 2

Overall, the sample of Phase 2 of this study, namely seven interviews and three focus groups represented ample difference in terms of organizational attributes and network measures among the 14 participants. Table 3 links organizations from Phase 1 to interview and focus group participants to the organizations.

Table 3.

Overview of organizational identification related to interview and focus group participation

Organizational ID	Interview Participant	Focus Group Participant
Education 1		
Other 1	√	
Justice 1		
Food 1		√
Energy 1		√
Transportation 1		
Education 2		
Transportation 2	√	
Conservation 1	√	
Energy 2	√	
Education 3		
Justice 2	√	
Other 2		
Conservation 2		√
Energy 3		√
Education 4		
Energy 4	√	
Conservation 3		√
Energy 5		√
Other 3		
Other 4		

Food 2	
Education 5	√
Justice 3	
Food 3	√

In terms of interviews, Table 4 identifies information about the variation of interviews (only) in terms of the centrality scores of participating organizations (Network Measures) and organizational size, level of openness to collaboration, and perception of the effectiveness of the current network of organizations (Organizational Attributes). What is shown is a reasonable distribution between centrality scores of organizations and organizational attributes.

Among the three subgroups chosen for focus groups, the one on energy (Energy Conservation Focus Group) was by far the most connected group with a density of 80% (compared to 40% of the entire network – see Chapter 6 for details) and very little hierarchical structure at a centralization level of .24 (compared to 0.37 of the entire network). The subgroup on food (Food & Agriculture Focus Group) used for the focus group showed less connection among organizations focusing on food with a density of 28% and a reasonably low centralization of .49, the latter of which is relatively higher than the entire network. Finally, the subgroup on natural conservation (Natural Conservation Focus Group) used for the focus group had the lowest level of connectivity among the organizations at a density of 15.4% but a reasonable centralization score at .41.

Overall, the organizational attributes of interview and focus group participants equally showed considerable variation. With regard to size, the participants ranged from seven small (less than \$ 5,000.00 annual budget), two medium (less than \$50,000.00 annual budget), and five large organizations (more than \$500,000.00 annual budget).

Table 4

Participating Organizations in Interviews

		Network Measure Centrality		
		High	Low	
		Range: 3-19 $M=10.61$ $sd=4.48$		
Organizational Attributes	Large organization (staff, funding, etc.)		Org. Justice 2 Centrality=7	
	Small organization (staff, funding, etc.)	Org. Energy 2 Centrality=15		
	Openness to collaboration Range: 10-27 $M=20.39$ $sd=5.06$	High	Org. Transportation 2 Centrality=19 Openness to collaboration=27	Org. Conservation 4 Centrality=12* Openness to collaboration=27
		Low	Org. Conservation 1 Centrality=12 Openness to collaboration=19	Org. Other 1 Centrality=0 Openness to collaboration=10
	Effectiveness of current networking Range 28-44 $M=35.62$ $sd=5.33$	High		Org. Education 5 Centrality=6 Effectiveness of network=43
Low				

* Unfortunately, I was not able to recruit an organization with relative low centrality measures that was very open to collaboration. Energy 4 in fact represented an organization that had a centrality score that was slightly above the mean rather than below.

With regard to organizational centrality scores, the study sample ranged from 3 to 19. Of the sample in Phase 2, Energy 2 had a high relatively high centrality score (15) while Justice 2 had relatively low centrality score (7). Figure 10 visually illustrates the locations and positions of the organizations among the Phase 2 participants in the overall network (N25). The size of the organizations is represented in the respective node size. What is identified is that a reasonable variation between centrality and size was achieved.

When it came to the perception of collaboration as positive, the study sample ranged from 10 to 27. Of the sample in Phase 2, Transportation 2 and Energy 4 had the highest scores (27), Conservation 1 had an average score (19), and Other 1 had the lowest score. In terms of the perceived effectiveness of the current level of networking and collaboration, the study sample ranged from 28 to 44. Of the sample in Phase 2, Education 5 had a very high score (43). Finally, among the 14 participants in Phase 2, eight were male and six were female.

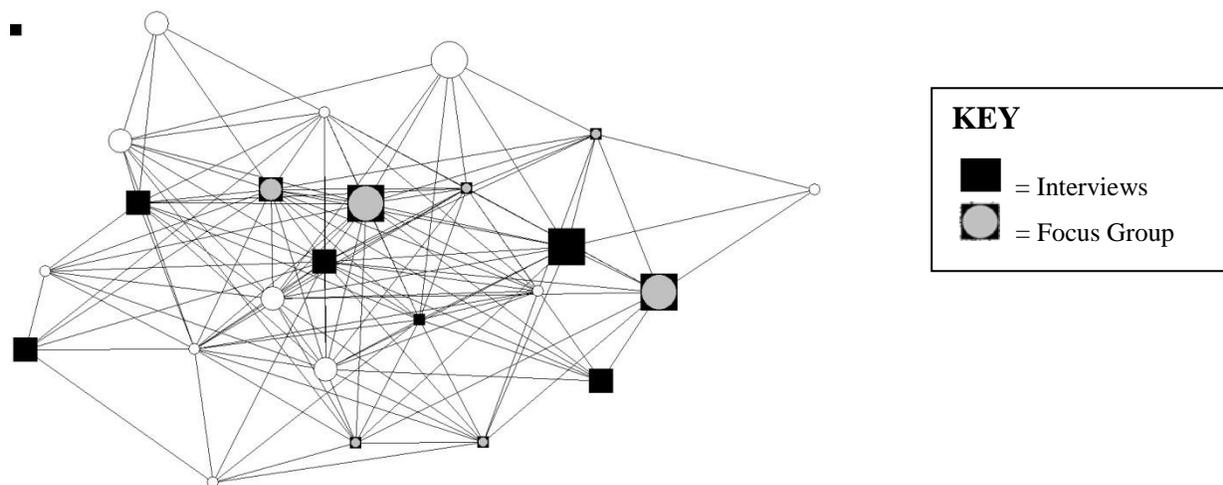


Figure 10: Participating organizations in interviews and focus groups. Centrality measures are indicated in the graph in terms of how close to the middle organizations are located. Size is indicated in the graph in terms of the size of the individual organization.

Data analysis

Data analysis was conducted using a systematic approach based on the Grounded Theory *Constant Comparative Method* (Glaser & Strauss, 2006). The analysis of the data commenced with listening multiple times to the first interviews and a review of the notes taken during the interviews and focus groups in order to get a coherent sense of overall themes. This initial information, together with the research questions, was then used to create four categories based

on the research questions, namely (1) definitions of collaboration, (2) values regarding collaboration; (3) collaboration practice; and (4) social network analysis as a process tool.

Throughout coding, themes within the categories were added, expanded, and progressively changed by adding additional subthemes. Each interview was methodically and carefully listened to for units of meaning. In this particular study, units of meaning were words, full or partial sentences, or full or partial explanations (Miles & Huberman, 1994) that provide insight into the participants' understanding and practice of collaboration. Initially, these units of meaning were coded using in vivo labels and allocated to the appropriate themes. In vivo labels are terms, descriptions, or short quotations that are used by participants to describe something in their own words. The advantage of using in vivo is that the terms capture the essence of the meaning in the words (Willig, 2008). Over time, the some codes were assigned different labels if necessary (either in vivo or descriptive).

The interviews and focus groups were directly coded on audio files using NVivo qualitative data analysis software (QSR International Pty Ltd. Version 9, 2010 and Version 10, 2013) to cluster codes within the themes (Miles & Huberman, 1994). Fundamentally being the same process as coding from text (Eckerle Curwood, 2012), coding on audio files creates coded data as audio clips. The advantage of using this approach to coding is that the coding process remains closer to the original source as it allows for the ability to hear not only the participant's voice but also their para-verbal communication (i.e., tone, pacing, volume) when reviewing codes during analysis (Crichton & Childs, 2005).

Overall, I coded 333 data clips as units of meaning. Not all interviews and focus groups resulted in the same amount of codes ranging from 25 to 48 with an average of just over 37 codes per interview or focus group. Overall, focus groups tended to produce slightly higher

amounts of codes, namely 39, 39, and 41. Once fully coded, the analysis process involved identifying elements, conceptualizations, patterns, and commonalities, and differences within the main themes and categories. More specifically, I reviewed to coding structure, combined codes within categories and themes, and, in some cases, produced matrices identifying commonalities and differences. Miles and Huberman (1994) call qualitative analysis the act of “selecting, condensing, and transforming *data*; displaying these data in an organized way” (p. 299) and suggest the use of different tools (e.g., matrices, charts, figures). Qualitative data, in particular within the context of personal experiences (e.g., trauma) is based on detailed, comprehensive, and in-depth descriptions of a phenomenon (e.g., Lincoln, 2010; Maxwell, 2005) that often requires the inclusion of comprehensive and often lengthy quotes to give justice to the textured nature of the experiences. However, given the structured nature of the questions and the research topic, I decided to limit both the amount of quotes and the length of quotes and to focus on describing patterns, commonalities, and differences unless a quote provides particularly interesting textual aspects that help the reader to better understand the topic in discussion.

Methodological Challenges and Limitations

There are several important methodological challenges and limitations worth noting here. Aside from researcher bias, data from interviews and focus groups may include threats such as response bias, limited recollection, guiding interview questions, or participants answering in ways to please the interviewer. During coding, threats may have included preferential treatment of certain codes, miscoding, or excluding codes. Finally, during analysis, threats may have included researcher bias when identifying patterns, commonalities, and errors when drawing connections (Maxwell, 2005; Yin, 2009, Creswell & Plano Clark, 2011).

In order to address these methodological challenges, I included triangulation, check-coding, and member checking. Triangulation of the three data sources (quantitative survey, interviews, and focus groups) mitigated the limitations of the methods and allowed a more in-depth understanding of the phenomenon under study (Lincoln & Guba, 2005; Maxwell, 2005; Yin, 2009). Check-coding assisted increasing precision and reliability of the codes (Miles & Huberman, 1994). With regards to checking codes, Dr. Manuel Riemer reviewed one interview and my codebook.

Ethical Considerations

Potential ethical risks arising in Phase 2 existed at the local level, organizational level, and individual level. These ethical risks were carefully considered and addressed during Phase 2. At the local level, there was a risk that sharing findings such as unconstructive collaboration, turf wars, or general disapproval of collaboration could shed a negative light on all local environmental organizations thus potentially lowering chances of all local environmental organization in obtaining funding given the current preference for collaboration by funders. At the organizational level, staff members and/or board members of organizations might have been wary that negative assessments/descriptions might lower their direct chance for future funding and or negatively impact their relationships/collaborations with other organizations. To avoid the risks for the local and organizational level, results were only be provided to the study participants in the form of confidential reports and presentation and any future publications that result from the study will not identify the region.

At the individual level, participants who represented organizations might have feared reprimanding by their organization if they provide negative perspectives of the organization and/or its collaboration practices. To avoid this particular risk, consent was first sought from

organizational leadership (e.g., executive director, board chair) and participants were informed that their organizations agreed for them to participate in the study. Participants were also given the opportunity to decide if their direct quotes can be used in any reports. Finally, with regards to focus groups, participation was structured in a way that participants were peers rather than individuals with differing levels of power and participants were asked to confirm that information shared during the focus group stays confidential.

Wilfrid Laurier University Research Ethics Board approved the processes for this part of the research on April 9, 2012.

Chapter 6 - Results: Structures of Networking and Collaboration

In this chapter, I report the outcomes of the first aim of this study, an empirical examination of networking and collaboration among environmental organization¹⁶ in Waterloo Region. These results are descriptive in nature and are based on the quantitative data from the 2011 survey and qualitative data from the subsequent interviews and focus groups. The results presented in this chapter shed light on the structure of collaboration among environmental organizations in Waterloo Region with regards to: a) the level of networking and collaboration as identified through social network analysis; b) types of collaborations as identified in focus groups and interviews; c) perceptions of the quality, quantity, and the need for creating more formalized structures of collaboration identified through descriptive statistics; and d) relating organizational centrality with perceptions of quality, quantity, and the need for creating more formalized structures. Together, the quantitative and qualitative results presented here provide the reader with an overview of the levels of networking and collaboration, the perceptions of current collaboration, and the different types of collaborations in Waterloo Region.

Overall, the social network analysis results suggest that organizations in Waterloo Region engage in a moderate level of networking. Furthermore, the results suggest that there are no identifiable cliques and that there are numerous organizations that play important roles among the numerous environmental organizations. Multiple collaborations seem to exist, including informal collaborations, formal non-financial collaborations, as well as formal financial collaborations.

This chapter is divided into four main sections addressing the structures of collaboration

¹⁶ It is important to note that these results only represent the level of networking and collaboration of organizations with other environmental organizations and hence does not reflect the overall levels of networking and collaboration of individual organizations.

among environmental organizations in Waterloo Region in 2011. In the first section, I present the level of organizational networking and collaboration reported at the time of survey data collection (2011) through network description and network visualization. In the second section of this chapter, I present qualitative descriptions of some of the types of collaborations found in Waterloo Region that emerged from the interviews and focus groups. In the third section, I present the results of perceived level of collaboration in terms of quality and quantity as identified by the participants in the 2011 survey. In the fourth and final section, I present the commonalities between the centrality results (section one) and the perception results (section two).

Section 1: Level of Networking and Collaboration

In the first section of this chapter, I present a social network analysis of the level of organizational networking and collaboration at the time of data collection (2011), namely the results of network description and network visualization. In this study, networking was defined as exchanging (sending or receiving) information and/or having joint meetings (including action group meetings, roundtable meetings). Collaboration, the main topic of this dissertation was defined as actively working with another organization on joint projects with a common goal characterized by some level of agreement, and including shared resources such as offices and staff.

Networking Results

The main networking results presented here are based on the results of the Participant Network ($n=25$); that is the 25 organizations that participated in the survey commonly referred to as the 'network' of organizations throughout this dissertation. Given the limitations of the Full Network ($n=79$) (see Chapter 4), I will only present a very limited amount of results based on

this network.

Sociograms. The sociogram in Figure 11 shows the overall connectedness among the organizations in the network ($n=25$) in terms of the level of networking. Each organization in the network is represented with the same size node. This sociogram suggests some notable features of the network. First, illustrated here is that 24 of the 25 organizations are connected to each other. There is only one isolate¹⁷ (shown in the upper left corner) in the network. Second, numerous connections are shown among the organizations. Third, multiple organizations are gathered in the middle, suggesting that there is not one main organization with high levels of influence and power. Finally, there are no cliques or clusters illustrated, creating a compact network.

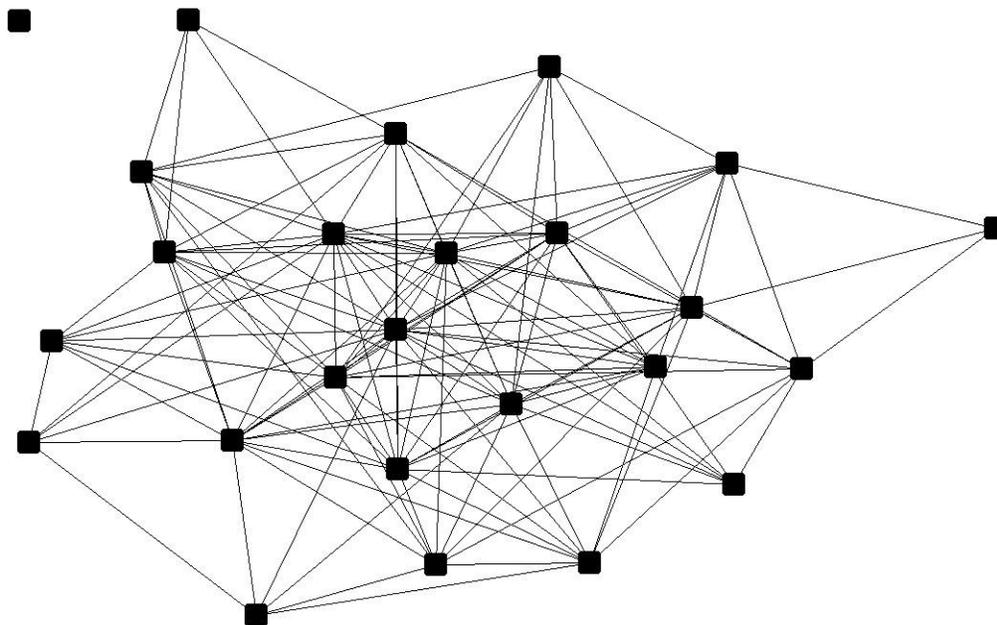


Figure 11. Networking within Participant Network ($n=25$).¹⁸

¹⁷ Isolates are defined as actors that are not connected to any other actors in a network (Hanneman & Riddle, 2005).

¹⁸ Due to ethical considerations and requirements, no organizations are identified by name throughout this dissertation

The sociogram in Figure 12 shows the overall connectedness among the Full Network ($n=79$) in terms of the level of networking provided by the 25 organizations (to remind the reader, this does not represent the connections among the organizations of the entire network). This shows how the 25 organizations discussed in the first result section are linked to the other organizations, but not how the 54 organizations who did not participate might be linked with all other organizations.

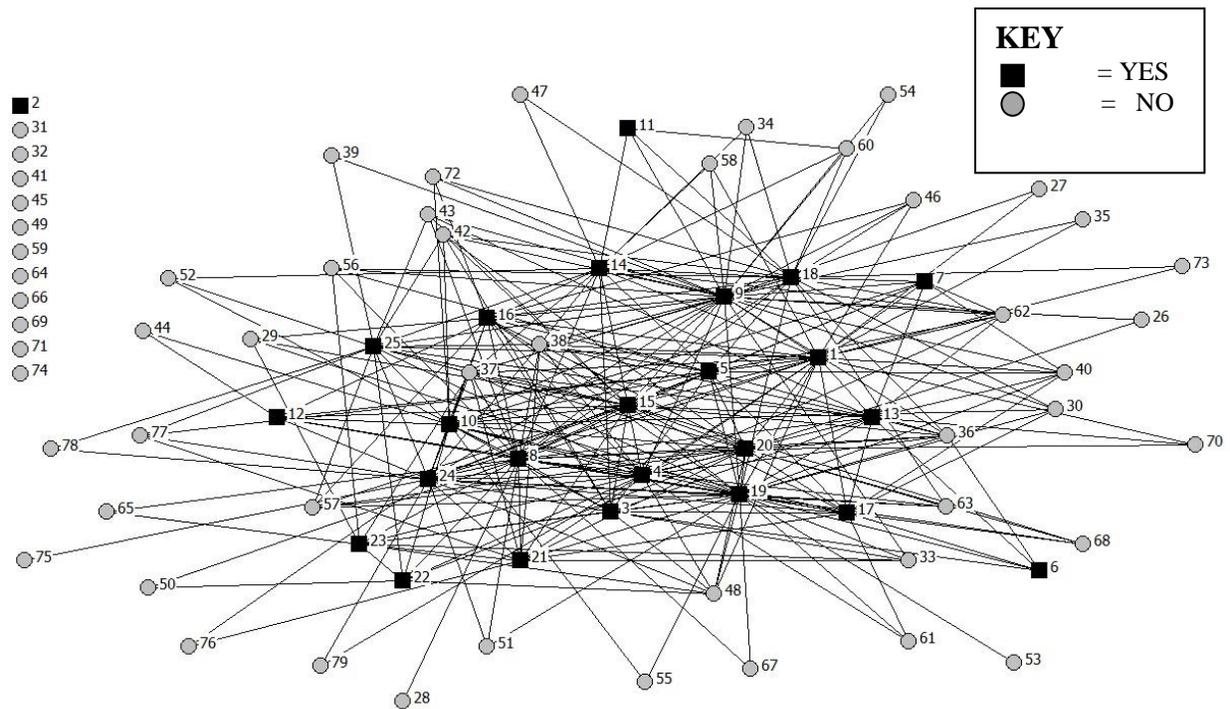


Figure 12. Networking within Full Network ($n=79$) including participation in research.

Figure 12 suggests some interesting findings. First, there are multiple isolates (including the isolate that was identified earlier among the 25 participating organizations). While this might be due to the lack of responses, having 15% of organizations disconnected from the larger network might be an indication of a lack of networking and collaboration. However, seven (i.e., more than half) of these organizations are small volunteer student organizations operating

through the local universities, and they are likely connected both to each other and to those university organizations that are connected to the larger network.

Second, organizations who participated in the study (square/black) are mostly located within the middle, and all organizations who did not participate (circle/grey) in the research are located on the outside with the exception of organizations 37 and 38. This is not surprising because the organizations that did not participate very likely have a lower score of connections, thus being more on the outside. The reason for their lower scores is that fewer organizations would have identified collaborating or networking with them. A more detailed analysis using several social network analysis measures (for descriptions of the measures see Chapter 4) follows below:

Density.¹⁹ The organizations of the network have 264 connections in total, providing a density score of .44 thus representing the existence of 44% of all possible 264 connections.

Geodesic distance and diameter. Among the organizations in the network, the geodesic distance is 1.8. In terms of distances between organizations, 47.8% of the organizations have a diameter of one, 48.6% have a diameter of two, and 4% have a diameter of three. Three, as the longest distance, is the overall diameter of the network.

Group centralization. The group centralization value of the network is 0.37, suggesting that there are multiple organizations central to the network.

Degree centrality and betweenness. The organizations in the core of the network tend to be organizations with high degree centrality. Table 5 provides an overview of degree centrality and betweenness scores for the 25 participating organizations. Degree centrality ranges from

¹⁹ For descriptions of the social network measures see Glossary of Terms and Chapter 4.

three to 19 (not including Organization Other 1 that had no connections). Betweenness ranges from one to 22 (not including Organizations Other 1, Transportation 1, and Justice 2 that scored zero for betweenness). Figure 13 shows the network, including the degree centrality scores identified by size of node. Organization Transportation 2 has the highest amount of connections at 19 while Organization Education 3 has the lowest number of connections at three.

Table 5

Organizational degree centrality and betweenness scores (rounded)

Organizational	Degree Centrality*	Betweenness
Range	3 – 19	1 - 22
Transportation 2	19	22
Energy 3	17	11
Energy 5	17	19
Education 1	15	9
Energy 2	15	11
Other 3	15	9
Justice 3	15	6
Energy 1	14	6
Justice 1	12	9
Conservation 1	12	12
Energy 4	12	4
Education 4	11	2
Food 1	10	3
Other 2	10	6
Conservation 2	10	10
Food 3	10	4
Conservation 3	9	7
Other 4	8	1
Education 2	7	1
Justice 2	7	1
Food 2	6	1
Education 5	6	1
Transportation 1	4	0

Education 3	3	0
Other 1	0	0

* The table is ordered by the level of centrality of organizations

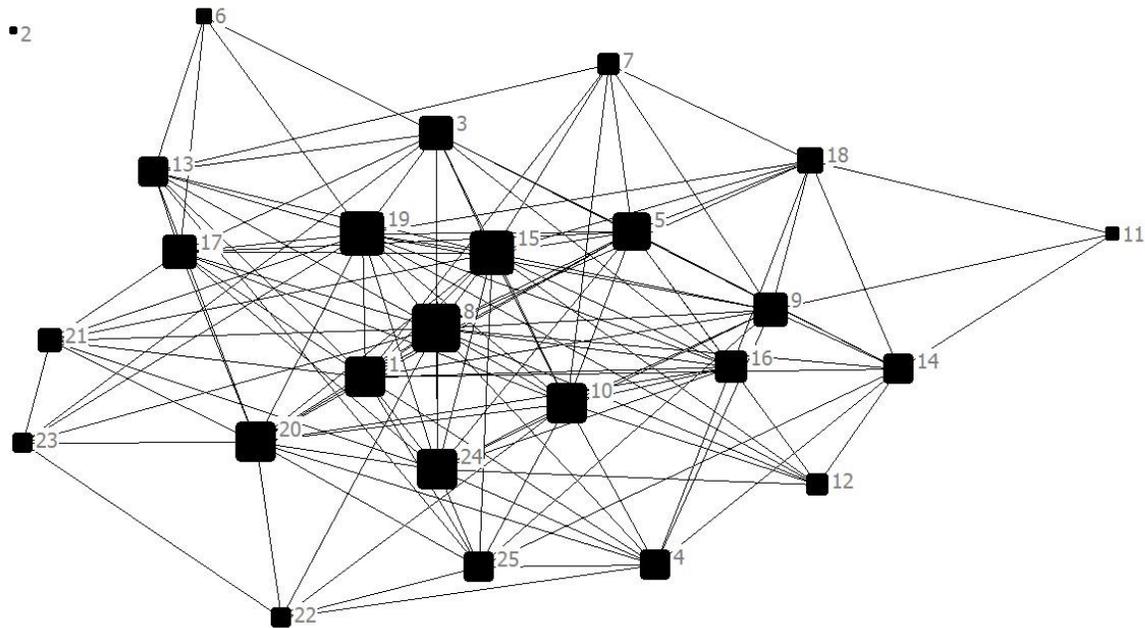


Figure 13. Participant Network ($n=25$) with sizes of actors reflect degree centrality scores based on Freeman's approach.

Figure 14 shows the network, this time including betweenness scores. Betweenness scores range from 21.55 to 0 (not including organization 2 that had no connections). Again, Organization Transportation 2 has the highest betweenness score at 21.55 while Organization Transportation 1 and Organization Education 3 again have the lowest number of betweenness at 0 (betweenness of one is possible even if an organization is connected to other organizations are connected to each other).

Not all central organizations have high betweenness scores. The organizations that have high amounts of connections tend to have similarly high betweenness, such as Organization

Transportation 2 at 22 and Organization Energy 5 at 19. However, some of the organizations in the middle do not have very high betweenness scores, such as Organizations Education 1, Energy 1, Energy 2, Energy 3, and Justice 3. At the same time, Organization Conservation 1, while to some degree removed from the middle of the graph, has a higher betweenness score than Organization Education 1, for example, which is quite central and has a higher degree centrality score. These two variables are understandably highly correlated because they are derived from the same relationships thus do not meet the ordinary least squares assumptions for further statistical analysis.

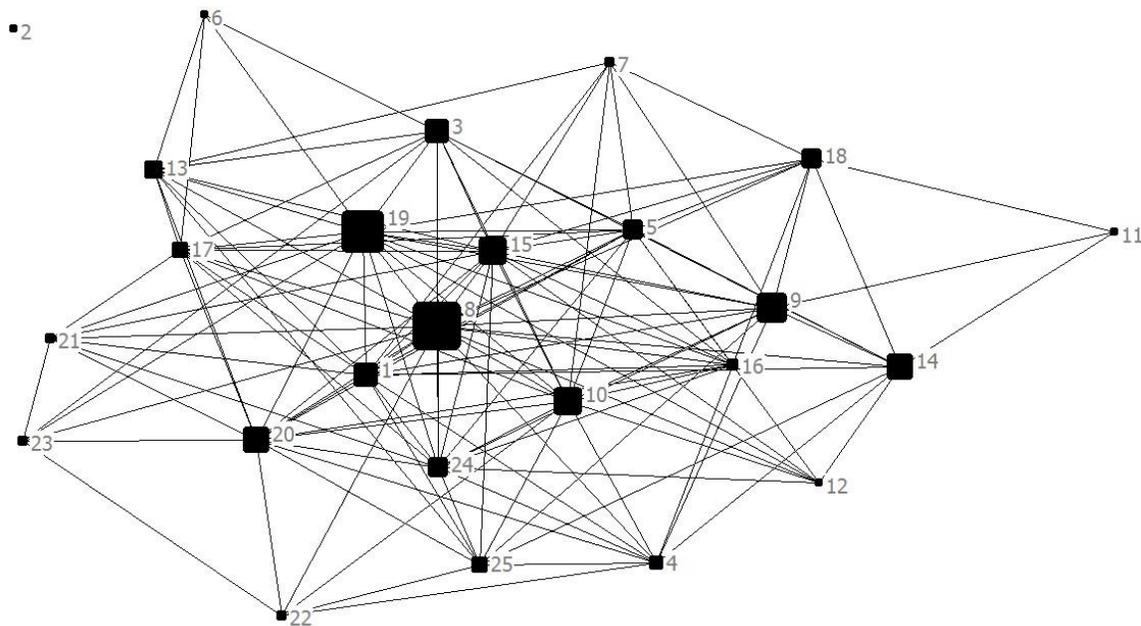


Figure 14. Participant Network ($n=25$) with sizes of nodes reflect degree betweenness score.

Cliques. Running the algorithm in UCINET to identify cliques of three organizations in the network of participating organizations ($n=25$) (i.e., subsets of organizations that are closely connected to each other), identified 48 cliques, that is, 48 subgroups of three in which all possible connections exist. This number of cliques is almost double the actual number

participating organizations. Hence, the network has no easily identifiable cliques that stand out. This is supported by Figure 11, and is likely due to the high level of connections among the participants in this study. However, there are two organizations that overlap with many other organizations in cliques. In fact, when examining overlap using the hierarchical clustering of overlap matrix, Organizations Transportation 2 and Energy 5 are very close, as they share membership in 16 of the 48 cliques. In addition, Organizations Transportation 2, Energy 3, and Energy 5 share membership in 14 cliques.

Potentially more interesting is the fact that many organizations that focus on similar issues tend to be somewhat grouped (located closer to each other), as can be seen in Figure 15. Examples include conservation (denoted by a circle – organizations with numbers 9, 14, and 18) and food (denoted by a circle in box – organizations with numbers 4, 22, and 25) (see Figure 15).

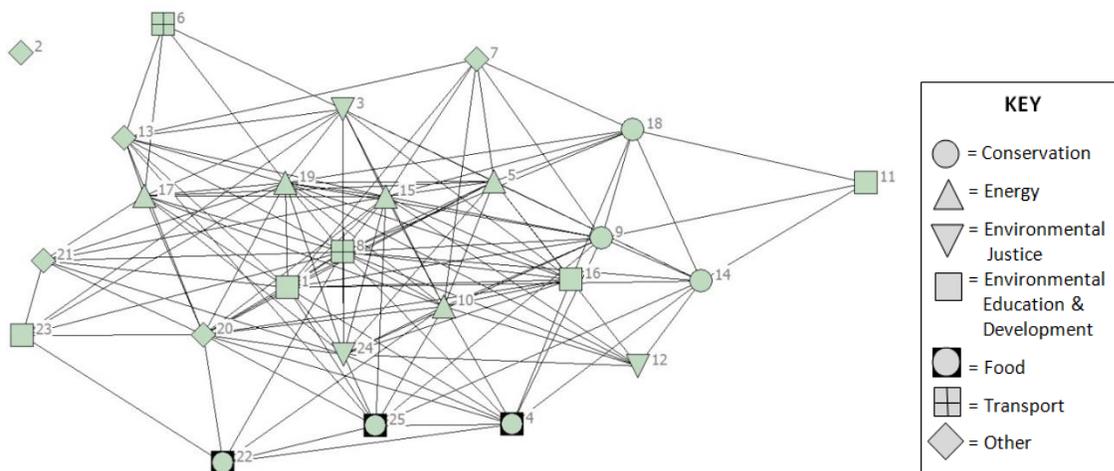


Figure 15. Participant Network ($n=25$) including focus of organization

Table 6 illustrates the different centrality means between the different areas of focus. As can be seen in Table 6 the average centrality of organizations focusing on energy is the highest

(15), which can be visually confirmed when reviewing Figure 15. At the same time, organizations focusing on food as well as those organizations focusing on environmental education have very low average centrality measures (8.67 and 8.75).

Table 6

Frequencies for centrality between organizations focussing on different areas

Organizational Focus	Minimum	Maximum	<i>M</i>	<i>sd</i>
Conservation	9	12	10.34	1.53
Energy	12	17	15.00	2.12
Environmental Justice	5	16	11.33	3.45
Environmental Education & Development	3	15	8.75	5.32
Food	6	10	8.67	2.31
Transport	4	19	11.5	10.1
Other	0	15	8.00	5.43

Among the organizations concentrating on a particular environmental focus, some groups were better connected than others. For example, the organizations focusing on transportation (Figure 16) were not very well connected with a low density of 0.1 indicating low levels of networking.

Similarly, organizations focusing on food (Figure 17) are slightly better connected, but still not very well connected with a networking density of 0.14. Interestingly, centralization is at 49% indicating that the group is neither hierarchical nor decentralized. However, as can be seen in the graph, there is one organization in the middle playing an important role to connect the two organizations on the left side of the graph.

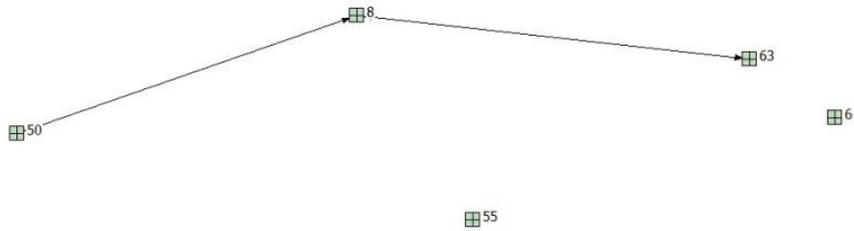


Figure 16. Networking among organizations focusing on transportation.

Finally, organizations focusing on energy (Figure 18) are quite well connected as a group with a high density of 0.4 and low centrality of .24.

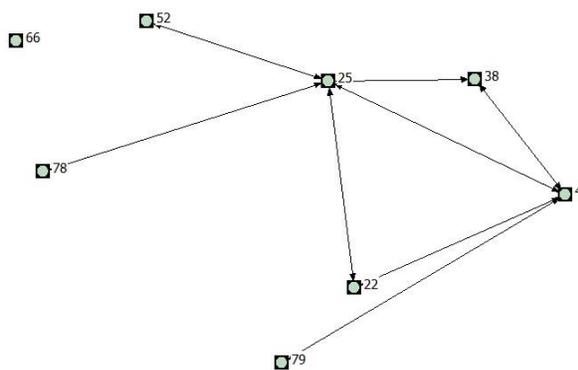


Figure 17. Networking among organizations focusing on food.

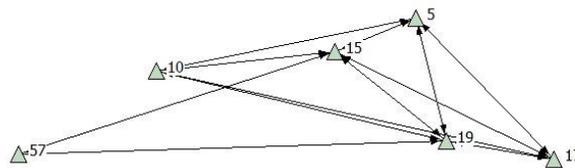


Figure 18. Networking among organizations focusing on energy.

Collaboration Results

Figures 19, 20, and 21 show the level of collaboration among the organizations in the network. The sociograms portray the different levels of collaboration ranging from: informal collaboration (Figure 19); formal non-financial collaboration (Figure 20); to formal financial collaboration (Figure 21) levels. The figures suggest some interesting features of collaboration. One obvious feature is that there were many more informal collaborations than there were formal non-financial or formal financial collaborations, as can be seen by the difference in identified connections in the sociograms. This is an anticipated finding, as more organizations will be networking or informally collaborating than running joint projects with financial and legal agreements.

Figure 19 illustrates informal collaboration which includes, for example, verbal agreements for projects including education, public campaigns, and service provisions. The sociogram again

suggests some interesting features. First, the majority of organizations engage in two or more such informal collaborations. Second, many of these informal collaborations were done among organizations with different environmental foci. Third, from a visual inspection, there does not seem to be an association between the size of the organization and the amount of informal collaborations. Statistical analysis resulted in a non-significant correlation between centrality and organizational size ($r^2 = .205$, $p = .325$), which may be due to the relatively small sample resulting in low statistical power. Similarly, while a large proportion of small organizations are not connected or on the outside of the network, there are also a couple of larger organizations without much informal collaboration.

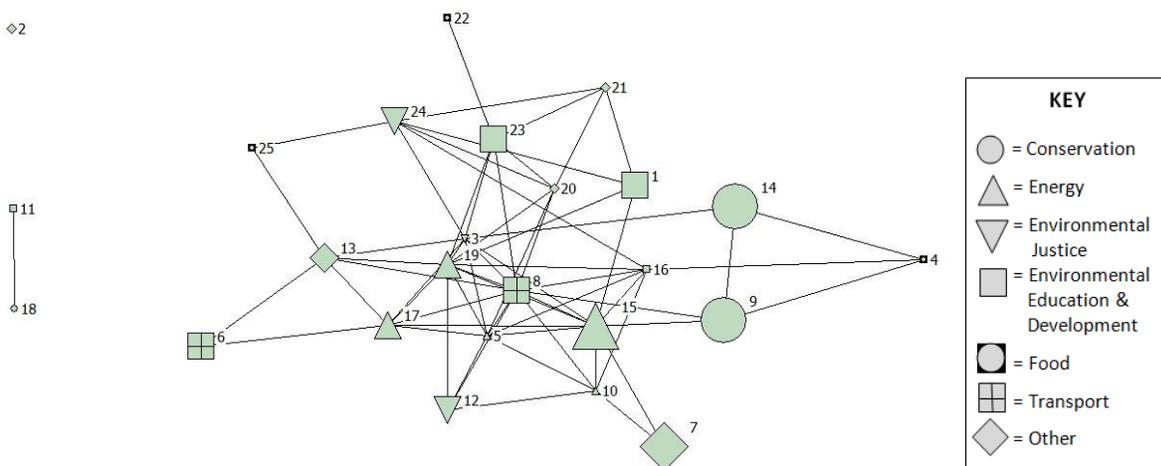


Figure 19. Informal collaboration among participating organizations, including level of funding (node size) and environmental focus.

Figure 20, showing formal but non-financial collaboration (such as public campaigns and service provision), illustrates the following interesting points. First, while there is mixed use of formal non-financial agreements with an environmental focus, the conservation organizations (circle) and the food organizations (circle in a box) do not have formal non-financial

collaborations while the energy organizations (up triangle) were all engaged in formal non-financial collaboration. Second, while the majority of the small organizations and two of the three largest organizations do not have formal non-financial collaborations, all medium sized organizations engage in at least one formal non-financial collaboration.

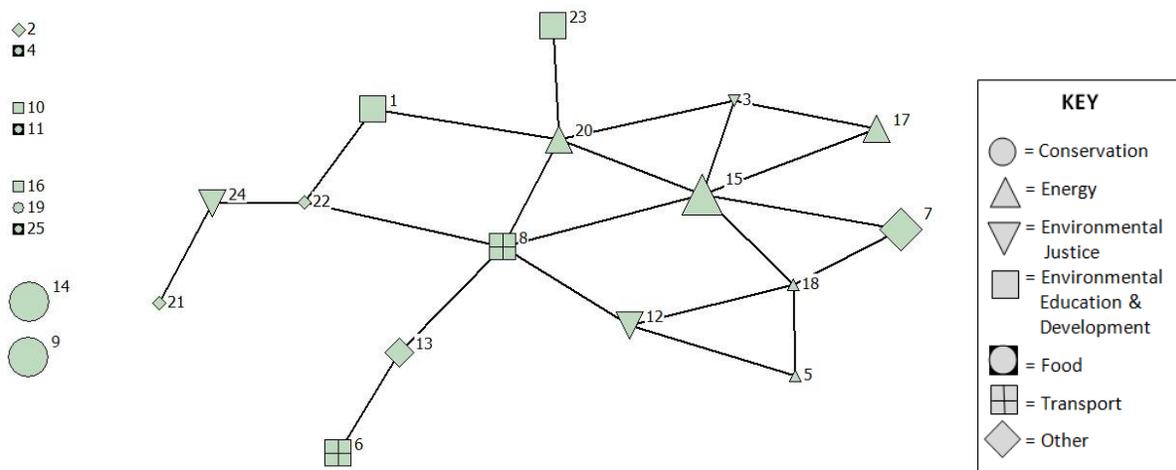


Figure 20. Formal non-financial collaboration among participating organizations including level of funding (node size) and environmental focus.

Figure 21 illustrates formal financial collaboration. The sociogram provides some interesting observations. First, there is a reasonable number of organizations that have financial formal agreements. Second, most organizations (4 out of 5) focusing on energy have formal financial agreements. The third observation, related to the second, is that the one organization with the most financial agreements (Organization Energy 5) is one that has energy as its focus. Fourth, only five out of the 12 smallest organizations have one formal financial agreement. Fifth, among the three conservation organizations, there are no formal financial agreements. Sixth, as with non-financial agreements, all medium-sized organizations have financial agreements with at least one other organization.

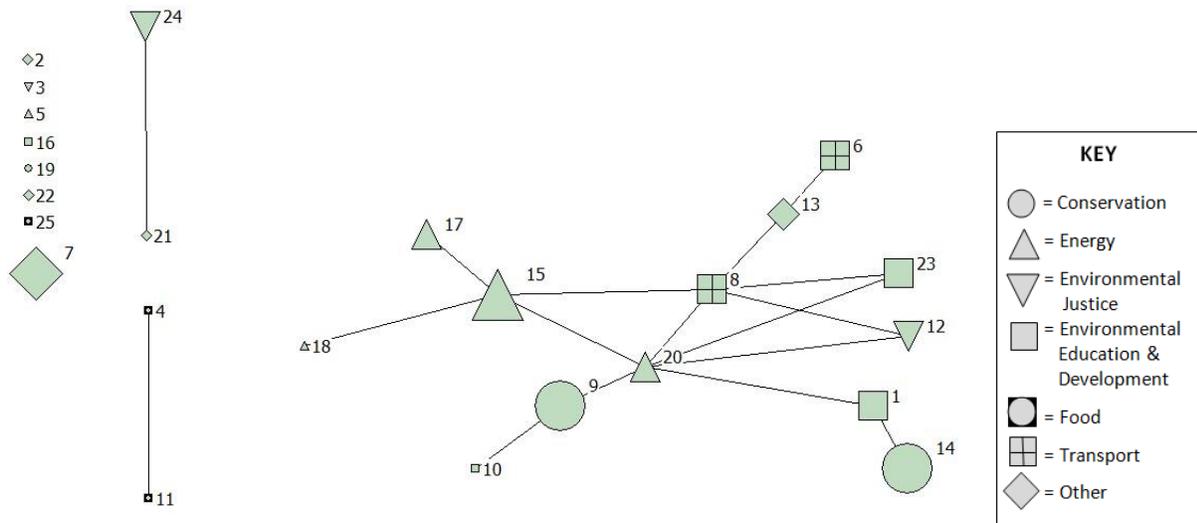


Figure 21. Formal financial collaboration among participating organizations including level of funding (node size) and environmental focus.

Section 2: Types of Collaboration

In the second section of this chapter, I describe some of the different types of collaborations found in Waterloo Region. This section is neither a complete list of existing collaborations nor is it a complete description of the collaborations. Rather, the section describes some of the collaborations mentioned during the different interviews and focus groups.

Examples of collaborations were elicited by my asking the participants to describe one current example of collaboration. As a result, three main types of collaborations emerged as subthemes during the coding of the interviews and focus groups which describe many of the collaboration examples: a) scopes of collaboration, b) hierarchical structures of collaborations, and c) the level of formality of the collaborations. The types of collaboration described by these subthemes are not mutually exclusive, meaning that any composition is possible—for example, a large collaboration can develop a bottom-up or top-down hierarchical structure, and can be formal or informal.

Scope of Collaborations

Examples of collaborations discussed in the interviews and focus groups ranged in scope. In a discussion of the scope of a collaboration, the term large indicates the amount of partners, rather than the size of the project. I would suggest that a small collaboration means a collaboration between two partners. A medium sized collaboration could include between three and five partners, while a large collaboration includes more than five partners. Large collaborative projects included such efforts as the development of the Waterloo Region Environmentally Sensitive Landscapes (ESLs), the Grand River Watershed: Water Management Plan, and ClimateActionWR. I describe these here in a bit more detail because these examples were discussed and referred to often during the interviews and focus groups.

The 2007 Waterloo Region Environmentally Sensitive Landscapes collaborative project is an innovative policy and planning framework developed by the Region of Waterloo and multiple stakeholders aimed at protecting more than 15,000 hectares of landscapes that are environmentally sensitive (e.g., wetlands, rivers, groundwater, and habitat of endangered species) (Region of Waterloo, 2010b). During the development of these Environmentally Sensitive Landscapes, conservation study participants collaborated with different “landowners, citizens, community groups, governmental organizations, and politicians” (Natural Conservation Focus Group) on numerous committees to ensure the eventual success of the development of many of the current Environmentally Sensitive Landscapes in Waterloo Region.

ClimateActionWR is another of the large collaborations mentioned by participants in the study. In fact, this initiative, which used to be called the Climate Collaborative, is likely the largest of such collaborative projects. Aimed at lowering greenhouse gas emissions in Waterloo Region, the project aims to generate multiple economic, social, and environmental benefits in the

local community through energy security, sustainable transportation, home energy savings, waste diversion, and water conservation (ClimateActionWR, 2012a). Conceptualized in a “collaborative framework that facilitates sharing of expertise, maximization of resources, and active participation across interests, disciplines and sectors in the community” (ClimateActionWR, 2012b, para. 1), the collaborative project is guided by two environmental organizations and the Region of Waterloo with support from three municipalities including its utility companies such as local hydro and gas.

ClimateActionWR actively involves organizations and the communities through task forces (i.e., residential energy; industrial, commercial and institutional energy; transportation; and agriculture and food) and an extensive community engagement process that includes a community forum series among other activities. The interesting aspect of this collaborative project is that it reaches beyond regional environmental organizations and includes community members. In the words of one participant of the Energy Focus Group:

When we started the regional carbon initiative in 2009 we recognized the gap [between] what [we] could accomplish and what the community needed [...] From day one, we recognized that this wasn't going to be led by organizations solely and recognized to really achieve the impact we wanted, we would need more partners at the table.

Participants also discussed numerous medium-sized collaborations. Many of these collaborations included one-time events such as public forums on environmental issues aimed at educating members of the community. Many of these collaborative events included multiple partners. One example of such an event described by one participant was an event aimed at educating community members on solar energy and solar panel installation. This project included several local organizations including local faith congregations. An example of a

medium sized collaboration described by one participant that is not event-based is currently happening within one of the local universities. The project is a collaboration between the university's Aboriginal Services, one faculty member, and the department of Physical Resources to build a community garden for both vegetables and Aboriginal medicines.

Finally, study participants also discussed multiple small (2 collaborative partners) collaborative projects. One notable example of such a small collaboration was between one of the smallest and one of the largest organizations, where the larger organization provided training to the members of the small organization and made available office space in their building for the staff of small organization.

Hierarchical Structures of Collaborations

Generally speaking, there are two types of hierarchical structures of collaborations that emerged during the interviews and focus groups, namely top-down and bottom-up. Top-down collaborations tend to be initiated by organizations or governments based on a pre-identified problem, and professionals tend to be the decision-makers (Minkler & Wallerstein, 2003). An example of a top-down collaboration in Waterloo Region is the Water Management Plan by the Grand River Conservation Authority. This project is a collaboration that includes multiple levels of government (federal, provincial, regional, and municipal). Based on a steering committee and technical working groups made up of the different levels of government, the project aims to develop a water management plan over four years. In this collaborative project, non-profit organizations are only being consulted with rather than collaborating due to the project's focus on decision-makers. The Grand River Conservation Authority purposely decided to limit participation to those organizations that can make the necessary decisions, namely the different levels of government. It is important to mention however, that the current work is a continuation

of work done in the 1990s on the Heritage River. In the 1990s the Grand River Conservation Authority invited a lot of people to participate in developing the water management plan.

Bottom-up collaborations, (often also called grass-roots or community-based collaborations) on the other hand, tend to be started at the community level, generally meaning that problems are identified by the community and that professionals act as resources rather than directors (Minkler & Wallerstein, 2003). An example of a local bottom-up collaboration is the collaboration between the local Council of Agencies Serving South Asians, the Public Health department at the Region of Waterloo, and many other partner organizations to develop multicultural community gardens. Started in part at the community level, this project was able to attract multiple multicultural and other organizations as well as community members. In 2013, there were four multicultural community gardens in Waterloo Region (Multicultural Community Gardens, *no date*).

Levels of Formality of Collaborations

Regardless of their sizes or hierarchical structures, collaborations can have different levels of formalization. Several interview and focus group participants reported engaging in both formal collaborations (collaborations that have written agreements) and informal collaborations, (those with only verbal agreements). Generally, the level of formality depends on the extent of collaboration in terms of time and resources. In other words, the longer the collaboration or the more shared resources are included in the collaboration, the higher the likelihood of a formal agreement, as in the case of the ClimateActionWR. An example of a small formal collaboration discussed in one focus group is between one small organization and one large organization. Due to shared resources (i.e., funding) and due to the requirements of the funder, this collaboration has written agreements.

Short-term collaborations, such as educational events, that do not include shared resources tend to be less formal. Nevertheless, even if such collaborations are based on mostly verbal agreements, they can still be considered quite formal by their partners, as can be seen from the quote by Energy 2 discussing educational events. While most agreements are verbal, the participant added:

[these events are] formal in the sense that all of our logos are on the posters when we do an event together ... it has been only a reciprocal agreement of we are doing this event together. You're doing this bit, I am doing that bit, it's pretty organizational.

Finally, collaboration can also include some forms of formal cross-appointments to create official representation and a connection between two organizations. For example, the Community Gardens Committee and the Waterloo Region Food System Round Table now have representatives on each other's committees. "We purposely did that, after a couple of years of not having a formal [representative] there... it was just last year." (Food & Agriculture Focus Group).

Section 3: Perceptions of the Level of Collaboration

In the third section of this chapter, I present the perceptions of the level of organizational collaboration among environmental organizations in Waterloo Region at the time of data collection (2011) through descriptive statistics. Data presented here are based on two distinct explorations: first, the level of effectiveness of collaboration among environmental organizations in Waterloo Region (i.e., quality and quantity) and second, the level to which increases in collaboration and formalization were seen as important for the future.

Quality of Collaboration in 2011

In order to understand of the structure of collaboration in Waterloo Region in 2011, I

asked participants to rate how they perceived the quality of collaboration. I asked the participants eight questions that are loosely based on the survey for the assessment of inter-agency delivery of community health services in Maricopa County by Milward and Provan (the results are published in Provan, Huang, and Milward, 2009). The questions were related to how well collaboration: (1) unifies organizations towards common goals; (2) engages organizations in new and broader environmental issues; (3) creates political interest through demonstrating and developing public support, (4) increases critical mass that extends the reach of individuals or organizations; (5) creates trust among organizations and communities; (6) assembles different resources, skills, and expertise; (7) recruits diverse constituencies (e.g., politics, business); and (8) utilizes emerging resources (e.g., funding, expertise). Participants were able to respond using a four-point Likert-type scale ranging from 'poor' to 'excellent'. Figure 22 below uses visually illustrate the results of ratings per question

In five of the eight questions, over 60% of the participants rated the quality of collaboration as either 'poor' or 'fair', namely, unification of organizations (65.2%), engaging organizations in new and broader environmental issues (69.5%), creating political interest through demonstrating and developing public support (69.5%), recruiting diverse constituencies (60.8%), and utilizing emerging resources (65.2%). More specifically, it should be noted that over 30% of participants thought that the quality of the collaboration in 2011 was 'poor' with regards to (a) engaging organizations in new and broader environmental issues and (b) creating political interest through demonstrating and developing public support.

While participant rated the questions above quite low, around half of the participants seemed to think that the quality of collaboration was either good or excellent for creating trust among organizations (47.8%) and just over half of the participants rated assembling different

resources (52.1%) as good or excellent.

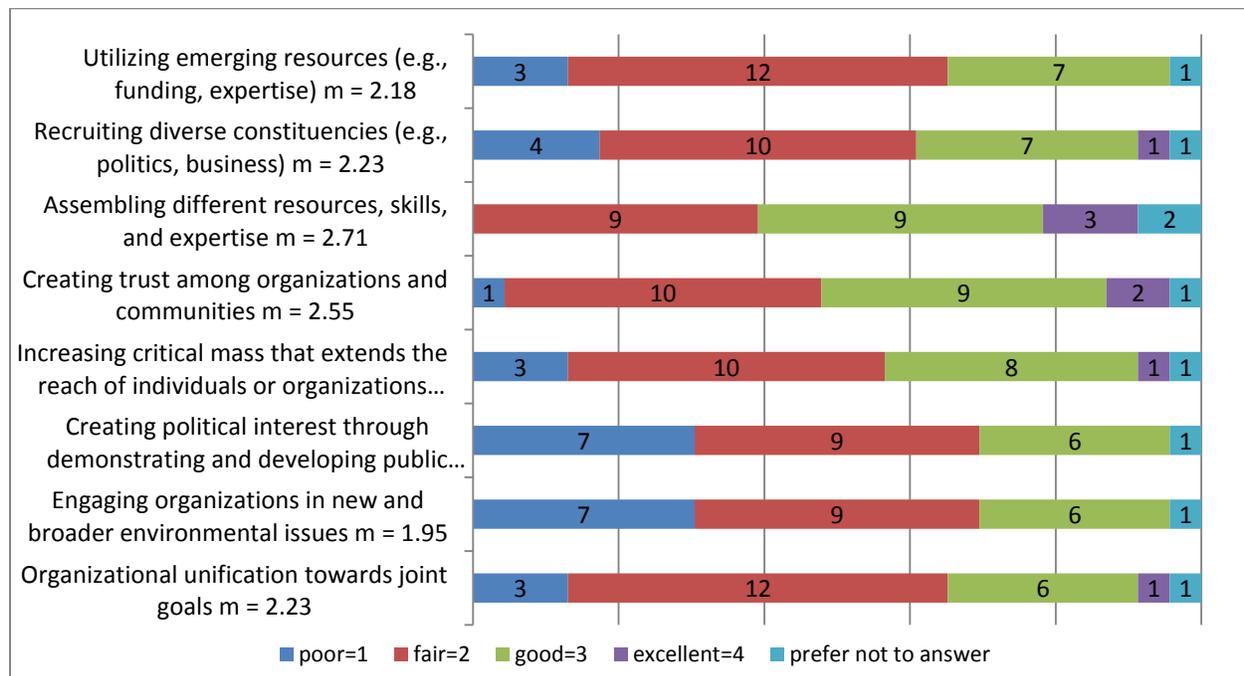


Figure 22. Quality of collaboration , percentages reported (n=23).

Quantity of Collaboration in 2011

In order to get an understanding of the structure of collaboration in Waterloo Region in 2011, I asked participants to rate how they perceived how often collaboration in Waterloo Region achieved the same eight aspects. Again, participants were able to respond using a four-point Likert-type scale ranging from 'not at all' to 'very much so'. Figure 23 visually illustrate the results.

With regards to how often organizations collaborated in 2011 around 80% of the respondents rated the same five aspects even lower. More specifically, participants rated the quantity as either 'not at all' or 'somewhat', namely unification of organizations (78.3%), engaging organizations in new and broader environmental issues (78.2%), creating political

interest through demonstrating and developing public support (78.2%), recruiting diverse constituencies (78.2%), and utilizing emerging resources (65.2%) were rated low by respondents. One noteworthy observation is that over 20% of participants thought that the recruitment of diverse stakeholders was not done at all in 2011.

While participants rated the questions above quite low, the two questions about creating trust among organizations and assembling different resources were rated marginally higher, with 26% and 30.4% reporting that collaborations in 2011 were doing both of these things ‘quite a bit’ or ‘very much so’.

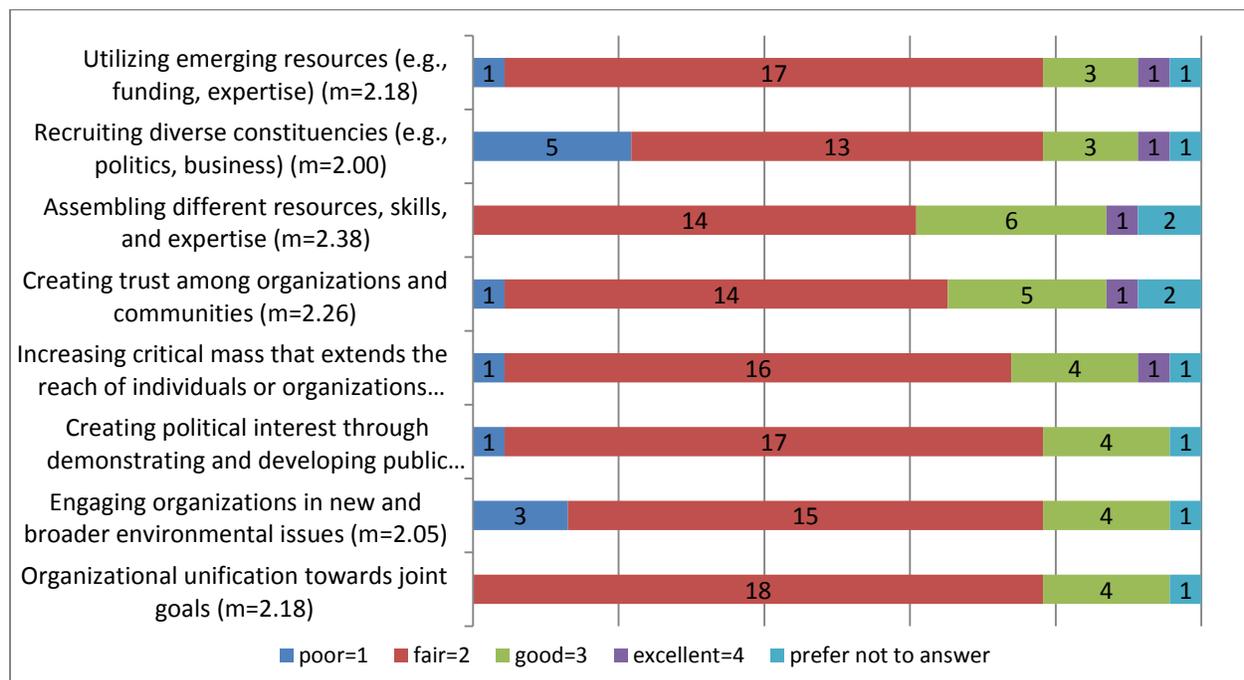


Figure 23. Quantity of collaboration, percentages reported ($n=23$).

Need for Increasing Effectiveness and Formalizing Collaboration in 2011

Finally, I asked participants to identify to what degree they thought that collaboration in Waterloo Region should be increased and formalized using four questions. The questions were

related to the needs to: (1) increase the effectiveness of collaboration among regional organizations in general; (2) create more formalized ties among local organizations; (3) create a formalized coalition among local organizations; and (4) create a formalized umbrella group or other formal body among local organizations (see appendix 5). Participants were able to respond using a four-point Likert-type scale ranging from ‘not important’ to ‘very important’. Illustrated in Figure 24 are the results.

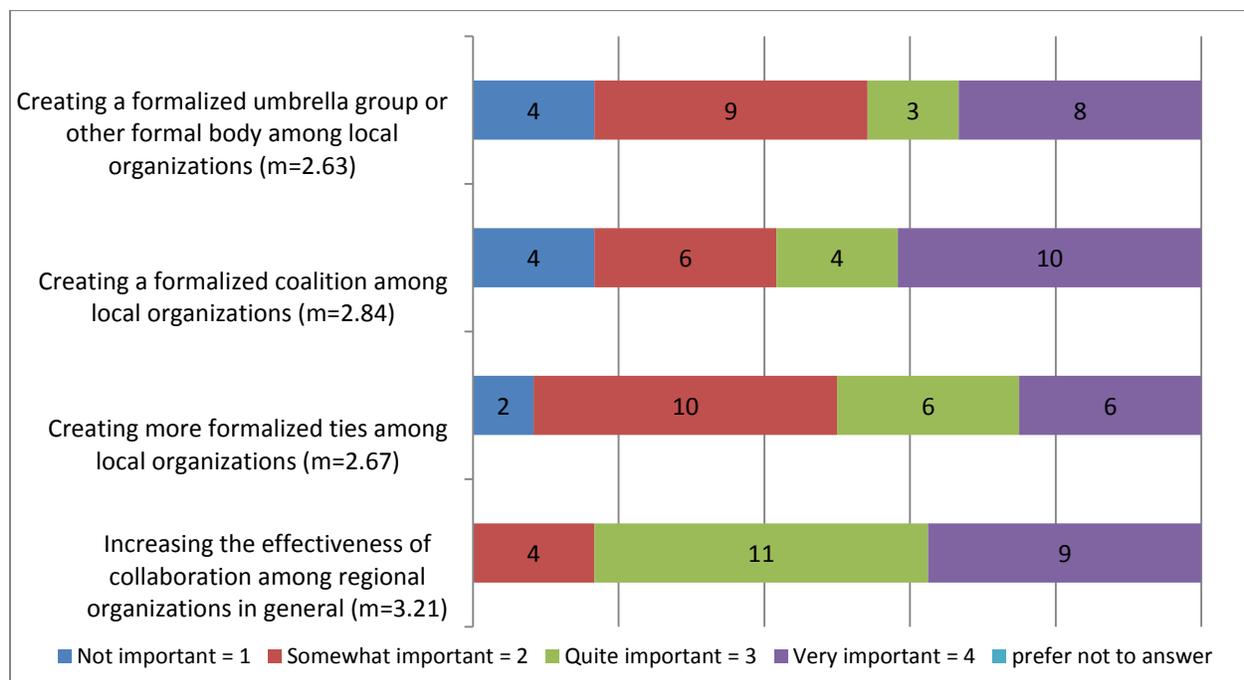


Figure 24. Increasing and formalizing collaboration, percentages reported ($n=24$).

With regards to increasing the effectiveness of collaboration in general, 83.3% of the respondents felt that it was either ‘very important’ or ‘quite important’. Significantly, no respondents felt that increasing effectiveness was ‘not at all important’. Almost 60% of the respondents rated creating a formalized coalition as either ‘quite important’ or ‘very important’.

In terms of creating more formalized ties and/or a formal structure, results were almost equal

between those rating it ‘not important’ and ‘somewhat important’ and those rating it ‘quite important’ and ‘very important’. In fact, in terms of creating more formalized ties, participants were split in the middle while with regards to a formal structure, 54.2% felt it was ‘not important’ or ‘somewhat important’ while 45.8% felt it was ‘quite important’ or ‘very important’. Only 16.7% of respondents felt that a formal structure was ‘not important at all’.

Scale Sum for Quality, Quantity, and Need for Increasing and Formalizing of Collaboration

In order to present a complete perspective of the results above, I re-coded the questions by organization to give each an overall score (sum of scale) for perceived quality, quantity, and the need to increase and formalize collaboration in 2011. Questions for each area were weighted equally in the scale sums. Organizations that had missing data were not included in the scale sums. Table 7 illustrates the results by organizations.

Scale sum for collaboration quality. In terms of quality of collaboration in 2011, while the possible range was from eight (i.e., all rated it as ‘poor’) to 32 (i.e., all rated it as ‘excellent’), actual scores ranged between 12 and 23. Organizations Education 2, Other 3, and Justice 3 each rated the quality highest with a score of 23, and Organization Energy 3 rated the quality lowest at a score of 12, followed by Organization Conservation 1 with a score of 13, and Organization Energy 2 and Energy 4 with a score of 14 (see Table 7). The mean for quality was 18.10 and the standard deviation was 3.51 (see Table 8).

Scale sum for collaboration quantity. In terms of the quantity of collaboration, while the possible range was from 8 (i.e., all rated not at all) to 32 (i.e., all rated very much so), actual scores ranged between 14 and 21, creating a slightly smaller range than for quality of collaboration.

Table 7

Scale Sum results for collaboration effectiveness with regards to qualitative, quantitative, and need for formalization

Organization	Total Quality of Collaboration* (missing)	Total Quantity of Collaboration (missing)	Total Need for Formalization (missing)
Possible Range	8 – 32	8 – 32	4 – 16
Actual Range	12 – 23	14 – 21	5 – 16
Education 2	23	21 (0)	11 (0)
Other 3	23	20 (0)	15 (0)
Justice 3	23	21 (0)	16 (0)
Food 1	22	17 (0)	13 (0)
Justice 2	22	18 (0)	16 (0)
Other 2	22	18 (0)	15 (0)
Education 1	19	18 (0)	10 (0)
Justice 1	19	17 (0)	7 (0)
Transportation 1	19	19 (0)	8 (0)
Transportation 2	19	17 (0)	15 (0)
Conservation 2	19	19 (0)	13 (0)
Food 2	18	18 (0)	13 (0)
Other 1	16	18 (0)	9 (0)
Education 4	16	14 (1)	8 (0)
Energy 5	16	16 (0)	5 (0)
Education 5	16	16 (0)	8 (0)
Food 3	16	16 (0)	15 (0)
Other 4	15	15 (0)	10 (0)
Energy 2	14	14 (0)	12 (0)
Energy 4	14	15 (0)	13 (0)
Conservation 1	13	16 (0)	8 (0)
Energy 3	12	16 (0)	16 (0)
Energy 1	0	0 (8)	6 (0)
Education 3	0	0 (8)	0 (4)
Conservation 3	0	0 (8)	10 (0)

Red indicates those organizations with higher scores, yellow indicates lower scores

* The table is ordered by the level of quality of collaboration

The same organizations, Organizations Education 2 and Justice 3, scored highest, each rating the quantity at 21, and Organization Other 3 had the second highest rating of quantity at 20. Organizations Energy 2 and Education 4 rated the quantity lowest at a score of 14, followed by Organizations Energy 4 and Other 4 at a score of 15 (see Table 7). The mean for quantity was 17.23 and the standard deviation was 2.00 (see Table 8).

Scale sum for need for increasing and formalization of collaboration. Finally, with regards to need for formalization of collaboration, the possible range was four (i.e., all rated ‘not important’) to 16 (i.e., all rated ‘very important’). The actual scores ranged from five to 16. Organizations Justice 2, Energy 3, and Justice 3 rated the need for increasing and formalizing collaboration at the maximum possible score of 16, followed by Organizations Transportation 2, Other 2, Other 3, and Food 3 with a score of 15. On the other hand, Organizations Justice 1, Energy 1, and Energy 5 rated the need for increasing and formalizing collaboration very low, with scores of five, six, and seven, respectively (see Table 7). The mean rating for increasing and formalizing collaboration was 11.33 and the standard deviation was 3.45 (see Table 8).

Table 8

Frequencies for total current quality, quantity, and need to formalize collaboration excluding case-wise

Question	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>sd</i>
Total quality of current collaboration	21	12	23	18.10	3.51
Total quantity of current collaboration	22	14	21	17.23	2.00
Total need for formalization of collaboration	24	5	16	11.33	3.45

Section 4: Centrality and Perceptions of Collaborative Effectiveness

In the fourth section of this chapter, I present how two particular results overlap, namely centrality of organizations with their particular views of a) the level of effectiveness of collaboration among environmental organizations in Waterloo Region (i.e., quality and quantity) and b) the level to which increases in collaboration and formalization were seen as important for the future. The reason for providing this perspective is to investigate if there are patterns that can be identified. For example, it is interesting to explore if organizations that have higher levels of centrality consider the current effectiveness of collaboration higher or if organizations that are located on the outside consider it to be more important to formalize collaboration in Waterloo Region.

Overall, there are no visible similarities between organizational centrality and organization's perceptions of quality, quantity, and the need for formalization of collaboration among environmental organizations in Waterloo Region.

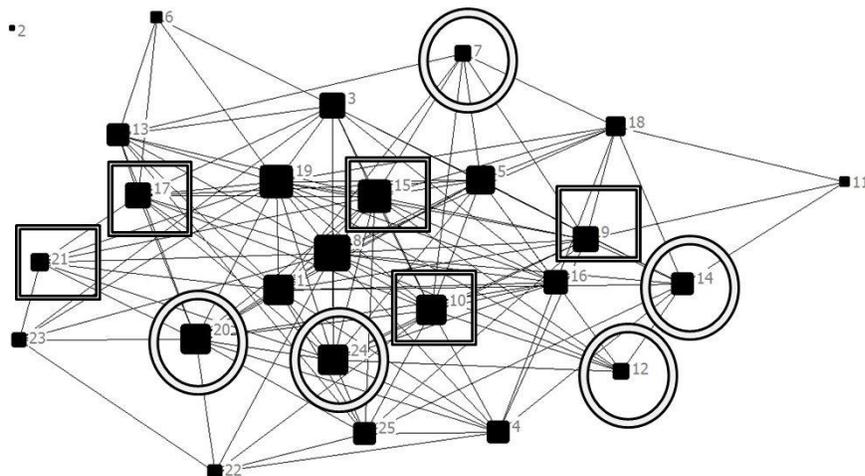


Figure 25. Quality of collaboration scores: circle highest and rectangle lowest.

Organizational Centrality and Perception of Quality of Collaboration

Figure 25 illustrates those organizations that scored the quality of collaboration the highest (circle) and those that scored quality of collaboration the lowest (rectangle). There seems to be no visible similarities between those organizations who rated the quality highest (circle) and those who rated the quality or lowest (rectangle) in terms of their positions, namely centrality within the network. Statistical analysis resulted in a non-significant correlation between centrality and perception of quality of collaboration ($r^2=.095$, $p=.652$).

Organizational Centrality and Perception of Quantity of Collaboration

Figure 26 illustrates those organizations that scored the quantity of collaboration the highest (circle) and those that scored quantity of collaboration the lowest (rectangle). Again, there seems to be no visible similarities between those organizations who rated the quality either highest or lowest in terms of their positions within the network. Again, statistical analysis resulted in a non-significant correlation between centrality and perception of quantity of collaboration ($r^2=.092$, $p=.663$).

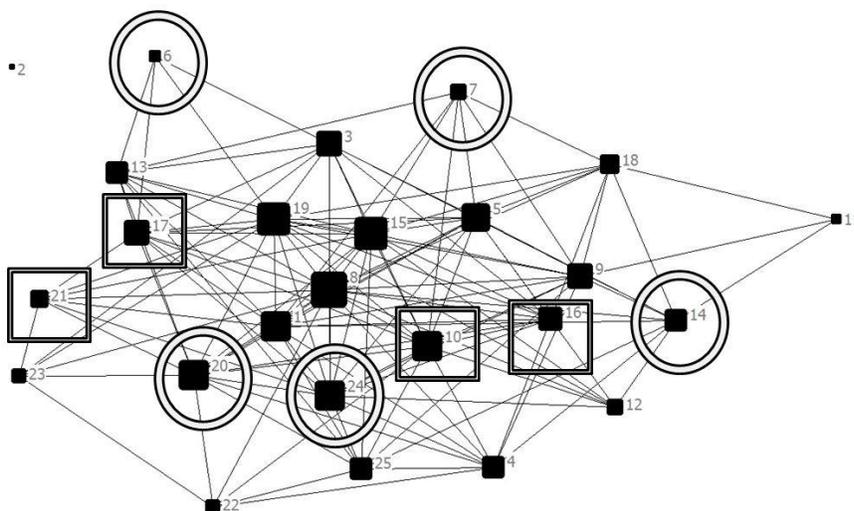


Figure 26. Quantity of collaboration scores: circle highest and rectangle lowest.

Figure 27 illustrates those organizations that gave the highest rating to the need for

formalization (circle) and those that scored it the lowest (rectangle). Again, there seems to be no similarities between those organizations who rated the need for formalization highest or lowest in terms of their positions within the network.

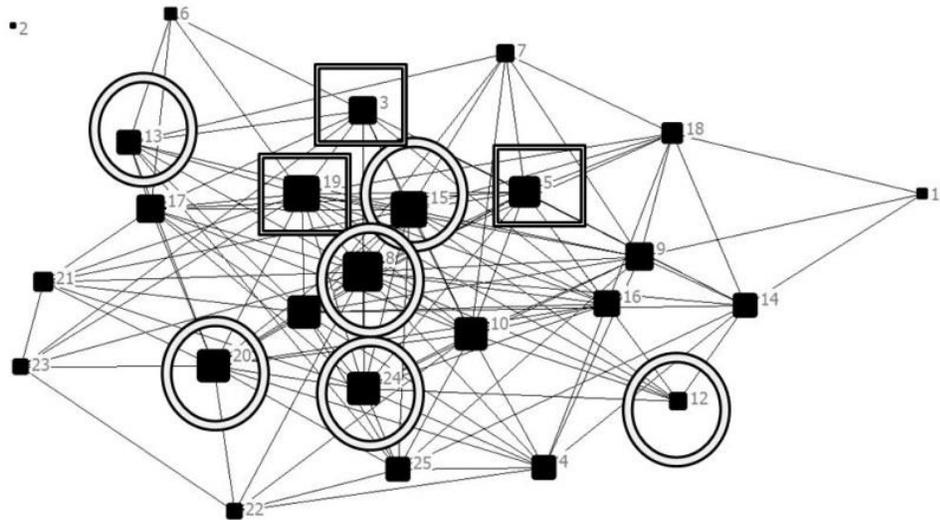


Figure 27. Graph illustrates need for increasing effectiveness and formalizing collaboration aggregated scores (circle=highest and rectangle=lowest scores) in relation to centrality in terms of networking.

Chapter 7 - Discussion: Structures of Networking and Collaboration

I think we have a unique thing in Waterloo. I haven't seen it as much elsewhere and I have had external people say that as well. There is a lot of [environmental] non-profits happening, there is a lot of [environmental] volunteerism happening in Waterloo. It's very invigorating; I think people really feel that. They look to resources, they look to expand these networks ... I feel like every month I'm almost involved in a networking meeting, it's fantastic.—Education 5

There seems to be little doubt that environmental organizations in Waterloo Region are working hard to address the numerous local and global environmental challenges. Quotes like the one above strongly support this sense of a noteworthy degree of collaboration being done locally among the many existing environmental networks with different foci such as conservation, energy, and food and among organizations. This perception is also supported by the findings emerging from the results of the survey, the focus groups, and the interviews with regards to the structures of networking and collaboration among environmental organization in Waterloo Region.

Chapter 7 is divided into three sections. In the first section, I provide an interpretation of the networking findings as they relate to factors of cohesion and communication, the existence or absence of groups of organizations, and the types of organizations and their particular roles in networks. In the second section, I provide an interpretation of the findings related to collaboration, namely existing collaborations, perceptions of collaboration, and types of collaborations. In the third section, I provide an interpretation of the findings related to the perceived needs with regards to moving networking and collaboration ahead in Waterloo Region.

Section 1: Networking in Waterloo Region

In this section I discuss the findings related to the overall network of environmental organizations in Waterloo Region. The literature identifies multiple networking factors as described in this section that will ultimately affect collaborative capacity (i.e., skills and knowledge of good or emerging practice to work collaboratively). These factors include overall levels of cohesion, communication, and hierarchy among the different organizations (Johnson & Johnson, 2009; Mattessich et al., 2001; Wolff, 2001).

In this section, an interpretation of the results presented in Chapter 6 is provided. This section is divided into three parts – each part consists of an interpretation of the findings presented in Chapter 6 and a discussion of their implications for collaborative capacity and potential steps to increase collaborative capacity. In part one, I discuss the quantitative and qualitative findings as they relate to the overall structure of networking and collaboration. In part two, I discuss the absence of cliques among environmental organizations. In part three, I discuss the roles and perspectives of the participating organizations.

Overall Networking

To understand collaborative capacity it is useful to take a closer look at the overall levels of networking and collaboration. In particular, the level to which the network exhibit factors such as: a) unity, solidarity, and interconnectivity among the organizations; b) the levels of communication among all organizations, and b) the type of hierarchical structure among all organizations are of interest to understand collaborative capacity. Table 9 summarizes the results from Chapter 6 in terms of density, geodesic distance, and group centrality.

Table 9

Total for density, geodesic distance, and group centralization

Measure	<i>N</i> =25
Density (<i>ratio of actual ties versus possible ties</i>)	.44
Geodesic Distance (<i>distance between two actors in a network</i>)	1.8
Group Centralization (<i>level to which there are focal actor</i>)	.37

Network cohesion and interconnectivity. According to Hanneman and Riddle (2005), high density among network members may indicate that there is a high degree of social capital, fast mobilization of resources, and an increased ability to produce different perspectives. In their paper on the applicability of social network analysis in the context of strengthening community partnerships, Provan and colleagues (2005) proposed density as a useful tool to develop perspectives and understanding of particular networks. In this study, the density measure among the organizations in the network ($n=25$) is .44, meaning that 44% of all possible connections are present.

In terms of collaborative capacity, Hanneman and Riddle (2005) consider a density such as 0.44 to represent a relatively high level of cohesion and interconnectivity among the organizations. However, given that the level of analysis here is networking (i.e., namely exchanging information and/or having joint meetings), I would argue that density could be higher than 0.44. For example, if there was an umbrella group that was connected to most or all organizations and shared information among these organizations, then the density of networking could potentially reach close to 1.0 (i.e., 100% of all possible connections). This would connect more organizations and, if networking is considered the first step towards collaboration, would

eventually lead to a higher level of collaborative capacity through a higher level of cohesion. From a practical perspective, the challenge in increasing networking in order to achieve higher collaborative capacity is that such an endeavor requires resources, which are hard to find within an area such as environmental work where funding is perceived to be limited.

Network communication. Because the average geodesic distance among the organizations was relatively low at 1.8, and because almost 50% of all organizations were directly connected with each other, information can be expected to reach everyone and to travel through the network relatively quickly. The longest possible distance between any two organizations (i.e., the diameter) was three, meaning that the furthest distance information has to travel is through three organizations to reach all others.

Similar to density, these two network measures reveal that information travels quickly in the network, suggesting high levels of collaborative capacity. This is supported by the fact that diameters of three and four suggest “compact” networks according to Hanneman and Riddle (2005). Nevertheless, there is room to increase collaborative capacity. For example, having one or several platforms, such as a website or a listserv (i.e., an electronic mailing list that allows participants to receive specified emails shared) for environmental organizations to share information could lower the average geodesic distance and diameters of both networks. This could be an interesting and inexpensive first step toward increasing networking through broader sharing of information among environmental organizations in Waterloo Region.

Network hierarchy. The group centralization value of the network was 0.37, meaning that there are multiple organizations that are central to the network rather than one or two central ones (i.e., positioned in the middle). The sociogram (Figure 11) supports this finding because there are several organizations located towards the middle of the graph (in fact about 10

organizations) that tend to be well connected, and because positional advantages do not show huge disparities in their distribution.

Again, this network measure reveals an important characteristic of the network, namely that the network is more decentralized (which is considered important for effective collaborations) than hierarchical, thus not giving any particular organization a position of power. This suggests a high level of collaborative capacity, because, according to scholars such as Sofaer (2000), collaborations should not have strong hierarchical structures, as hierarchy is counter to most goals of collaborations such as shared decision-making and sharing power. In this network organizations can use multiple avenues to find and network with other organizations for potential collaborative work. The disadvantage of a decentralized hierarchical structure in the network could be a lack of a centralized body that has information about all or at least the large majority of organizations, because it is unlikely that all organizations know each other and are connected to each other. If there was one central organization, this organization could use its power to help organizations to connect with each other for collaborative work. Thus, the lack of a central organization could make it harder for organizations to reach others because the network may miss a central player that plays the role of a network broker (for more detail, see Section 3 in this chapter).

Interestingly, as proposed earlier, creating one or multiple central communication platforms, or an organization that connects all organizations with each other, could increase networking and thus collaborative capacity. In a network analysis this would likely increase the vertical hierarchical structure of the network but could actually increase the speed with which organizations can identify and find other organizations for future collaborative work.

Cliques and Groupings

There are no identifiable cliques in the network. At the same time, the findings suggest that organizations that focus on similar environmental areas tend to be more closely positioned within the sociograms, suggesting that they tend to be better connected among each other than across the entire spectrum.

This finding may suggest that there is high networking capacity among organizations to collaborate with organizations that are outside of their own environmental focus. Given the need for diversity in views for collaborative synergy and to increase effectiveness of collaborations to address very complex issues, this finding is important because the broad connections among organizations suggest that the network has the capacity to create collaborations that include many different organizations that can provide diverse perspectives.

Organizational Positions in the Network

Part of the discussion in the literature with regards to collaboration effectiveness is the importance of membership, because it is argued that collaborations are only as good as their members. This should be true for networks as well. It is important for collaborations and, to some degree for networks, to identify members with different skills, expertise, and experiences (Allen, 2005; Gray, 1989; Israel, Lantz, et al., 2005; Johnson & Johnson, 2009; Provan et al., 2005; Wandersman et al., 2005) in order to create synergy (Lasker, Weiss, & Miller, 2001). It is also very important for collaborations to identify the ‘movers and shakers’ and prominent organizations, and add them to their membership to increase collaborative effectiveness (Mattessich et al., 2001; Sofaer, 2000; Wolff, 2010). Table 10 displays the results for degree centrality and betweenness for each organization.

Table 10

Totals centrality, betweenness, quality and quantity

Organization	Degree Centrality*	Betweenness	Scale Sum Quality of Collaboration (missing)	Scale Sum Quantity of Collaboration (missing)
Range	3 – 19	1 – 22	12 – 23	14 – 21
Transportation 2	19	22	19 (0)	17 (0)
Energy 3	17	11	12 (0)	16 (0)
Energy 5	17	19	16 (0)	16 (0)
Education 1	15	9	19 (0)	18 (0)
Energy 2	15	11	14 (0)	14 (0)
Other 3	15	9	23 (0)	20 (0)
Justice 3	15	6	23 (0)	21 (0)
Energy 1	14	6	0 (8)	0 (8)
Justice 1	12	9	19 (0)	17 (0)
Conservation 1	12	12	13 (0)	16 (0)
Energy 4	12	4	14 (0)	15 (0)
Education 4	11	2	16 (1)	14 (1)
Food 1	10	3	22 (0)	17 (0)
Other 2	10	6	22 (0)	18 (0)
Conservation 2	10	10	19 (0)	19 (0)
Food 3	10	4	16 (0)	16 (0)
Conservation 3	9	7	0 (8)	0 (8)
Other 4	8	1	15 (0)	15 (0)
Education 2	7	1	23 (0)	21 (0)
Justice 2	7	1	22 (0)	18 (0)
Food 2	6	1	18 (0)	18 (0)
Education 5	6	1	16 (0)	16 (0)
Transportation 1	4	0	19 (0)	19 (0)
Education 3	3	0	0 (8)	0 (8)
Other 1	0	0	16 (0)	18 (0)

* The table is ordered by the level of degree centrality of organizations

Organizational positions in the network (centrality and betweenness). Again, these network measures reveal some important characteristics of the network with regards to its

collaboration capacity. First, the organizations in the core of the Network tend to be organizations with high degree centrality. These organizations likely have more advantageous positions within the existing network. However, given that there are multiple organizations with similar levels of degree centrality not one organization tends to have exclusive influence or power over the larger network. In work with community organizations, Provan and colleagues (2005) suggest that this measure, combined with community knowledge, can identify important organizations to address particular issues within a community, and may be useful in building future connections given their often leadership-like positions in a network.

Similarly, many of the same organizations have high betweenness scores thus may be well positioned to be movers and shakers within a network (Hanneman & Riddle, 2005; Wasserman & Faust, 1999). However, the difference is that not all central organizations have higher betweenness scores. Interestingly, some of the organizations in the centre (i.e., those with high centrality) such as Organizations Education 1, Energy 1, Energy 2, Energy 3 and Justice 3, do not have high betweenness scores. At the same time, Organization Conservation 1, while to some degree removed from the middle of the graph, is quite well positioned in terms of betweenness compared to, for example, Organization Education 1, which is quite central and has a higher degree centrality score.

These results indicate that not all organizations that have high degree centrality (i.e., power, influence, prestige, and prominence) also are movers and shakers. In terms of networking capacity within the network, Organizations Transportation 2 and Energy 5 both play a significant role as organizations with power and influence, and also as organizations that are the movers and shakers within the network due to their high betweenness scores.

In terms of increasing networking and thus collaborative capacity, it may be useful to do a more in-depth assessment of those organizations that have high centrality but, more importantly, high betweenness to assess which organizations are the most important organizations to connect those on the outside more actively within the network. Encouraging the influential mover and shaker organizations in the network to use their role to increase overall connections (e.g., density and geodesic distance) could increase collaboration capacity in the future.

Organizational positions and collaborative effectiveness. Finally, the link between organizational locations (e.g., centrality) and their perceptions of the effectiveness of collaboration (i.e., quality and quantity of collaboration) may suggest some interesting characteristic of the networks in Waterloo Region. In terms of organizational centrality and perceived quality of collaboration in Waterloo Region, while the results indicate little agreement among the organizations in terms of the quality of collaboration, it may suggest that some of those organizations that network most (i.e., Organizations Energy 2 and Energy 3) are quite unhappy with the level of quality of the current collaboration. Generally, from the perspective of increasing collaborative capacity in Waterloo Region, it may make sense to work with the local organizations to identify how to increase the overall quality of collaboration. It may be particularly useful to work with Organizations Energy 2 and Energy 3, given their central location in the network, to understand why they consider the current quality of collaboration as low and how to increase the quality for future collaborations.

In terms of organizational centrality and perceived quantity of collaboration within Waterloo Region, the findings again suggest limited agreement among the organizations with regards to their locations within the network. This indicates that some of the organizations located on the outside, such as Organizations Energy 4 and Other 4, prefer to have the level of

collaboration increase, while more central organizations such as Organizations Transportation 1, Education 2, and Conservation 2 prefer not to increase the amount of collaboration.

Generally, from the perspective of increasing collaborative capacity in Waterloo Region, it may make sense to work with local organizations to identify how to increase the overall quantity of collaboration due to the low overall scores with regards to collaboration. This is particularly important for those organizations that perceived the level of collaboration as insufficient at the time of the survey. It might, in fact, be particularly useful to work with less central organizations such as Organizations Energy 4 and Other 4 to understand why they consider the current quantity of collaboration as low and how to increase the amount of collaboration in the future. At the same time, it is vital to ensure that those organizations that perceived the level as sufficient do not feel forced to increase their level of collaboration. Overall, with regards to increasing collaborative capacity in Waterloo Region – given that organizations with high centrality tend to have power and influence – it is vital to ensure that those organizations most central in the network are strongly supportive of any attempts to advance collaborative capacity.

Section 2: Collaboration in Waterloo Region

In this section, collaboration among environmental organizations in Waterloo Region is discussed. When investigating collaboration, collaborative capacity can be assessed through at least four venues. These venues include: a) the types of organizations that engage in collaborations (i.e., organizational scope and focus); b) the scope of collaborations to identify the level of collaborative membership; c) the hierarchical structure of collaborations to, for example, identify decision-making arrangements; d) levels of formalizations; and e) the perceptions of collaboration effectiveness among the organizations (Becker, Israel, & Allen III, 2005; Johnson & Johnson, 2009; Minkler & Wallerstein, 2003; Sofaer, 2000; Wolff, 2011).

Overall, many organizations, independent of their size and foci, engage in collaborations. The kinds of collaborations range from collaborations between small organizations to very large organizations with different hierarchical structures and different levels of formality. Despite the relatively high level of collaborative capacity reported above, the majority of organizations considered the current level of collaboration as relatively ineffective (i.e., quality and quantity of collaboration). In order to increase collaborative capacity, organizations could consider increasing the level of formal collaborations, breaking down barriers and addressing hesitancy to join larger collaborations, and decreasing top-down collaborations.

This section is divided into five parts – each part consists of an interpretation of the findings presented in Chapter 6 and a discussion as to the collaborative capacity and potential steps to increase collaborative capacity. In part one, I discuss the types of organizations that engage in collaboration. In part two, I discuss the scope of collaborations as they exist in Waterloo Region. In part three, I discuss the hierarchical structures of current collaborations. In part four, I address the different levels of formalizations within the collaborations. Finally, in part five, I discuss the results as they pertain to the perceived level of effectiveness of collaboration in Waterloo Region.

Types of Organizations that Engage in Collaboration

The collaboration results only represent collaboration reported by the participating organizations ($n=25$). In terms of collaborative capacity, the social network measures reveal some interesting characteristics within the network. First, the majority of organizations, independent of their size, engage in informal collaborations. Collaborative capacity, thus, is not only found among medium-sized and large organizations that may have resources to collaborate, but also among small organizations, suggesting a relatively even distribution of collaboration

independent of the organizational sizes. Hence, small organizations can collaborate with small and large organizations, which may be important to ensure diversity of voices (i.e., size of organization) among collaborative partners.

Second, many organizations engage in informal collaborations with organizations that have different environmental foci which suggests high collaborative capacity because collaborating with organizations that have a different focus increases the diversity of voices within a collaboration. Third, some organizations, in particular those focusing on energy, tend to have the highest level of formalization in their collaborations. The conservation organizations, on the other hand, tend not to have any higher-level collaborations (i.e., those with high levels of formalization), suggesting that there is less collaborative capacity among organizations focused on natural conservation. Collaborative capacity could be increased by having those organizations focusing on energy working with organizations focused on natural conservation to share their experiences of formal collaboration. Secondly, it may be useful for the organizations to increase the diversity of organizations in formal collaborations, including those with different environmental foci, to include more diverse voices and increase the level of likelihood of collaborative success. This, however, runs the risk of overwhelming organizations because an increase in collaboration may also mean increasing time and resource commitments among participating organizations.

Scope of Collaborations

The scope of membership within collaborations is another important consideration when developing collaborations. According to the literature, the scope of a collaboration should depend mainly on the needed skills, expertise, and experiences as well as the complexity of the particular issue to be addressed (Becker, Israel, & Allen III, 2005; Johnson & Johnson, 2009;

Sofaer, 2000). There are multiple trade-offs related to collaboration size however. For instance, while small groups of less than ten members tend to create more open communication, encourage more active involvement, and are generally more effective, small collaborations may not be inclusive of all necessary perspectives, skills, and expertise and, depending on the size of the issue to be addressed, members can also become exhausted and burnt out (Becker et al., 2005).

Having different scopes of environmental collaborations in Waterloo Region may indeed suggest the presence of collaborative capacity. In other words, the more differently sized collaborations that exist, the more likely it is that organizations will feel comfortable joining, as they are more likely to find a size of collaboration that fits their needs and interests. For example, it may be possible that some organizations shy away from large collaborations due to their perceived drawbacks (e.g., taking too much time, increased loss of control, or difficulty dealing with partners) but are comfortable engaging in smaller or medium sized collaborations to, for example, promote a particular environmental issue in communities. While small collaborations may increase level of comfort for some organizations, having large collaborations such as the Waterloo Region Environmentally Sensitive Landscapes and the ClimateActionWR may allow organizations to participate in collaborations without having to play a leading role, which may also be an advantage.

In terms of increasing collaborative capacity, breaking down potential barriers such as hesitancy to join large collaborations due to drawbacks, or hesitation to join small collaborations due to the likely need to lead the collaboration may be important. This may be of particular importance because the sizes of collaborations should be dependent on the needs (skill, experience, and expertise) of the issue rather than on the needs of the collaborating

organizations. However, until collaborations have increased their comfort level in participating in any sized collaboration, and completely understand the advantages of larger collaborations that include diverse perspectives as well as skills, experiences, and expertise, the needs and comfort levels of organizations will continue to play a significant role and potentially limit the levels of success and effectiveness of these collaborations.

Hierarchical Structure

Suggested in the literature is that the hierarchical structures of collaborations are important considerations and identifies two typical hierarchical structures in collaborations: top-down and bottom-up, both of which have different advantages and challenges. Top-down collaborations are usually initiated by governments or organizations, show characteristics such as pre-identified problems, deficit-based orientations, some level of funding, and professionals and experts tend to make the decisions, On the other hand, bottom-up collaborations, (also called grassroots or community-based), tend to be initiated by affected communities and community groups, show characteristics such as community-identified problems, strength-based orientations, often have no funding, and in which professionals act as resources rather than decision-makers (Dorado, Giles, Welch, 2009; Minkler & Wallerstein, 2003; Wolff, 2001; Wolff, 2010).

The fact that both top-down and bottom-up collaborations exist in Waterloo Region as identified through the focus groups and the interviews may again suggest collaborative capacity. Joining a top-down collaboration like the Grand River Watershed: Water Management Plan likely entails less work for the collaborative organizations, but may leave the organizations feeling a lack of ownership over the particular challenge addressed and the solutions to it. On the other hand, joining a bottom-up collaboration is likely to entail more work for an organization, but also create an increased level of ownership over the solutions. Despite the

advantage of having different types of collaborations, in order to increase collaborative capacity in Waterloo Region, it may be useful to consider decreasing top-down collaborations (Sofaer, 2000) since collaboration, by definition, suggests both shared goals and shared decision-making power, which may be lacking in top-down collaborations. Alternatively, increasing the level of shared decision-making power among collaborating organizations in top-down collaborations may also help increase collaborative capacity.

Levels of Formalizations of Collaborations

Finally, the literature suggests that there are multiple levels of formalization possible among organizations, ranging from verbal agreements to complex agreements such as formal roles, by-laws, decision-making processes, lead agencies, and executive committees (Sofaer, 2000). As identified through the social network analysis data, a large number of organizations engage in informal collaborations. An increase in formalization of collaboration (i.e., from informal to more formal collaborations including financial formal collaborations) suggests that only those organizations focusing on energy engage in more formal, financial collaborations. Similarly, the results from the focus groups and the interviews identify that there are different levels of formalizations with regards to existing collaborations.

Overall, having both informal and formal collaborations in Waterloo Region may further suggest collaborative capacity because, according to Sofaer (2000), the expectations of the collaborating members should dictate the level of formalization. This consideration is important because some members might call for clear by-laws, rules, processes, and membership criteria (high level of formalization) while others might call for the least possible amount of bureaucracy (Sofaer, 2000). However, both long-term and large collaborations are likely in need of more formalized structures. Hence, to increase collaborative capacity among environmental

organizations in Waterloo Region, it may be useful to consider providing training and mentoring on issues of formalizing collaborations, such as membership eligibility and inclusion criteria, formal roles, by-laws, decision-making processes, lead agency collaboration, formal linkages to other organizations/collaborations, and developing executive committees and subcommittees/task forces in collaborations.

Perceptions of the Effectiveness of Collaboration

Many of the organizations reported that the effectiveness (i.e., quality and quantity) of collaboration is relatively low. However, there is a broad range in most measures, as can be seen in Table 11, in particular in the ratings of quality, suggesting disagreement among the organizations. Nevertheless, there are several areas where there is strong agreement such as, for example, unification of organizations, creating public support, and engaging diverse constituents.

Table 11

Frequencies for total current quality and quantity excluding case-wise (possible range 8-32)

Question	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>sd</i>
Total quality of current collaboration	21	12	23	18.10	3.51
Total quantity of current collaboration	22	14	21	17.23	2.00

As identified in Chapter 6, the majority of organizations suggest that the quality could be increased in all eight aspects, but in particular with regards to five aspects, namely (1) unification of organizations, (2) engaging organizations in new and broader environmental issues, (3) creating political interest through demonstrating and developing public support, (4) recruiting diverse constituencies, and (5) utilizing emerging resources. However, the relatively high

standard deviation ($sd=3.51$) for quality of collaboration (Table 8) indicates that there is no strong agreement among the organizations, which can also be seen in the large range of total scores between organizations. This may mean that there are many organizations who suggest that the current quality of collaboration is sufficient or even very high and there are many others who consider the current quality of collaboration to be low.

Similar to quality of collaboration, the majority of organizations also suggested that the quantity could be increased in all eight aspects of collaboration and, again, in particular with regards to the same five aspects as above. Yet there is less of an overall divide between opinions, as can be seen through the lower standard deviation ($sd=2.0$) as well as through the smaller range of scores. This may mean that despite some disagreement as to the quantity of collaboration, many organizations tend to agree that more collaboration is seen as favourable.

Section Conclusion

The fact that many organizations engage in collaborations and that there are many different types of collaboration (i.e., size, hierarchy, and formality) suggests a sound level of collaborative capacity among environmental organizations in Waterloo Region. In fact, one interesting overarching observation provided by one participant may be the role the Region of Waterloo (i.e., local organization managing services such as public health and planning, housing and community services) in terms of its pioneering spirit when it comes to environmental issues. Describing his experience with establishing ESLs (Environmentally Sensitive Landscapes) in the region, one participant in the Natural Conservation Focus Group noted the following about the Region of Waterloo:

Thankfully the region of Waterloo has always been pioneering. They were the first to invent the blue box, they were the first to invent, what is called ESPA (Environmentally

Sensitive Policy Area)²⁰ or a protective wetland area, they have been very bold in trying roundabouts, they have been very bold with the light rail transit in a city our size, so we were lucky we just fit into that pioneering spirit they had.

This active environmental approach by the Region of Waterloo may very well create a sense of enthusiasm and support among environmental organizations which may be a component in collaborative capacity.

At the same time, in terms of increasing the level of collaborative effectiveness and success, based on the literature and the findings in this study it is advisable to attempt to increase collaborative capacity by assisting organizations, for example, through training in the development of large to medium-sized collaborations and by breaking down barriers and addressing hesitancy to join larger collaborations. However, more importantly, the literature suggests to develop collaborations that have a horizontal hierarchical structure, are long-term, and are relatively formalized as it is these kinds of collaborations that tend to create the most successful and effective collaborations to challenging issues. It is also advisable to increase funding opportunities for environmental organizations in Waterloo Region to address issues that are broader in scope such as air pollution and climate change (which already has a large successful collaboration).

Section 3: Future of Collaboration in Waterloo Region

In this section, I discuss the results of the survey as they relate to the future of collaboration in Waterloo Region as perceived by the participants of the study. This measure may also be an important perspective on the collaborative capacity in Waterloo Region, and may

²⁰ ESPA is a designation by the local regional plan that may be given to ESLs in order to protect the area.

be particularly useful to assess if there is sufficient interest among the organizations to increase collaboration in the future. Overall, despite disagreement among the organizations, the majority of organizations would like to see increases in collaboration effectiveness including some formalization. When analyzed for the link between organizational locations in the network and their perceptions of the future needs as to collaborative effectiveness, there is also limited agreement among the organizations. From the perspective of increasing collaborative capacity, it may be useful to make use of the overall interest in increasing collaborative effectiveness without pushing the idea of an umbrella group in order to avoid ostracizing those organizations that are not interested in formalizing collaboration in Waterloo Region.

Future of Collaboration

Overall, as identified in Chapter 6, the large majority of organizations suggest increasing the effectiveness of collaboration, with many organizations suggesting that formalizing collaboration in Waterloo Region would be useful. However, while there is general agreement, there is a relatively strong divide among the organizations, as can be seen through the relative high standard deviation ($sd=3.45$), as well as through the rather large range (see Table 12).

Table 12

Frequencies for need to formalize collaboration (possible range 4-16)

Question	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>sd</i>
Total need for formalization of collaboration	24	5	16	11.33	3.45

This may mean that, in addition to the disagreement as to the quantity of collaboration, many organizations disagree with regards to the need for formalizing collaboration.

Nevertheless, the results suggest that there is sufficient interest in advancing collaborative capacity in the future. This interest, if approached well, could be used to create buy-in among the environmental organizations in Waterloo Region.

Organizational Positions and Future of Collaboration

Finally, the link between organizational locations (e.g., centrality) and their perceptions of the need to increase collaboration effectiveness and formalization may suggest some interesting characteristic of the networks in Waterloo Region. With regards to increasing collaboration effectiveness and formalization, the results indicate very limited agreement among the organizations in terms of their location within the network. Generally, while working with the organizations to increase effectiveness and formalization of collaboration to increase collaborative capacity seems to be important for the majority of organizations, it makes sense to be selective as to which organizations should be involved. More specifically, it is important to consider how to include those organizations that are not interested in increasing collaboration effectiveness and/or formalization in order to not ostracize these organizations. This is particularly true for the type and level of formalization that may be developed when trying to increase collaborative capacity.

Chapter 8 - Results: Collaboration Practice

In general, collaboration is crucial if we're going to get anywhere on the environmental front.—Energy 2

In this chapter, I report the results of the second aim of this study, the examination of definitions, values, and practices of organizational collaborations for practitioners in Waterloo Region.

Similar to Chapter 6, these results are descriptive in nature and are based on the quantitative data from the 2011 survey (see Chapter 4) and qualitative data from interviews and focus groups (see Chapter 5). The aim of this chapter is to present results that provide the reader with a sense of the descriptions, beliefs, advantages and difficulties research participants assign collaboration and how they practice collaboration.

Overall, participants presented several overarching themes with respect to definitions and ideologies of collaborations. Regarding the definitions of collaboration, themes that emerged were: working together towards common goals, sharing resources, and sharing benefits. Closely related to these themes were two ideologies influencing collaboration: providing a voice and advancing the common good. Generally, participants suggested that the benefits of collaboration clearly outweigh the challenges. The most prominent benefit of collaboration identified was the achievement of organizational success and, in some cases, survival. Other suggested benefits included: increasing resources, expertise, and influence; creating publicity and raising the public profile of the organization; increasing capacity; encouraging creative processes; building momentum; and reaching beyond the limited potential of one organization working alone.

Three main challenges were identified as part of collaboration: intra-organizational issues (e.g., lack of resources, bureaucracy), group dynamics (e.g., personalities, value tensions), and inter-organizational issues (e.g., lack of trust, communication breakdown). With regards to the

practice of collaboration, main themes to emerge included several strategies aimed at increasing the chances of success of collaboration. Many participants suggested that when they practice collaboration, strategies include (but are not limited to): assessing the particular problem, identifying needed expertise for the collaboration, identifying stakeholders, recruiting partners, and creating ground rules.

This chapter is divided into three main sections addressing the definitions, values, and practices of organizational collaborations for practitioners in Waterloo Region in 2011. In the first section, I present definitions and ideologies assigned to collaboration by organizational representatives in Waterloo Region. In the second section, I present both qualitative and quantitative results as they relate to the benefits and challenges of collaboration. In the third and final section, I present the qualitative descriptions of the various steps, actions, and approaches suggested from the interviews and focus groups with regards to the development and maintenance of collaborations.

Section 1: Definitions and Values of Collaboration

I always think of collaboration where we have a common agenda ... and then the hope in the end is that we can meet that agenda [goals] by working together.—Energy

Conservation Focus Group

The quote above succinctly illustrates issues related to definitions of collaborations (i.e., common agenda, working together), benefits (i.e., the desired goals), and the recognition that there are challenges to collaboration (i.e., leaving open the possibility that the collaborative agenda may not be met). In this section of this chapter, I first present how participants define organizational collaboration. This is followed by a presentation of the reasons that lead organizations to collaborate, namely ideological perspectives underlying collaboration.

Definition(s) of Collaboration

When asked to define collaboration in their own words during the interviews and focus groups, participants listed a range of components that define collaboration. In particular, almost all participants focused on joint efforts towards common goals and visions, sharing resources, and sharing the benefits of collaborations.

Collaboration is a joint effort towards a common goal. Nearly all participants stressed the idea of collaboration as a joint effort among organizations, most often described as working together to achieve a common goal or to further a common agenda. For instance, in the words of Conservation 1, “collaboration is partnerships so that everyone comes to the table as an equal, and then you’re working through some sort of issue, problem, solution, activity that you do together.” The idea of achieving joint common goals (which according to Conservation 1 can be an environmental issue, problem, or solution) was prevalent in the answers of most participants. In fact, the idea of common goals was proposed as the underlying reason for joint efforts by many participants. For example, Other 1 suggested: “as long as the goals are consistent, it is in the best interest of the organizations to work together and move forward.”

Three subthemes emerged from the data regarding common goals. First, many participants suggested that collaboration is the result of two or more organizations having the same goal, thus deciding to collaborate to more easily achieve their objective and avoid duplication. Second, some participants suggested that two or more organizations may have different but related organizational goals but that these goals can be combined into one different, overarching common goal. Third, a different but interesting perspective came from one participant in the Natural Conservation Focus Group. The participant suggested that in some cases it is not the common goals that guide the development of a collaboration but simply the

desire to help another organization through sharing expertise with the hope that the second organization will return the favour in the future:

It might be an organization has a goal and they are looking for you, to you for help, financial or whatever time. Their goal, it might not necessarily benefit the organizations - probably wouldn't hurt it – but because they're an organization with similar values you help them out and then down the road ... you need some help doing something else then you can count on them.

Collaboration is about sharing resources. Another important theme of collaboration to emerge multiple times during the interviews and focus groups was the aspect of sharing resources. Resources mentioned included funding, office space, specific expertise, and time, to name a few. For example, Education 5 suggested that collaboration increases the amount of resources:

[collaborations] generate and come up with more resources than you would have when working on your own ... resources, I guess, being a broad term not as in financial, as in people – it really helps for promotions – expertise, having more expertise with you, broadly resources.

Collaboration is about sharing benefits. Unsurprisingly, achieving the shared goals of the collaboration was considered a shared benefit of collaboration. Energy 2 reflected, “so I would say when you reach a mutually beneficial result, [collaboration] is great.” Similarly, Energy 4 suggested: “the mutually beneficial part of [collaboration] is really key, as well as the mutual benefit being that collaboration creates a stronger project with the two together.” Similar to the second part of the quote above, participants identified the act of collaboration (as opposed

to goals achieved through collaboration) as a shared benefit among the multiple partners.

Education 5, for example, suggested:

It's important for people to use each other as resources cause, though you may be working for your own purpose, you're going to be helping each other out – you know you are going to benefit each other ... collaborating will help you and the other organization in one way or another.

Overall, participants discussed multiple aspects of collaboration with regards to their definitions including joint efforts towards common goals and visions. Participants also discussed sharing resources, sharing benefits, as well as creating strengths in numbers, encouraging creative processes, and achieving goals that may not be achievable by one organization only in their own definitions of collaboration. These further aspects are presented further down in this chapter when I discuss the benefits of collaboration.

Ideologies Underlying Collaboration in Waterloo Region

When asked to discuss underlying ideological orientations related to collaboration, participants shared divergent yet related perspectives. For Conservation 1, collaboration was part of a fundamental philosophy of bringing different stakeholders together, in particular governments and communities. In the view of this participant, collaboration was founded from the philosophy of giving people in particular communities a voice, by bringing government and communities closer together. This also included not going overboard by avoiding asking too much from the community, particularly in cases where there are no pressing issues. The participant explained:

My philosophy [in collaboration] has been, you have government here and you have community here and they got to meet somewhere. Sometimes it's going to be closer to

the government side, sometimes it's going to be the community side. I guess my concept is a little bit different than Arnstein's ladder of citizen participation, you know because there are some things that are never going to be totally enabling to the community. That there are some things that through collaboration you can move that meeting point along that continuum [...] my philosophy has always been: give people the opportunity to participate at the level that they want to be participating at.

For Energy 2, one underlying value of collaboration was the common good. In the words of the participant: "our strength is in connections [...] as in all of us, as in all the environmental organizations. We are only as strong as our networks. Because if some get funding and some don't, you need to support the network." This quote illustrates the participant's view that organisations rely on their networks and a perspective of solidarity among all the environmental organizations to advance the common good.

Section 2: Benefits and Challenges of Collaboration

There are challenges all the way through. From my view it [collaboration] is worth it because of what the result is. That if we come out of this with a shared vision ... and we could only have done it [project] together. We couldn't have had the funding for it ... we couldn't have reached out to the groups and their relationships. It's not a walk in the park, but it's worth the challenging conversations and the time because of what we get.

—Participant Energy Conservation Focus Group

The quote above elegantly illustrates the general opinion among many participants with regards to the benefits and challenges of collaboration. Furthermore, participants suggested that the benefits (e.g., increased influence, publicity, public profile, capacity) outweigh the challenges (i.e., group dynamics, intra-organizational and inter-organizational issues) by far. In the process

of this study, I explored the benefits and challenges of collaboration through two venues. First, participants were asked to rate benefits and challenges of collaboration in the survey in 2011. Second, during the interviews and focus groups in 2012/2013, I also asked participants to describe the types of benefits and challenges they thought collaboration brings to projects. Thus, results presented here are based on two distinct data sets, namely quantitative and qualitative data. Overall, the results of the two data sources show strong overall agreement.

Benefits of Collaboration

Overall, participants rated the benefits of collaboration highly in the survey. During the interviews and focus groups, participants suggested two main benefits of collaboration; successful project outcomes and successful organizational outcomes. Often, these successes were influenced by several sub themes related to influence, publicity and public profile of organizations and/or projects, capacity and other benefits such as encouraging creative processes, building momentum, and reaching beyond the limited possibilities of one organization working alone. In this part of the section, I will present the survey results with regards to benefits followed by a presentation of the results from the interviews and focus groups.

Quantitative results. In the survey, I asked participants to rate potential benefits which are loosely based on the survey for the assessment of inter-agency delivery of community health services in Maricopa County by Milward and Provan (the results are published in Provan, Huang, and Milward, 2009). I used a four-point Likert-type scale ranging from ‘not at all’ to ‘very much so’ to rate the extent to which participants agreed that collaboration led to: (1) gaining new skills and knowledge; (2) gaining new funding and/or resources; (3) increasing use of the organization’s services by the public; (4) creating new and useful relationships; (5) increasing organizational public profiles; (6, 7, 8 respectively) influencing communities, funders,

and policymakers; and (9) optimizing resources. For more details on the survey questions, see appendix 5.

As can be seen in Figure 28 below, participants considered the majority of the identified aspects of collaboration to be beneficial. In fact, the participants rated five potential benefits of collaboration (i.e., gaining new skills and knowledge, increasing use of services by the public, creating new and useful relationships, and optimizing resources) very highly. Each of these aspects was rated ‘very much so’, the highest possible rating, by over 50% of participants. When the ratings of ‘quite a bit’ and ‘very much so’ were combined, different aspects scored even higher, with gaining of new skills and knowledge as well as developing new relationships rated highly by 91.7%, followed by optimizing resources at 83.4%.

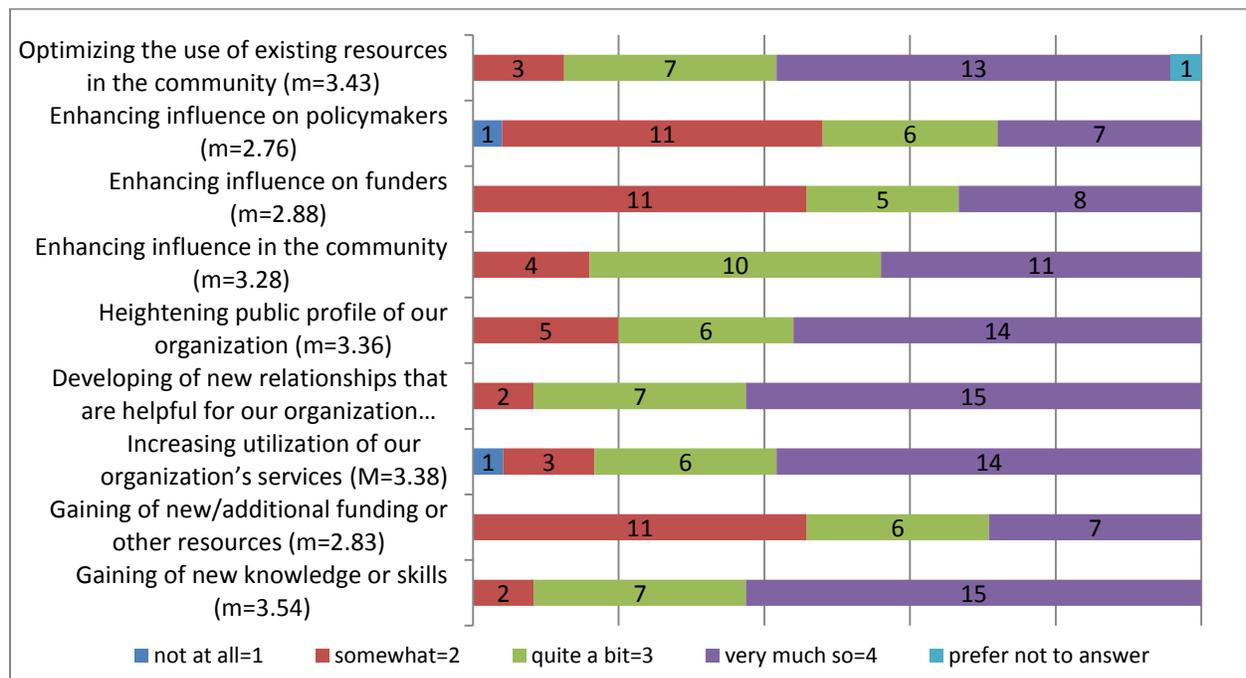


Figure 28. Bar graph for benefits of collaboration.

The three aspects that scored the lowest with combined scores of ‘quite a bit’ and ‘very much so’ were influencing policymakers at 52%, influencing funders at 54.1%, and gaining new and additional funding at 54.2%. However, when focusing on the aspects rated ‘not at all’ only two were mentioned, namely increasing use of services by the public at 4.2% and influencing policy makers at 4.0%.

Qualitative results. Many participants spoke about the importance of collaboration, namely why collaborations were considered desirable and worthwhile. The two most obvious benefits of collaboration were 1) positive outcomes and 2) organizational success, including, in some cases, organizational survival. Other benefits were related to influence, publicity and public profile of organizations and/or projects, capacity and other benefits.

Not surprisingly, many participants listed positive outcomes as one main benefit of collaboration. Many participants thought the outcomes of some collaborative projects were in part (or entirely) due to the act of collaboration. For example, the development of the Environmental Sensitive Landscapes (ESLs) (see Chapter 6) is an example of a successful outcome of collaboration. One participant in The Natural Conservation Focus Group explained: “Everyone said it couldn’t be done because it had never been done before,” adding that, in part due to a broad level of collaboration, the impossible task became achievable and successful. Similarly, speaking about the level of success of a local Food Summit, a participant in the Food and Agriculture Focus Group suggested:

It was the success that it was and got the number of people attending because we proactively invited the participation of six to eight organizations on a planning committee and worked for several months to figure out what this event should look like ... that really contributed to its success.

Another example was brought up by Conservation 1 who described how using a collaborative approach made it possible for the particular project to be supported by the federal government. Finally, Other 1 perceived that collaboration resulted in strength in numbers that generated attention through local yard signs, public meetings, media coverage, and emails to local politicians to restrict the development of an environmentally hazardous facility; while the communities could not stop the development, they were able to increase the costs of building the facility and delayed the construction.

The second main theme related to collaboration as value added to emerge was the suggestion that collaboration is vital for organizational success. For example, for one organization, collaboration meant becoming a more successful organization. In the words of Transportation 2, “we invested in that [networking and collaboration]” adding to the centre of the sociogram on the table “we knew we had to be here in order to be a successful organization.” For one of the smallest organizations, collaboration was simply a necessity of survival. Energy 4 suggested that their organization relies on different collaborations for resources such as funding and training.

When asked about successes (collaborative and organizational), multiple themes emerged from the interviews and focus groups. These themes are discussed below and include enhancing influence, creating publicity and public profile, increasing capacity, encouraging creative processes, building momentum, and reaching beyond the limited possibilities of one organization working alone. Provided in Table 13 is an overview of the benefits of collaboration with, if applicable, the related survey questions.

Table 13

Overview of benefits to collaboration

Theme	Subtheme(s) (Interviews and Focus Groups)	Survey Question
Influence	Influencing politicians and policymakers	<i>Enhancing influence on policymakers</i>
	Influencing funders	<i>Enhancing influence on funders</i>
	Influencing communities	<i>Enhancing influence in the community</i>
	Strength in numbers	
Publicity and public profile of organization	Increasing clout	<i>Heightening public profile of our organization</i>
	Attracting the public	
Capacity	Increasing knowledge	<i>Gaining of new knowledge or skills</i>
	Increasing expertise	<i>Gaining of new / additional funding or other resources</i>
	Increasing resources	
	Increasing funding	<i>Optimizing the use of existing resources in the community</i>
	Reducing duplication	
Other Benefits	Encouraging creative processes	
	Building momentum	
	Reaching beyond the limited possibilities of one organization working alone	

Influence. In terms of enhancing influence with groups such as policymakers and funders, and within communities, Other 1 suggested: “if you believe that there is power in numbers then [collaboration] is a logical progression” when attempting to develop influence through the coordination and combination of people working towards the same goal. The development of the ESLs (see above) provides an interesting and more specific example of how

collaboration can enhance influence with politicians according to one participant in the Natural Conservation Focus Group. In this particular case, the collaboration, through engaging the public, was able to create a clear voice that the politicians used as support to advance the agenda:

The collaboration pulled together enough of the community that the politicians felt that they had broad public support to do some very visionary maneuvers that upset a lot of developers but that made a lot of the public happy ... I think we helped organize and coordinate, and accentuate that voice and in an effective manner that five hundred people wanted a wilderness ... five hundred people singing in the same chorus can have more of an impact.

Publicity and public profile. Increasing publicity for a project was also mentioned as a benefit. For example, Transportation 2 identified that it is more useful for them to collaborate “because we don’t have enough clout to do just a [...] event, because it is not a draw”, suggesting that a collaboration with other organizations can increase publicity of an event which then creates a stronger attraction to an event from the public. Similarly, in the words of a participant in the Energy Conservation Focus Group, the ClimateActionWR needed to be a collaborative approach if it was to successfully “engage the community in greenhouse gas action planning. Since literally day one, we realized collectively that we needed those three lead partners to get the traction in the community.” Both Education 5 and seven suggested that collaboration also increases the potential audience for an event as different organizations have different audiences. Finally, Justice 2 added that collaboration may also increase credibility with media due to the different established media relations among the organizations.

Capacity. Many participants discussed increases in capacity as a result of collaboration, including increases in knowledge, expertise, resources, and funding, as well as reduction in

duplication. For multiple participants, collaboration increased capacity through increasing their knowledge base and expertise. For example, one participant in the Natural Conservation Focus Group suggested that collaboration can add professional expertise to the decision-making aspect of an organization's work. The participant talked about the collaborative value of reviewing research proposals from the community by an environmental advisory committee consisting of environmental scientists such as archeologists, geologists, and restoration ecologists. In addition, Conservation 1 suggested that collaboration can add local expertise, namely informal expertise brought by community members including, for example, historical or political knowledge, which can be very important to comprehend in the case of planning of, for example, environmental policy. Other 1 discussed the use of graduate students through collaborations with universities.

Similarly, Justice 2 suggested that organizations can have the same goals but have different expertise and that "each group brings to the table that expertise", allowing the other organizations to access it. Another good example of increased capacity through collaboration was provided by Energy 4. In their case, the Region of Waterloo, as a partner, provided technical expertise including information for the project. Several participants suggested that collaboration can reduce organizational limitations in terms of resources (see also above under definitions of collaboration) such as office space (Transportation 2 and Energy 4). Conservation 1 also suggested that part of collaborating includes partners bringing resources to the table or, according to Energy 4, sharing training.

In addition to increased knowledge and expertise, collaboration capacity can also be increased through increasing resources; that is the ability of being able to do more with the small

amount of existing resources. For example, Education 5, who works for a mainstream organization, explained:

Collaboration in my role ... is extremely important because generally [it's] not to the point where you have an inordinate amount of resources. You're kind of working still in the scenario of sustainability as being a bit of an add-on to a large part.

In other words, this participant suggested that in order to overcome the lack of resources in the environmental and sustainability area, collaboration is desirable and adds value through extending the pool of resources.

Finally, according to a participant in the Energy Conservation Focus Group, collaboration can also increase funding “because funders like the idea of collaboration and working together and seeing how the pieces make a whole so the tightknit collaboration adds credence to your application and you're more likely going to get funding.” This participant suggested that if a small organization is part of a bigger collaborative and applies for funding for a collaborative project, “chances are, with affirmation from the rest of the partners, [the smaller organization] can probably access [funding] more safely.” Finally, Energy 2 said: “I am a big believer in not reinventing the wheel”, suggesting that collaboration can reduce duplication.

Other benefits. While several of the above benefits were covered in the survey (i.e., increasing influence and resources including knowledge and funding) the participants also identified additional benefits of collaboration not included in the nine survey questions related to collaboration benefits. These benefits included collaboration as a way of encouraging creative processes, building momentum, and reaching beyond what would be possible for one organization alone. With regards to encouraging a creative process, Other 1 explained:

Because then there would be that connection and I am a firm believer of sparking off from somebody else. The creative process - you spark off of each other and you build the energy level. So not only do you gain ideas and context of 'ok hey, they are doing such and such and we could be involved in that' or 'they could help us with this.' It builds energy and the energy level that rises to reinforce the efforts for everyone.

Collaboration was also perceived as having the benefit of building momentum to mobilize stakeholders. In the example of the ESLs, mobilizing was extremely important because, according to one of the participants in the Natural Conservation Focus Group, they realized that "this is going to be an epic battle. We need every resource, every arrow in the quiver, anyone ... we [as a collaborative] went after everyone." Justice 2 suggested that collaboration allows for engaging core supporters and "in the long-run you have the opportunity to build momentum and a movement."

Finally, two participants suggested that an important aspect of collaboration is the fact that through collaboration organizations can achieve goals that they would not have been able to achieve individually. For example, a participant in the Food and Agriculture Focus Group proposed that collaborations allow organizations "to do things together with other people in organizations in order to reach audiences or achieve goals that you wouldn't be able to do on your own." One other participant in the same focus group suggested:

We were unable to access the multicultural group ... We did have multicultural people come to the existing gardens, however, we couldn't engage them in the process. We didn't have the tools, resources, the connections, so on and so forth. So [name] has these connections and she is able to mobilize a group of people within her sphere of networking."

Justice 2 brought up another interesting perspective with regards to being able to go beyond what would be possible through independent organizational work:

I think there is certain level of accountability in collaboration, where challenges may come up and if you are working in isolation, you would perhaps give in or kind of let that challenge be more of a road block. Whereas if you are collaborating with other people there is a level of accountability that people will say, yeah that is a challenge, but you need to – we can help you to overcome it, or just simply YOU CAN. That kind of encourage in building each other up is something important to collaboration too. It's that strength that comes when people work together rather than kind of trying to go alone.

Challenges of Collaboration

Challenges of collaboration were also explored through survey questions, interviews, and focus groups. In the survey, participants acknowledged challenges but rated them relatively low. In general, participants did not feel that challenges occurred very often. The challenges most identified were the time requirements of collaboration, and difficulties with collaborative partners. During the interviews and focus groups, I asked participants to describe the types of challenges they thought collaboration brings to projects. Three main themes emerged; intra-organizational issues (e.g., lack of resources including time, bureaucracy), group dynamics (e.g., personalities, value differences), and inter-organizational issues (e.g., lack of trust, communication breakdown). Again, I will first present the survey results followed by data from the interviews and focus groups.

Quantitative results. In the survey, participants were asked to rate potential challenges which are loosely based on the survey by Milward and colleagues (the results are published in Provan, Huang, and Milward, 2009). I used a four-point Likert-type scale ranging from 'not at

all' to 'very much so' to rate the extent to which participants agreed that in collaboration led to: (1) time and resources needed in collaboration; (2) loss of organizational control; (3) damaging relationships among organizations; (4) dealing with partners; and (5) lack of credit given to organizations for participation. For more details, see appendix 5.

As can be seen in Figure 29 below, participants generally did not rate the challenges of collaboration highly. This becomes particularly apparent considering the frequency of responses for 'very much so' and 'quite a bit'. In fact, not one participant chose 'very much so' for any of the five questions and only two participants chose 'quite a bit' for one question, namely taking too much time and resources.

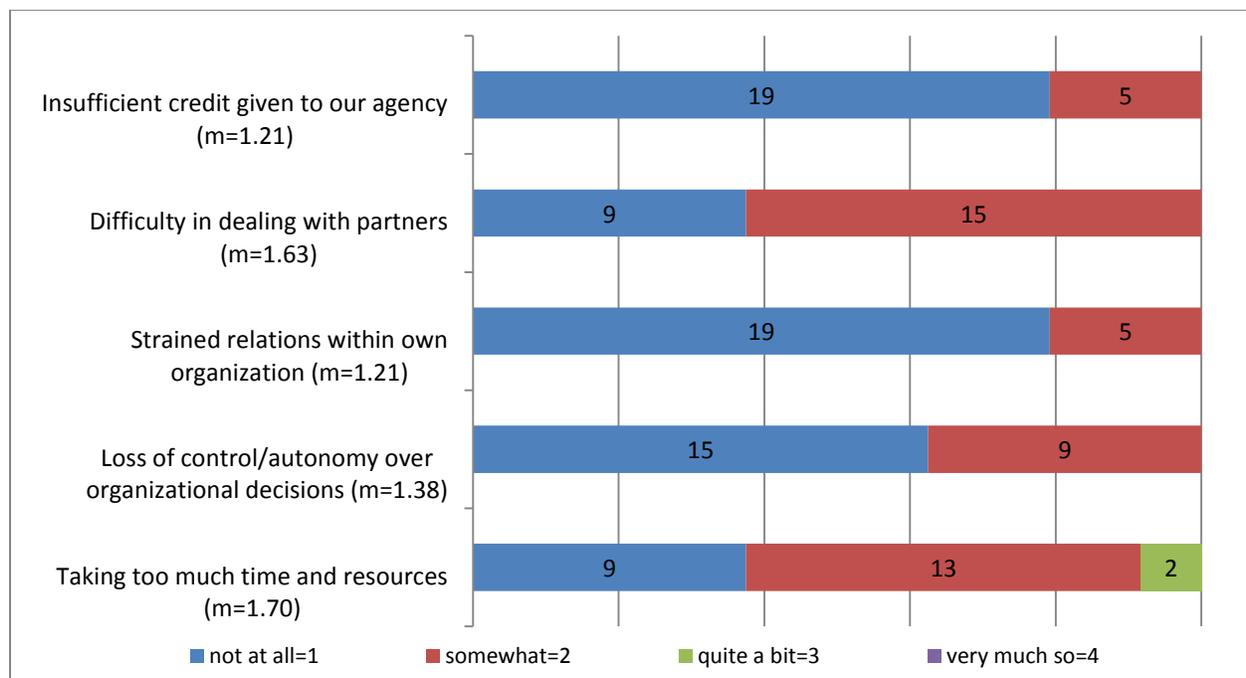


Figure 29. Bar chart for challenges of collaboration.

When analyzing the results from the other end of the answer spectrum, responses show that 79.2% felt that collaboration does 'not at all' strain relations within their own organizations

or that insufficient credit will be given to one's own agency. Similarly, 62.5% of the respondents answered 'not at all' in terms of loss of control/autonomy over organizational decisions occurred. The two areas that scored the highest with regards to challenges with combined scores of 'somewhat' and 'quite a bit' were taking too much time and resources at 62.5% (54.2% 'somewhat' and 8.3% 'quite a bit') and difficulty with partners also at 62.5% ('somewhat' only).

Qualitative results. During the interviews and focus groups, two participants discussed two unsuccessful collaborations which proficiently illustrate the challenges of collaboration. Transportation 2 described a partnership that had funding to look into shared office space but never got off the ground:

There was this point at one of the meetings where it just went around in circles and no one could actually say let's just do it [...] I think there was a core group of people there that were interested, and then maybe you had three or four meetings and you got someone new at the fifth meeting and you have to redo you know?

Other 1 provided an example where the leadership of the collaboration organized meetings early in the morning thus limiting the ability for the public to attend and that the leadership started to have meetings behind closed doors. From the perspective of the participant, "there are accusations from people that were on the committee, who said that there were private meetings between the leadership [...] and deals were made behind closed doors." This resulted in a situation where:

A lot of these [partners] organizations ... quit coming. They just kind of dropped out because things weren't happening or things were happening behind scenes and they didn't know what was going on ... they weren't truly participating and they just kind of

never to come to the meetings anymore ... I think a lot of these other organizations have just pretty much dropped out because they weren't able to really affect any chance or do anything to be actively involved.

These two examples illustrate several challenges related to the functioning of collaborations, namely leadership, hidden agendas, and lack of meaningful involvement. Overall, during the interviews and focus groups, three themes emerged regarding challenges of collaborations. These often interconnected challenges included: (a) intra-organizational issues; (b) group dynamics; and (c) inter-organizational issues. Table 14 and Figure 30 (below) illustrate the different levels of challenges, namely those within organizations that are part of collaborations, those challenges between partners in collaborations, and the particular challenges related to group dynamics that are prone to occur in collaborations.

Intra-organizational challenges. Lack of resources came up as a major issue for organizations. In the words of Energy 2: "I think the thing that happens with a number of environmental organizations is: they have limited staff time and they are doing a lot of different projects and so sometimes, one more collaboration can be difficult." More specifically, according to one participant of the Energy Conservation Focus Group, this lack of resources can lead to conflicting priorities between external collaborations and intra-organizational demands. The participant reflected on this conflict: "that helps you think about – do I go to this other meeting, this other big thing, or do I try to do a better job what we [own organization] are already committed to doing." In particular, time emerged as a major challenge. For example, one participant in the Natural Conservation Focus Group suggested:

I think the biggest challenge really is just time. You know, all these organizations run on a shoe string, all of them are busy, active people ... sometimes what we're asking them is

big tall scary orders. So it's not just like you asking them for a five minute appearance, they know that it's gonna take two days of research and three days to

Similarly, a participant in the Energy Conservation Focus Group explained:

It's not easy to carve the time out [for collaborative projects] and sometimes I look at the projects we are trying to do and I realize, I have carved out time every month for this project [external collaborative project] that I haven't carved out for other internal priorities that are equally important.

The most apt explanation came from Energy 2: "I think it's just that people are overworked and don't have enough time ... otherwise, everybody's heart is in the right place." Other resources lacking that also created challenges included finances, for example, to hire a staff or a placement student to conduct literature reviews for collaborative projects. In the case of simple collaborative events, financial resources needed may even include funds to rent the place of the event and to pay for insurance, which is often required.

Three other intra-organizational challenges to emerge, albeit less often, included bureaucracy, the number of collaborations, and organizational recognition. In the case of one of the largest organizations, the internal bureaucracies (e.g., legal issues) can increase the complexities of collaboration. The same participant added that the number of collaborations an organization is involved in may become a challenge. In the words of Conservation 1: "we've got a lot of balls bouncing in the air" adding that having many collaborations is time consuming. Finally, one participant in the Food and Agriculture Focus Group suggested that one challenge that can occur through collaboration is recognition for organizations: "some groups want to be recognized and some of them need to be recognized so that their funders will give them sustained funding."

Table 14

Overview of themes and subthemes of challenges to collaboration

Theme	Subtheme
Intra-organizational issues	Lack of resources (including time)
	Bureaucracy
	Number of collaborations
	Organizational recognition
Group dynamics	Goals development
	Decision-making and leadership
	Personalities
	Value tensions
	Self-interest / ego
	Working styles
	Purposeful exclusion
	Negative voices
Dissenting opinions	
Inter-organizational issues	Lack of trust (absent or negative relationships)
	Communication breakdown
	Turf issues
	Collaboration funding
	Complexity of collaborations
	General tensions

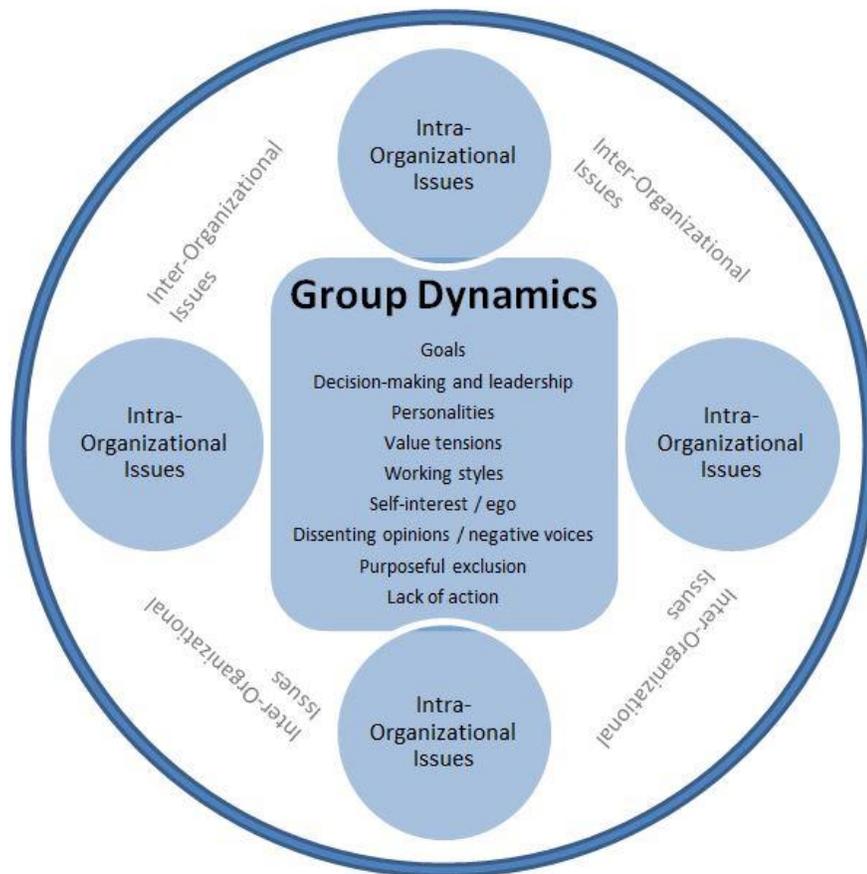


Figure 30. Interaction of themes and subthemes of challenges to collaboration.

Group dynamics. Multiple themes emerged which relate to group dynamics and working in groups. Justice 2 aptly described the challenges of group dynamics in collaboration:

Certainly, I think, when you have a number of people at the table, power dynamics come to play ... personality dynamics can be a big thing. You know the smoothest talker often gets the stage more than those that [talking] doesn't come naturally.

Overall, participants identified the following group dynamic challenges in collaborations: goals, stakeholders/partners, decision-making and leadership, personalities, value tensions, working

styles, self-interest / ego, purposeful exclusion, dissenting opinions, and negative voices of collaborative partners and stakeholders.

With regards to collaborative goals, Energy 4 described a collaboration with an organization that did not succeed due to, among other issues, the lack of a common goal: “they didn’t really see how it was relating to [the project] and their goals as [an organization].” Justice 2 brought up the concept of mission creep as a challenge to goals:

Where you thought it is something and it turns into another mission ... you may be saying your main purpose here is education and then you have gotten into things and gain some momentum and suddenly you are looking at advocating ... and it’s not like that it’s bad but and you may yourself even want to go in that direction but it’s not what the original goals were ... what the organizations agreed to.

In these cases, the challenge occurs when changes in the goals are not clearly identified and discussed.

Several participants also discussed the problems with decision-making and leadership as a challenge. The example above on the creation of shared office space is an illustration of the challenges of lack of leadership. In the words of Justice 2:

The biggest challenge is defining who is in charge, I think. And I’ve had experiences where no one was in charge and that is a bigger challenge than when there is clearly someone in charge, even if they are not very good at being in charge, or there is fighting over who should be in charge. I think the worst is when there is no one, because then it’s not sure who is supposed to [inaudible], who is responsible to keep things moving forward.

Another example of challenges related to both leadership of the collaboration and decision-making was brought up in the example above by Other 1, where leadership made many decisions behind closed doors, ultimately ostracizing many of the partner organizations. Finally, for Energy 2, having “somebody to drive the project” is very important to overcome barriers and ensure success of a collaborative project.

In terms of personalities, participants identified challenges of collaboration that were tied strongly to the particular personality such as the egos of some individuals and the potential clash of different personalities. While not all participants had negative experiences with the personalities of partners, those who did shared many examples. When describing how collaborations develop, one participant in the Natural Conservation Focus Group simply stated: “sometimes you hit it off ... and that leads to more. If they are a difficult person, then odds are you are not going to collaborate.” Later on, the other participant in the Natural Conservation Focus Group presented a situation in which one partner’s personality became a challenge to the entire collaboration. This particular partner was unwilling to compromise:

Ultimately, their personality was such, you know, that they wouldn’t take no for an answer ... so there would be situations, because their views were quite different – and we would welcome that, that’s why they would actually be there in the first place – and then you have [number] against one ... and they just wouldn’t give up and that’s a personality issue.

One interesting observation was provided by Justice 2. This participant, after identifying that personalities can become a challenge to collaboration, reflected on his own personality suggesting: “personally, I am a bit of perfectionist so I’d rather do things right my way”, thus recognizing how, to some degree, his own personality may create barriers to collaboration.

One participant in the Natural Conservation Focus Group suggested that there may also be value tensions between participants in a collaboration: “somebody considers frogs more important than butterflies. Another person considers butterflies more important than trees.” At this point, one other participant added:

I can think of examples where we tried to do restoration. There is a broad spectrum of people, ... the purists you can only restore a piece of property to whatever was there 300 years ago ... and then there is the other side where – well, that habitat is gone and we need more wetlands. There wasn't a wetland there before but let's create a wetland because here ...”

A further example of value tension was described in the same focus group in terms of radical versus mainstream environmentalists, where working together can be a challenge as the goals can vary immensely between these two groups.

Related to personalities and values were the challenges of ego and self-interest. Other 1 addressed these in detail suggesting “there is always ego and there is always self-interest.” To the participant, ego, which is related to personality, was about who takes on leadership, and self-interest, which may be related to values, is about trying to push the other participants in a collaboration towards their own interests. To the participant, the biggest challenge is when both ego and self-interest are combined creating a risk that a leader with self-interest will move a collaborative effort in a particular direction that best meets their own needs rather than moving towards a common goal.

Different working styles were identified as challenges several times. One participant in the Food and Agriculture Focus Group suggested:

If you look at group psychology you have some people that function very different in a group setting. Some people are very business-like and they want to see results and action and they want to hold people at the table accountable for their actions ... You might have ... thinkers who just, you know, are totally pie in the sky and always thinking of some lofty goal and other people may get tired of that.

Other 1 also suggested purposeful exclusion, negative voices, and dissenting opinions as significant challenges in collaboration. In the view of Other 1 (see above example), sometimes individuals can purposefully be excluded from collaborations. Other 1 also suggested: “if you have a couple of negative voices in the group ... you end up getting nothing done because you can’t coordinate your efforts due to dissenting opinions,” describing how dissenting opinions or negative voices can hinder a collaboration.

Overall, participants tended to recognize that the more people are involved in a particular collaboration, the more complex issues become, and group dynamics start playing a larger role. Other 1 framed it succinctly: “where you have more than one person you have politics, and the politics of the personalities, and the hurt feelings, and the egos etcetera.”

Inter-organizational challenges. Participants discussed multiple challenges related to organizations working together within collaborations. Participants identified issues related to trust, communication, turf, funding, and the overall complexity of collaborations. With regards to a lack of trust between organizations, participants identified both negative relationships and the lack of relationships as challenges to trust in collaborations. For example, a participant in the Natural Conservation Focus Group identified negative experiences as a challenge to collaboration by telling the story of reaching out to another organization to collaborate but the representative of the other organization refused to work with this particular participant because

of negative experiences with the person in the same position almost ten years earlier. In the Energy Conservation Focus Group, the participants discussed the importance of trust because, according to all of them, when trust is lacking due to a lack of a positive relationship, collaboration cannot be achieved. According to Conservation 1 and Other 1, staff changes throughout a collaborative project can become a challenge, because when staff leave, the new staff have to develop the relationships to eventually re-create trust, a process that can take a long time.

Communication breakdown among collaborative partners was a challenge identified by several participants. For example, if communication is not shared with members of the organizations he or she represents, this can lead, as in the example offered by a participant in the Energy Conservation Focus Group, to one organization feeling excluded from a process, despite the fact that there was an attempt to communicate.

Several participants identified turf issues as a challenge in collaboration. A participant in the Natural Conservation Focus Group provided an example of a turf struggle: “when we started to get our education programs up, our first education director reached out to other organizations offering education ... and we had one organizations that was: Hey, you are on our territory!” illustrating that turf can be a challenge between organizations in particular if the a project may have overlap with organizational missions. Another example was when a collaborative project applied for funding to embark on a particular venture and may be perceived as trying to take funding away from an organization that is working in the same area. One participant of the Natural Conservation Focus Group explained many turf issues well by suggesting that it is a “philosophical” issue, namely that “many individuals are more focused on their budget and their mission – that is not a good place for collaboration.”

A couple of participants addressed the challenge of funding in collaboration which is linked to the discussion just above. According to one participant in the Energy Conservation Focus Group, funding within an organization can become a challenge as it can become an issue of power between organizations rather than the rationale behind the development of the collaboration. In the same focus group, another participant suggested that getting funding for a collaboration may create a challenges because:

If you form a collaborative, is the collaborative now looking for funding ... from places that your organization receives funding for ... then do you hesitate creating a new grant-seeking entity in a stretched field already that might then compete ...

At this point, another participant added by explaining that because the participant's organization was successful in receiving funding from a funder on behalf of the collaboration, the participant's organization is now disqualified to receive funding from the same funder for the participant's own organization.

As discussed in Chapters 6 and 7, not all collaborations are the same – in fact, there is a wide range of collaborations of different sizes, hierarchical structures, and levels of formality. Large, complex collaborations, according to some participants, can create a whole set of new challenges to collaboration. Thus, the larger a collaboration, the more likely a collaboration is to become complex, and thus challenging. One participant in the Energy Conservation Focus Group discussed at length the many challenges that result from a very large collaboration:

I see challenges all the way. So, even the decision-making for [the collaborative project] is slower. You got a steering committee ... each organization is at a different stage of growth, different amount of bureaucracy, different kind of processes, different philosophy ... our [collaboration] staff is managed by three different people.

In terms of tensions within collaborations in general, several participants stated that they had not experienced any, or had experienced very little tension in the past, at least not to the extent to which they had to compromise the integrity of what their organization was trying to achieve. Nevertheless, three types of tension (that were not addressed above under group dynamics) emerged, namely organizational size, relationships with First Nations communities, and gender divides. According to Justice 2 the size of organizations in collaboration can create tensions: “to some extent money talks or if you are a larger organization and you have more funds to contribute to your collaboration, you’re gonna get a larger voice.” Conservation 1 discussed some tensions that the organization has had with First Nations communities suggesting that thankfully they have developed a good relationship with First Nations and an internal protocol to avoid potential delays of their environmental work.

Finally, when specifically asked about gendered tensions, several participants suggested that there are no gendered issues; however some participants did discuss gender as a potential issue. What emerged was a recognition that the roles in general and within organizations were somewhat gendered. First, Education 5 suggested that the majority of people who are interested in environmental and sustainability issues are women. Second, in one organization, while the large majority of the staff are women, men tend to be the experts. Third, according to another focus group participant, the majority of local organizations had women at the helm of the organization. However, one participant did suggest that many boards of these organizations are at least half filled with men.

Benefits Versus Challenges in Collaboration

The benefits far outweigh any challenges – for sure.—Education 5

Overall, suggested in the survey results and the interview and focus group data is that participants think that the benefits of collaboration outweigh the challenges discussed above. In the section to follow, results are presented of a more thorough investigation of the benefits and challenges of collaboration.

Quantitative results. Overall, as can be seen by the above survey results, the large majority of participants suggest many benefits and fewer challenges of collaboration. The mean for aggregated challenges is 7.13 and the standard deviation is 1.39 (see Table 15).

Table 15

Frequencies for total challenges of collaboration

Question	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SE</i>
Total Benefits of Collaboration	23	19	36	29.13	5.34
Total Challenges of Collaboration	24	5	10	7.13	1.39

Qualitative results. Overall, the majority of participants reported that benefits outweigh the challenges, repeating many of the benefits listed above, but in particular the idea that many projects could never have happened without collaboration. There were those like Energy 4, who felt that benefits absolutely outweigh challenges. Others recognized that there are multiple challenges and were a bit more cautious, but are still convinced that benefits outweigh challenges. Transportation 2 felt that the ratio between benefits and challenges was 60/40.

Perhaps the most balanced view of benefits versus challenges was provided by one participant in the Food and Agriculture Focus Group: “I think collaboration can be a very good and necessary thing. However, it can also be weighted down with perhaps some barriers. But ideally you do wanna be collaborating and working together.” Finally, the one participant, Justice 2, who was most critical, suggested: “if you are collaborating just for the sake of collaborating and [the] goals don’t actually match then I don’t think the cost are going to outweigh the benefits.”

Section 3: Collaboration Practice

Participants from the interviews and focus group identified a wide range of collaboration practices in Waterloo Region. During the interviews and focus groups, multiple themes related to practice emerged, including the recognition by some that developing successful collaborations is a process that requires time. Other themes included different strategies related to stages of collaborative work such as assessing the problem, identifying needed expertise for the collaboration, identifying stakeholders, recruiting partners, and creating ground rules.

In this third and final section of the chapter, I first briefly present results as they relate to perceptions of collaboration as a process. I then present the results as they relate to the different strategies (steps, tasks, and actions) during collaboration practice. The strategies are loosely structured on the different stages and tasks of a paper that I co-authored with Dr. Manuel Riemer in 2012 where we identified and structured good or emerging collaboration practice from the literature.

Collaboration as a Process

One of the questions during the interviews and focus groups was focused on exploring whether participants thought of collaboration as a process that develops over time with different actions, tasks, and steps. During analysis, only limited direct answers with regards to

collaboration as a process emerged. Nevertheless, when listening to the interviews and focus groups, the theme of collaboration as a process over time did emerge. For example, Conservation 1, when talking about trust, suggested, “you build respect and awareness and you bond basically with people over time.” Similarly, some participants perceived collaboration as an organic process. When discussing the early stages of a collaborative project, one participant in the Natural Conservation Focus Group suggested, “I think it’s very organic. I think about ours it’s like you make this connection ... and it just kind of moves or it doesn’t.”

What emerged fairly clearly is a lack of deliberation of processes and strategies in collaboration. Some participants reflected on this matter. In particular, Justice 2 suggested that: Not consciously [process], I think there is, you know, someone had a pitch and you kind of develop from there. Usually you sit down and determine what makes sense for both groups and roles and responsibilities and kind of hash that out. I don’t think we usually consciously think of exactly naming what my goal is what your goal is and that kind of thing. Sometimes those go unspoken.

What this quote illustrates is the idea of a process of collaboration developing over time with different stages. Perhaps more importantly, this quote suggests that, quite often, collaboration is not a deliberate process with different steps. Nevertheless, when analyzing the interviews and focus groups, different strategies for collaboration emerged, which I present below.

Collaboration Strategies

During the interviews and focus groups, multiple collaboration strategies were identified. These strategies are listed in Table 16. The left side of Table 16 contains a list of the themes related to strategies and tasks that emerged, using either the terms used by the participant(s) or

the terms used by Münger and Riemer (2012). The right side of Table 16 is divided by tasks and stages as identified by Münger and Riemer (for details see Chapter 2).

Table 16

Overview of themes with regards to collaboration strategies emerging from the interviews and focus groups

Theme (s)	Task	Stage in Collaboration Process
Identifying internal collaboration capacity	Assess organizational and personal attitudes	Contemplation
Assessment of the problem and creating the context Preliminary objectives and goals	Determine initial purposes and type	Contemplation
Identification of needed expertise and resources Identifying stakeholders Adding expertise Searching for support from others	Identify membership needs and stakeholder analysis	Preparation
Meeting in person Recruiting project partners	Establish the collaboration	Preparation
Creating common goals Inclusion of stakeholder voices	Specify purpose, mission, and structure	Preparation
Identifying and creating trust	Identify contextual characteristics	Preparation
Ground rules Governance models Leadership and decision-making Collaborative rules Developing an implementation plan	Determine structural characteristics	Preparation
Giving voice	Retain members and grow membership	Action

Identifying internal collaboration capacity. Education 5 shared an interesting situation where the organization became an observing partner to a collaboration. This gave the staff time to work with management to develop sufficient support to move from observation towards action. In the participant's words: "it was a neat progression because I had this ultimate goal ... but I had to do the legwork: changing the [organizational] culture", suggesting that there was a progress toward changing the culture of the organization, not moving directly towards collaboration but rather towards the goals of collaboration. In the case of Transportation 2, when the participant's organization engaged in a collaborative project, the organization picked "one staff person who is responsible for it ... for a project" trying to avoid the staff of the organization getting overwhelmed with the tasks related to collaboration. In the case of Education 5, projects (including collaborative projects) were first considered by a committee of the organization and internal funding was identified.

Assessment of the problem and creating the context. Many participants identified the need to first assess a particular issue to move their environmental agenda forward through collaboration. Conservation 1, for example, identified the need to assess a problem by identifying "the nature and extent of the problem we have, what are the issues. What do we know, what don't we know, what do we need to know ... down the road, what do we need to do?" This assessment, according to Conservation 1, will then create a context for the goals of the collaboration. Tasks for assessing the issue can include focus groups and surveys to make sure local knowledge is included. In the case of Education 5, identification of an environmental issue could include being approached by an individual and then meeting in person to discuss and assess the issue, possible solutions, and identifying collaborative partners and resources. Finally, in the words of a participant in the Energy Conservation Focus Group:

We are always looking at what's out there and what the gaps are and how we can close those gaps ... this is what needs to be achieved and if something isn't being addressed, how can we address it so we in fact can bring it along on this voyage.

This participants suggested that what drives collaboration is identifying gaps that then can be addressed through collaboration.

Preliminary objectives and goals. In one collaboration, a participant in the Energy Conservation Focus Group discussed the development of very early visions and goals of the collaboration among the two founding organizations by creating a “pie in the sky vision of what we wanted to see” to address an environmental gap, which was then formalized and further developed in collaboration with others. Conservation 1 explained that at the beginning of a project, the organization had many initial meetings where they presented their preliminary objectives and were taking notes from the reactions to these objectives.

Identifying needed expertise and resources. In order to develop successful collaborations, some participants discussed how they reflected on how they could best realize the goals of the particular project. As part of this process, some participants, such as Justice 2, discussed how they identified expertise and resources needed for a project and engaged other organizations that have complementary expertise and resources. For example, one participant in the Energy Conservation Focus Group described this process with the following words: “to really achieve the impacts that we wanted we would need more partners at the table to add such expertise and resources such as access to funding, communication, and credibility.”

Identifying stakeholders. Several participants discussed the task of including different stakeholders to achieve their project goals based on trust, former collaborations, and expertise. For example, Other 1 discussed a project that had lost all its collaborative partners suggesting

that they realized that they needed to increase their stakeholder involvement: “we are trying to bring people back in and say look, we are trying to make some significant changes and make some headway, and we do need your involvement to do that.”

One participant in the Energy Conservation Focus Group explained that when the organization considered a project, identifying partners was important: “top of mind, from the beginning, was [organization]” because this organization had a very different focus, thus increasing different expertise in the collaboration. Using an example, the same participant suggested that they, as an organization, tend to identify potential stakeholders early on to strengthen collaborations: “the early phase is about: who are the entities that will take the leadership that will bring strength to the partnership.” Another indication of the fact that thought is being given to stakeholder inclusion was provided by Conservation 1, who suggested that, depending on the size of the project, it may not be advisable to try to include everyone. Rather, it might be better to find ways to identify the most important stakeholders and figure out how to provide some venues for those not included to be still heard.

Adding expertise. Closely linked to the idea of identifying stakeholders is the theme of adding expertise to a collaboration. In fact, according to several participants, stakeholders are often chosen due to their level or area of expertise to strengthen a collaboration. Energy 2 provided a useful illustration:

If I was looking to work on something with transportation I would talk to Tritag, I would talk to Recycle Cycles, I would talk to, you know like very specific organizations. I would talk to Grand River Transit. It kind of depends, it’s thematic, and it’s area of expertise.

Energy 4 discussed an example where another organization started a new collaborative project and came to the participant's organization to learn a specific approach to engage the public that is very the main activity and an expertise of the participant.

Searching for support from others. Some participants suggested that getting declarations of support from important stakeholders was a vital step. One such example included the support from the regional government. In the case of a project by participant one, they actively developed a declaration of support that could be signed by all those interested (including municipalities, non-governmental organizations) in order to increase the credibility of the project.

Meeting in person. One strategy identified at the point of establishing a collaboration was meeting collaborative partners in person. During the development stage, a participant in the Natural Conservation Focus Group suggested that collaborations develop organically when people talk to one another in different contexts. In the words of Energy 4, "a lot of our collaboration has come [through] those one off conversations ... a lot of times we go to events just to talk to each other." In the later stages, personal interaction is still important. Energy 2, for example, suggested: "sometimes you can do a lot by email but sometimes you do need to meet in person, it just clears things up quicker." Energy 4, who is employed by an organization whose work is primarily collaborative, discussed how, when establishing a collaboration, the participant's organization tends to have many early meetings to establish the rapport and develop the mission and goals of the collaboration.

Recruiting project partners. Conservation 1 discussed how, as an organization, they have public meetings to invite the general population to provide input into the particular matter:

If you're working on a project ... we had public meetings and from those public meetings we started to build contact lists, so people who are interested. And we just kept adding to that contact list and we are still adding to that contact list ... but again the registry helps, you are touching base with people on a regular basis.

At the same time, many participants discussed the importance of recruiting collaborative partners among whom there is an existing level of trust, which increases the likelihood of success for the collaboration.

Creating common goals. Many participants discussed the development of common goals among collaborative partners. In the words of Energy 2, the strategy for successfully creating common goals was “so we sat down ... and we all had our various deliverables that we [partnering organizations] had to deliver for our various grants [...] all of us had our various must dos that we got into this event,” adding “I think in general if we focus on the why, we do better.” Similarly, in the case of Transportation 2, who often develops small collaborative projects: “[the stakeholders] should commit to a goal. You say ok, we are going to do this.” In the case of one participant in the Food and Agriculture Focus Group, the collaborative partners spent a lot of time identifying the goals of their event. Similarly, Justice 2 identified goal setting within collaborations as key to its success. Moving beyond simply the development of collaboration goals, Conservation 1 discussed an example of a large collaborative project where all partners eventually ended up signing a project charter that included the identified common goals.

Inclusion of stakeholder voices. In order to make sure all members are included in the planning, Conservation 1 suggested that it is important to make sure members feel heard. When developing a document plan for a project, Conservation 1 explained:

People had to see their thoughts and their ideas in that plan. And I wrote it ... and I tried to make sure that the ideas ... that people had were there in the document. It was a bunch of bullet points, really ... and the at the back of the document we listed every single person ... and we sent out the draft looking like A DRAFT. It was pretty crude and then we said if you want to provide comments please do there is still time.

Identifying and creating trust. Many participants discussed the issues of trust and trust building as key to collaborative practice. For example, Conservation 1 suggested:

One of the big things is the personal relationships that you build with people. It's [collaboration] a people thing, it's not an agency thing. So you build respect and awareness and you bond with people over time ... you are building those relationships with people.

One participant in the Energy Conservation Focus Group suggested: "it's the amount of trust ... so I know that [ED of other organizations] has [own organization] best interest [in mind]," adding that "because of the foundation of that trust and respect then supersedes the potential for these power struggles."

Ground rules. Conservation 1 suggested that it is important to create ground rules that are based on values:

So our group as we went through talked about things like clarity and being holistic and understanding and good listening and active listening ... so the ground rules weren't: well you are going to talk for 30 seconds and ask a questions. No, no, it was these values that people agreed to and helped to build.

Trust and respect were two values that were frequently mentioned.

Governance models. Some participants mentioned the task of developing formal structures such as governance models, steering committees, and project charters while others did not. In these models, Conservation 1 suggested that one task is to consider how to provide voice for those with a vested interest even if they are not part of the formal structures “so they can ..., to a certain extent, influence the outcome or at least we can consider what the [organizations] have to say.” This could include providing other venues such as consultations, working groups, etc. to encourage the inclusion of local knowledge so that projects can be as effective and efficient as possible to let people participate at the level at which they are interested.

Leadership and decision-making. Many participants talked about the importance of leadership in collaborations (this was discussed earlier in this chapter under challenges of collaboration). For example, Conservation 1 stressed the need to have:

A strong coordinator and someone who is the glue that holds the things together. Because when you are working by committee, as much as you'd like to say everyone is there as an equal, the only way things get done is if there are some key people who are moving things forward making sure agendas are out, making sure actions are undertaken, following up with people, reminding them what they are supposed to do ... you need to have someone there who is pestering a lot.

Similarly, Energy 2 and 5 discussed the need to delegate leadership for projects that have two or three individuals who lead processes.

With regards to decision-making, one interesting approach to developing the leadership and decision-making processes of a project came from a participant in the Energy Conservation Focus Group who explained:

From day one we recognized that this wasn't going to be led by our organization solely and recognized to really achieve the impact we wanted we would need more partners around the table ... while this early phase was about who are the entities that will take the leadership and bring strengths to this partnership, now it's much larger."

This collaboration in particular was structured in a way to avoid any hierarchies and even went as far as to hold a workshop "to involve others in the decision-making process." Justice 2 also highlighted the necessity of discussing who can make decisions in a collaboration, and whether decisions can be made without consulting the other collaborators.

Collaborative rules. Some participants suggested a need to develop rules related to the functioning of collaborations, including issues such as communication, ways of resolving disagreements, and conflict resolution strategies to prepare for future conflicts or changes. Education 5 suggested the use of terms of references that spell out the agreement among the collaborative agreement and rules. In some cases, however, according to Energy 2, consent with regards to collaborative rules among partners may be verbal or inherent through email.

Developing an implementation plan. Many participants suggested that trying to come up with plans to implement the goals of the collaboration is an important step. In some cases, as per a participant in the Energy Conservation Focus Group, the development of the implementation plan includes collaborative partners and the public: "we want to engage in planning [...] to a part of when we come up with an action plan" – a second participant of the same focus group added: "they [community members] are also part of developing the action [inaudible] that's where the public engagement is starting."

Giving voice. Conservation 1 discussed her strategies for how to keep collaboration members happy through facilitation approaches and in order to retain them. The participant

suggested that many stakeholders bring their views and issues to collaboration meetings and that it is important to hear those views and issues before attempting to work as a group. Further, a suggestion was made about making sure to conduct multiple member checks with participants by repeating back what members have said and asking members to confirm that the facilitator has heard them correctly.

Chapter 9 - Discussion: Collaboration Practice

*I think people expect everyone to come to the table and then collaboration magically happens and work magically gets done – and that’s not the way it works—*Conservation 1

Analyzing the growing political, economic, and social pressures, Harvard business professor James Austin suggests: “the 21st century will be an age of accelerated interdependence. Cross-sector collaboration between nonprofits, corporations, and governments will intensify” (2000, p. 69). The broad field of environmental work (e.g., natural conservation, sustainable behaviours, transportation) will be no exception to this prediction of accelerated interdependence. In fact, as outlined in Chapters 6 and 7, environmentalists in Waterloo Region have recognized their interdependence and are collaborating to a noteworthy degree (i.e., within the environmental sector).

Furthermore, as I write this chapter, organizations in Waterloo Region are starting to assemble broad cross-sector collaborations that include businesses, such as those suggested by Austin above. For example, ClimateActionWR is collaborating with local businesses, governments, other environmental not-for-profit organizations, and community members to “develop and implement a local action plan that will produce measurable emissions reductions, improve energy efficiency, and ultimately contribute to the economic, social and environmental prosperity of Waterloo Region” (ClimateActionWR, 2013).

Many environmental organizations, at least those who had representatives participate in focus groups and interviews in this study, collaborate for similar reasons (i.e., ideological and because of the potential values added through collaboration), perceive similar challenges, and use similar approaches to collaboration. Nevertheless, it is reasonable to conclude that, while there is evidence of collaborative capacity in Waterloo Region (i.e., skills and knowledge of

good or emerging practice to work collaboratively), many organizations may lack a certain amount of critical thinking and deliberation when collaborating. This realization was expressed by several participants during the interviews and focus groups, such as Conservation 1 (see quote above). In this chapter I discuss the experiences of those practicing in collaboration in Waterloo Region as presented in Chapter 8, and compare them with emerging collaboration best practices from the literature. Furthermore, interpretations of the results of Chapter 8 will be provided with a focus on collaborative capacity and potential opportunities for increasing collaborative capacity.

Chapter 9 is divided into three sections. In the first section, I provide an interpretation of the findings related to why organizations may collaborate, namely definitions, benefits, and ideologies of collaboration. In the second section, I provide an interpretation of the findings related to how organizations collaborate, namely the practice of collaboration, by comparing the findings of the study to what is considered good/emerging practices of collaboration in the academic and practice literature. Finally, in the third section, using a graph, I incorporate the findings related to definitions, ideologies, benefits, challenges, and practices presented in Chapter 8 into one concept.

Section 1: Reasons for Collaboration

There are numerous reasons why organizations collaborate. Such reasons may include creating synergy among partners, increasing the effectiveness of a service, strengthening political influence, expanding organizational scope, recruitment of diverse stakeholders, utilizing emerging resources, and developing trust among organizations and communities (Lank, 2006; Wandersman et al., 2005; Weiss, & Miller, 2001). Furthermore, according to scholars such as hooks (1990, 2003) and Monk, Manning, and Denman (2003) collaboration, from a feminist

perspective for example, is also about two long-standing feminist goals, namely a venue of challenging hierarchical and patriarchal relationships as well as societal transformation.

Overall, the results of this study indicate that representatives of environmental organizations in Waterloo Region have similar definitions of collaboration, particularly with regards to the elements of working together, common goals, and shared resources and benefits/rewards. Furthermore, two noteworthy ideological tenets emerged during the analysis of the interviews and focus groups: providing people with a voice, and working for the common good. These aspects may be vital for healthy collaboration in Waterloo Region. However, while definitions of collaboration currently overlap, there is no commonly agreed upon definition. The lack of discussion of shared risks and responsibilities as part of the definition of collaboration may imply the need to increase collaborative capacity through different processes.

This section is divided into three parts. In part one, I discuss the main reasons for collaboration as they emerged during the analysis of the interviews and focus groups, namely how study participants defined collaboration and the benefits they attributed to collaboration. In the second part, I discuss two additional reasons that emerged, namely providing people with a voice and working towards the common good, two ideological tenets which I believe to be of importance. Finally, in the third part, I discuss the perceived collaborative capacity that emerged from the analysis of the interviews and focus groups and provide some suggestions on how to potentially increase collaborative capacity.

Main Reasons for Collaborating: Definition and Benefits

As discussed in Chapter 2, there is a lack of a clear and commonly agreed upon definition of the term collaboration. Nevertheless, there are multiple similarities among the different definitions including unification of partners (Allen, 2005; Gray, 1989) towards common goals as

well as sharing, resources, rewards, risks, and responsibilities (Mattessich et al., 2001; Wolff, 2010). The results of this study confirm that overall, participants have similar definitions of collaboration particularly with regards to working together, common goals, and shared resources and benefits/rewards (however, not all participants mentioned each aspect). The aspect of shared resources is important because if resources are controlled by one organization, it may affect the distribution of power as control over resources often leads to increased influence and responsibility within the collaboration (Butterfoss et al., 1993; Dalton et al., 2007; Nelson et al., 2001; Ostrander, 2004; Sofaer, 2000). The quantitative and qualitative results of this study suggest that participants recognize that collaboration requires shared resources. For example, 83.4% of participants suggested that collaboration helps optimize existing resources.

Furthermore, during the interviews and focus groups, participants discussed the meaning of resources and many suggested that resources are not simply about funding but also about human resources, namely knowledge and expertise. Sharing one's knowledge and expertise, not just monetary resources, in collaboration is considered one of the most important aspects for collaborative success, because the convergence of different skills and knowledge is predicted to create synergy, which in turn helps create better solutions (Israel et al., 2003; Lasker, Weiss, & Miller, 2001).

There are multiple shared benefits of collaboration identified in the literature, some of which are sometimes included in the definitions of collaboration in the literature. These benefits include creating synergy among members (Lasker, Weiss, & Miller, 2001) or a collaborative advantage (Lank, 2006) that will help the collaborating partners accomplish more than any one person or group could have done independently. They can also include increases in the following areas: effectiveness of a service; political influence (e.g., demonstrating and developing public

support and critical mass); organizational scope (e.g., engaging in new and broader issues, learning from other organizations); recruitment of diverse stakeholders (e.g., politics, business, marginalized communities); utilization emerging resources; and developing trust among organizations and communities (Lank, 2006; Wandersman et al., 2005).

It could also be argued that failing to clarify the benefits of a collaboration to potential, new, or current members may result in a lack of interest in joining or continuing to participate in a collaboration, which in turn may lead to a lack of necessary skills, experiences, and/or expertise within the collaboration. The quantitative and qualitative results of this study suggest that participants realize and appreciate that collaborations have these types of benefits, in particular gaining new skills and knowledge, increasing use of services by the public, creating new and useful relationships, and optimizing resources. There is also overlap between benefits in the literature, for instance, the idea of gaining new skills and knowledge overlaps with increasing the effectiveness of a service and expanding organizational scope.

There are two findings in particular worth mentioning, which suggest incongruences between participant responses and the literature on collaboration. When asked to define collaboration, no study participant discussed how collaboration may include sharing risks and responsibilities. With regards to the benefits of collaboration, many participants were not convinced that collaboration increases political influence, influence on funders, or assists in gaining new and additional funding. In all three cases, over 45% of participants chose either “not at all” or “somewhat” when asked to rate the degree of influence on these factors. These results stand in stark contrast with the ratings of other potential benefits, such as optimizing resources or developing new relationships which only had 12.5% and 8.33% respectively choosing “somewhat” (no one picked “not at all”) and had the majority rating their effectiveness

as “very much so” (54.17% and 62.5% respectively).

A possible explanation for these findings may come from participants’ personal experiences with collaboration, namely that in the past, risks and responsibilities were not discussed when developing collaborations. In addition, participants may not have had much success influencing funders, politicians, or gaining new funding through collaborative efforts. One case in particular was used as an example to illustrate this point; after organizations collaboratively succeeded in being awarded a funding grant, the transfer agency (i.e., lead organization that hosted the project and was responsible for accounting) was subsequently disqualified from applying to the same grant stream because they were deemed to be granted funding already.

Additional Reasons for Collaborating: Ideologies

Two additional noteworthy reasons for collaboration emerged during the interviews and focus groups with participants in this study, namely providing people with a voice, and working towards the common good as a network of organizations. Collaboration theory tells us that good collaboration must provide stakeholders, even those with marginalized opinions, with a voice in order to get the best possible solution to a problem (Mattessich et al., 2001; Page, 2007; Sofaer, 2000; Wolff, 2010). This idea of stakeholder involvement as a tool to increase chances for successful outcomes of a collaboration is widespread in discussions on collaboration. In this study, however, the idea of providing a voice emerged as a concept not (just) to increase collaborative outcomes but as a commitment to give voice to stakeholders. In some sense, this turns the concept of stakeholder involvement on its head by suggesting that collaboration is not just for the benefit of the best possible solution but also simply to provide community members with a voice, suggesting an ideological principle of inclusion.

Throughout the literature there is much discussions on how to ensure the inclusion of marginalized voices in collaboration, in particular, scholars have suggested that such exclusion is a sign of inequality of power (e.g., hooks, 2003; Mertens, 2009; Silka, 2005). According to a participant in this study working for one of the largest organizations in Waterloo Region, providing everyone interested (including those marginalized stakeholders) with the opportunity to contribute meant giving the community at large a voice to balance the level of power of government and larger organizations. This suggests an understanding that there is a difference between the experiences of community members and those within the system (e.g., government) – a similar ideal to the concept of an imbalance of power and privilege discussed in the literature on cooperation between community members and academic researchers, which can lead to conflicts (Fadem et al., 2003). In collaborations where governments and large organizations are involved, it is indeed conceivable that a power and privilege imbalance may occur, whence the ideological principle of bridging the potential or existing power imbalance through providing community stakeholders with a voice (for a discussion on marginalization see Section 2).

The second noteworthy ideology that emerged during the analysis of the interviews and focus groups was the notion of working towards the common good as a network of organizations. As discussed in detail in Chapter 7, cohesion and interconnectivity are considered crucial to collaboration success (Johnson & Johnson, 2009; Mattessich et al., 2001) because a sense of cohesion is predicted to increase willingness to engage with others (Sofaer, 2000). While specific to collaboration, this may extend to networks of collaborations because the more there is a sense of cohesion among the organizations in a network, the more likely organizations are to engage in developing collaborative projects in the future. If organizations in a network are mostly focussed on their own advancements, it is less probable that organizations will

collaborate and if they do so, the collaborations are less likely to have actual shared goals and are thus less likely to succeed.

Collaborative Capacity

Participants' definitions of collaboration (i.e., joint efforts, common goals, and shared resources and benefits/rewards), taken together, indicate shared understanding of the basic collaboration tenets, which may in turn suggest collaborative capacity. These shared considerations with regards to collaboration may impact cohesion among the partners, as many scholars stress the importance of having clearly identified and communicated goals and objectives in order to develop successful collaborations (Becker et al., 2005; Israel, Lantz, et al., 2005; Johnson & Johnson, 2009; Mattessich et al, 2001; Selin & Chavez, 1995; Sofaer, 2000; Wolff, 2001). Similarly, recognizing that resources and benefits should be shared may further suggest collaborative capacity, because, according to scholars such as Sofaer (2000), sharing the benefits of a collaboration (e.g., access to resources) increases collaborative effectiveness. Finally, the presence of shared ideological tenets of collaboration (as proposed by two participants) such as providing people with a voice and working towards the common good may suggest further indication of collaborative capacity. These tenets, particularly in the case of working towards a common goal, are an important foundation of social cohesion for future collaboration. In other words, the more collaborative partners have similar foundational ideas about why they collaborate, the more likely it is that the collaboration will be successful.

The results of this study also suggest that participants did not consider a definition of collaboration to include sharing risks and responsibilities. In a way, sharing not only benefits and resources but also risks and responsibilities (i.e. the realization that all participants may be accountable for the decisions and actions of the collaboration) may increase cohesion and a sense

of belonging among partners because it makes participants recognize social interdependence, which is vital for successful collaborations (Johnson & Johnson, 2009). Furthermore, sharing risks and responsibilities, despite the obvious associated threats, may also increase a sense of ownership of the function of the collaboration as well as the collaboration outcomes (Mattessich et al., 2001).

The fact that sharing risks and responsibility was missing from participants' definitions may simply be an oversight. Nevertheless, even if participants would have identified sharing risks and responsibilities when prompted, the lack of reference during the interviews and focus groups indicates a need to address these two aspects with partners when developing collaborations in more detail. This may be the same for the ideological tenets of providing a voice and working towards the common good – the fact that only a small number of participants brought it up may be an indication of lack of shared principles of collaboration. Hence, despite the general agreement regarding definitions and benefits, based on the literature and the findings of this study, it may be advisable for those developing new collaborations or working in existing collaborations to spend some time discussing the different definitions, benefits, risks, and ideological principles of collaboration when forming a collaboration to eventually arrive at a commonly shared definition that is inclusive of all aspects necessary for successful collaborations. This discussion could include the different perspectives of the collaborative partners, which in turn would create a stronger sense of cohesion, and thus potentially increase the chances of success for current and future collaborations.

Based on the literature with regards to shared goals presented earlier, it may be advisable for environmental organization in Waterloo Region to collaboratively develop a set of shared principles of collaboration that includes a definition, ideological reasons for collaboration, and

anticipated benefits of collaboration. While time consuming, this process may have at least three advantages. First, it may save time in the future when organizations embark on new collaborations since important foundational work would have already been completed. Second, a common set of tenets of collaboration may create accountability and thus the option for organization(s) to address issues in collaboration where, for example, one organization does not uphold the tenets. Third, the process in and of itself could potentially increase a sense of cohesion among the environmental organizations in Waterloo Region, and thus could increase the level of future collaborations and their success rate. Furthermore, focusing on the challenges of collaboration discussed by the participants and finding ways to address them during the development and maintenance of collaborations may increase collaborative capacity among environmental organizations in Waterloo Region. Thus, it may be advisable for participants to identify their views with regards to the challenges during collaborative development and work toward trying to determine, as a group, how to address these challenges. Addressing this within a collaboration by clearly outlining individuals' available time and resources and allocating tasks accordingly may decrease this challenge to some degree.

Section 2: Practicing Collaboration

Developing and maintaining effective collaborations has long been considered a difficult task (Gray, 1989; Mattessich et al., 2001; Longoria, 2005; Wandersman, et al., 2005; Wolff, 2001). Over the past several decades, this recognition has led to numerous publications in the academic and practice fields focusing on how to increase collaboration effectiveness through effective practice. In this second section, I provide an interpretation of the findings reported in Chapter 8 related to how organizations collaborate, namely the practice of collaboration, by comparing the findings of the study to what is considered good or emerging practice of

collaboration in the academic and practice literature.

Overall, study participants discussed many approaches to collaboration that are identified in the literature as good/emerging practices, suggesting a relatively high level of collaborative capacity. Nevertheless, multiple tasks and steps considered good/emerging practice were not mentioned by the participants, in particular in the areas of membership and collaborative structure, thus suggesting the need to increase collaborative capacity, assuming that the literature is correct.

This section is divided into two parts – each part consists of an interpretation of the findings related to collaboration practice presented in Chapter 8. In the first part, I compare collaborative practice among environmental organizations in Waterloo Region with good and emerging practice as proposed by the literature. As the framework for comparison, I use the stages and tasks proposed by Dr. Riemer and I, as discussed in Chapter 2 (Münger & Riemer, 2012). In the second part, I discuss the results as they relate to collaboration as a process and deliberate the existing level of collaborative capacity and possible steps to increase collaborative capacity.

Practice of Collaboration in Waterloo Region

Good practice when collaborating may be one of the most vital aspects of developing successful collaborations (Mattessich et al., 2001; Nelson et al., 2001; Selin & Chavez, 1995; Sofaer, 2000; Mattessich et al., 2001) and has led to several models of collaboration practice. Following several years of investigating the existing literature on collaboration practice, we developed a collaboration process model (Münger & Riemer, 2012). The initial goal of the model was to provide academics and practitioners with a collaboration tool that is based on empirical evidence. The model, shown in Figure 2 in Chapter 2, is both a synthesis of the

literature on collaboration and a response to the identified limitations of existing models such as evaluation of collaboration type, organizational readiness, analysis of stakeholders and membership, and contextualizing collaboration as a process of change. Given the idea that collaboration is a process, we included several stages based on the Transtheoretical model by Prochaska and DiClemente (1984), which became our overarching framework. As such, the model includes five stages: Pre-contemplation; Contemplation; Preparation; and Maintenance (see below for discussion of the stages). Within these five stages, we structured ten different collaboration tasks that emerged from the synthesis of the literature. These tasks are: assess organizational and personal attitudes and readiness (T1); determine initial collaboration purpose and type (T2); identify membership needs and conduct stakeholder analysis (T3); establish the collaboration (T4); specify collaboration purpose, mission, and structure with members (T5); identify contextual characteristics of the collaboration (T6); determine structural characteristics of the collaboration (T7); manage group dynamics (T8); retain members and grow membership (T9); and institutionalize the collaboration (T10). Table 17 below illustrates the five different stages and the ten tasks on the left side. The column on the right shows the theme(s) as they emerged from the analysis of the interviews and focus groups in this study.

As can be easily identified, eight out of the ten tasks of the collaboration model were covered by the participants of the interviews and focus groups. What follows is a more detailed discussion of the findings within each of the stages and tasks.

Table 17

Overview of findings of collaboration practice as they related to the stages and tasks of the collaboration model by Münger and Riemer (2012) (themes also appear in earlier stages)*

Stage	Task	Theme(s)
Pre-Contemplation		
Contemplation	T1: Assess organizational and personal attitudes	Identifying internal collaboration capacity
	T2: Determine initial purposes and type	Assessment of the problem and creating the context Preliminary objectives and goals
Preparation	T3: Identify membership needs and stakeholder analysis	Identifying needed expertise and resources Identifying stakeholders Adding expertise Searching for support from others
	T4: Establish the collaboration	Meeting in person Recruiting project partners
	T5: Specify purpose, mission, and structure	Creating common goals Inclusion of stakeholder voices
	T6: Identify contextual characteristics	Identifying and creating trust
	T7: Determine structural characteristics	Ground rules Governance models Leadership and decision-making Collaborative rules Developing an implementation plan
	T8: Manage group dynamics	Creating common goals* Identifying and creating trust* Leadership and decision-making*
	T9: Retain members and grow membership	Giving voice
	T10: Institutionalize the collaboration	
Maintenance		

Pre-contemplation Stage. In the collaboration process model, this stage is defined as a time when individuals are not planning to take any collaborative action due to, for example, a lack of opportunity to collaborate, preference to work independently, or a belief that the challenges of collaboration outweigh the benefits. In this study, participants were already all involved in collaboration, thus they did not consider this stage as important in creating collaboration. This may suggest that all participants recognize the importance and value of involving other organizations and communities through collaboration, which was demonstrated by the results in Chapter 8 and, to a lesser degree, in Chapter 6.

Contemplation Stage. In the collaboration process model, this stage is conceptualized as a time when individuals and organizations start exploring their positions with regards to the potential benefits and added value of collaborative approaches and start some initial collaborative work. The literature identifies two main tasks that fit in this stage: assessing organizational and personal attitudes and readiness (T1) and determining initial collaboration purpose and type (T2). Both tasks emerged to some degree as themes during the interviews and focus groups.

T1: Assess organizational and personal attitudes. The literature (albeit to a limited degree) suggests that organizations and their representatives should engage in a process of assessing personal and organizational attitudes and readiness towards collaboration. For example, in the context of collaborative research feminists have long identified the importance of critical reflections on personal issues such as positionality, reflexivity, and power dynamics (e.g., hooks, 2003; Monk, Manning, & Denman, 2003; Ng, 1993). Similarly, some authors suggest that organizations should engage in a process of assessing organizational attitudes within their own organization and, in some cases, their potential partners (Eckerle Curwood et al., 2011;

Gelmon, Seifer, Kauper-Brown, & Mikkelsen, 2005; Greene et al., 1995; Wallerstein, et al., 2008; Wolff, 2001; Yale Center for Clinical Investigation, 2009). This assessment may be important because it paves the way for identifying the multiple benefits and challenges, and preferred approaches (e.g., hierarchical structure, power distribution) to collaboration, which in turn may speed up the process of working with potential partners to develop the common groundwork for collaboration.

One theme to emerge during the analysis of the interviews and focus groups in Chapter 8 reveals the implementation of this task to some degree. While not directly an organizational assessment or an assessment of potential collaboration partners, the theme of *identifying internal collaboration capacity* suggests that some participants consider assessing how their own organization will react to collaboration, how it may need to adjust as an organization to successfully engaging in collaboration, and how such collaboration may be managed internally.

T2: Determine initial collaboration purpose and type. Multiple scholars also suggest that there is value in developing a purpose for collaboration and considering the type of collaboration needed (Sofaer, 2000; Wandersman et al., 2005). This consideration may be important because, as discussed earlier, there are numerous purposes for collaboration including planning and coordinating services, creating political interest, increasing critical mass, influencing policies and politicians, and mobilizing power and authority (Sofaer, 2000; Wandersman et al., 2005). Similarly, as discussed elsewhere (Chapter 7 and Münger and Riemer, 2012) initial considerations regarding the type of the future collaboration are important because the different types of collaborations (i.e., top-down, bottom-up, mandatory, voluntary, problem-based, and vision-based) all have different advantages and challenges (Dorado, Giles, Welch, 2009; Minkler & Wallerstein, 2003; Travers, Pyne, Bauer, Hammond, & Scanlon, 2011;

Wolff, 2001). Having a clearly identified idea of why and how one organization wants to engage in collaboration with other organizations may again help to develop clear expectations of the collaborative work and can help avoid later confusion when organizations realize that their organizational reasons for collaborating differ significantly. If a collaboration is not developed properly in the early stages, unmet or unrealistic expectations may develop, which can create disappointment and dissolution among community partners, and potentially damage the effectiveness of a particular collaboration and impede future collaborative attempts among environmental organizations.

During the interviews and focus groups, several themes emerged related to this task including determining *preliminary objectives and goals*. It is noteworthy to mention one additional theme to emerge during analysis of the interviews and focus groups which is related to task two but is not as clearly identified in the literature, at least not at this stage in the process. As an extension of the task to identify the collaboration purpose, some participants also voiced the need to *identify stakeholders* prior to approaching potential stakeholders to find those with the needed expertise and the entities that need to be involved. Generally, these may be an important and useful step in the Contemplation stage of collaborating because this step also helps develop and identify expectations regarding collaboration, in particular from the perspective of the organization starting the process. However, the risk that these steps may pose are that if goals, structure, needed expertise, and stakeholders are already fully predetermined, collaboration partners will likely feel that their presence does not allow for meaningful input, which is predicted to decrease the level of buy-in of the partners (Sofaer, 2000) and thus lower the chances for success of the collaboration.

Preparation Stage. In the collaboration process model, this stage is conceptualized as a

time when organizations and their partners are forming and focusing the collaboration. The literature identifies six main tasks that fit in this stage: identifying membership needs and conducting stakeholder analysis (T3); creating the collaboration (T4); specifying collaboration objectives (T5); identifying contextual characteristics (T6); and determining structural characteristics of the collaboration (T7). All of these tasks were discussed during the interviews and focus groups to some degree.

T3: Identify membership needs and stakeholder analysis. Given the vital importance of membership to the success of collaborations, membership is one of the key considerations when developing collaborations. It is generally suggested that collaboration membership include those whose experiences are related to the goals of the collaboration (e.g., people exposed to industrial toxins), ‘movers and shakers’ in the community, and members representing organizations and governments (e.g., policy makers), business and unions, professional groups (e.g., scientists), and prominent organizations (e.g., local media) (Mattessich et al., 2001; Sofaer, 2000; Wolff, 2010). This is one of the most complex tasks when developing collaborations.

During the interviews and focus groups several themes emerged that are related to this task. Once the preliminary goals have been determined, some participants suggested paying attention to *identifying needed expertise and resources* to create a successful collaboration. Once the expertise is identified, some participants suggested *identifying stakeholders*, those who have the particular expertise (and/or resources) and continuing *adding expertise* as well as *searching for support from others* through tools such as declarations of support. Overall, the participants identified many important steps in this task, in particular with regards to adding expertise to a collaboration. Upon closer inspection, at least three key aspects of good/emerging practices of collaboration were not addressed by the participants, namely the inclusion of symbolic members,

the level of authority of members, and how to go about identifying potential members.

First, symbolic members (i.e., well-known environmental activists, politicians, or environmental authors) may be useful in collaborations to promote a cause and give it credibility (Mattessich et al., 2001; Sofaer, 2000)—these members may be important for their status and not particularly for their expertise (a good example are politicians). Second, scholars such as Sofaer (2000) suggest that it is vital to ensure that members have both high and low levels of authority in order to have members who can make decisions and members who have more time to do work. The notion behind this is that those who have high levels of authority can make important decisions regarding collaboration (e.g., funding allocation) but have little time to do collaborative work given their other responsibilities. At the same time, those with low levels of authority most often cannot make important decisions but may have more time available to follow through on collaborative tasks. Third, many scholars have identified that member selection is often biased, in particular due to familiarity (Hubacek et al., 2006; Reed et al., 2009; Sofaer, 2000). This is an important step for collaborations because the diversity of voices is vital for success (Page, 2007; Surowiecki, 2004). Given the evidence in the literature for the need of diversity of voices, it may be important for those creating collaborations to consider that diversity of voice in collaboration is textured; that is reasons for participation in environmental collaborations may be due to professional expertise (Mattessich et al., 2001) or because of social biographies of those participating (Krauss, 1994). Creating (conscious or unconscious) selection criteria that are based on knowing and trusting collaborative partners may limit the inclusion of diverse and independent voices, thus potentially limiting the level of possible success of any collaboration.

T4: Establish the collaboration. While appearing simple, establishing collaborations

may need some additional effort, as participating in collaborations requires a certain commitment of resources (e.g., time commitment), leading potential members to conduct a cost benefit analysis of participation (Sofaer, 2000). During the interviews and focus groups two themes emerged that are related to this task, namely *meeting in person* and *recruiting project partners*. These may be two important aspects in creating successful collaborations. It is noteworthy to point out that the literature reviewed does not discuss the idea of meeting people in person but, despite today's level of technology (i.e., phone and email), it may be important to meet in person, if possible. Participants discussed when to invite members and how to best invite members who may be marginalized. For example, depending on the level of authority, symbolic members may not see value in being part of the formative stages of a collaboration. However, the literature suggests that it may be advisable to give these potential members a choice with regards to when they enter the collaboration because some individuals may prefer to be included in the early stages to provide their input to crucial early decisions, which creates a sense of ownership and buy-in.

Similarly, the recruitment of marginalized voices (i.e., individuals or groups who have generally not been included in the past such as people experiencing exposure to environmental hazards, impoverished people, people with criminal records, people with disabilities, gender and sexual minorities, immigrants, refugees) may also necessitate exceptional attention. Many scholars have highlighted the exclusion of marginalized voices in collaborations as a sign of power and privilege inequality between organizational representatives and researchers and marginalized communities (e.g., Mertens, 2009; Monk, Manning, & Denman, 2003; Peck & Stephens Mink, 1998; Silka, 2005) and can result in false consensus (Hubacek et al., 2006). It may thus be advisable to consider issues of power and privilege early on and throughout the

collaboration.

T5: Specify purpose, mission, and structure. After collaborative membership has been created, the next important step is to engage the partners in jointly establishing and instituting a clearly identified purpose, mission, and structure (Becker et al., 2005; Israel, Lantz, et al., 2005; Johnson & Johnson, 2009; Mattessich et al, 2001; Selin & Chavez, 1995; Sofaer, 2000; Wolff, 2001). During the interviews and focus groups two themes emerged that are related to this task, namely *creating common goals* and *inclusion of stakeholder voices*. Again, these may be two important aspects in creating successful collaborations. Nevertheless, the participants did not discuss several equally important aspects.

First, while there was discussion of creating goals (same as purpose in the literature), there was no discussion regarding either the mission or the structure of the collaboration. Similarly, there was little discussion of how to go about developing the goals of collaborations. Ensuring that partners have a voice in the process was raised as a concern by some participants, but no strategies for ensuring voice such as brainstorming, focus groups, community dialogues, risk mapping, creative arts, system mapping, and multiple cause diagrams (see Minkler & Hancock, 2008; Open University, 2007) were mentioned. Second, participants did not mention developing collaborative structures, despite the fact that discussing and deciding on collaborative structures, according to scholars such as Sofaer (2000) and Mattessich and colleagues (2001), are important steps during this stage.

T6: Identify contextual characteristics. Several scholars point to the importance of paying attention to internal and external context such as past experiences with collaborations, trust, and costs associated with participating (internal) as well as political and social (external) contexts (Mattessich et al., 2001; Schulz et al., 2003). During the interviews and focus groups

only the theme of *identifying and creating trust* emerged. While this is an important aspect of collaborative development and considered vital to collaborative success, only a small amount of participants discussed the social and political environment. These participants pointed, for example, to the local governmental organizations as quite open to and supportive of collaboration as well as the general openness towards collaboration in Waterloo Region among many stakeholders.

T7: Determine structural characteristics. Scholars have identified numerous factors that play vital roles when determining and finalizing the structural characteristics of a collaboration, namely membership, rules, commitment to co-learning, resources, and values that may have different levels of formalization (Butterfoss et al., 1993; Lasker et al., 2001; Mattessich et al., 2001; Nelson et al., 2001; Wallerstein & Duran, 2006). During the interviews and focus groups multiple themes emerged, namely considerations with regards to *ground rules, governance models, leadership and decision-making, collaborative rules, and developing an implementation plan*. These may be significant steps in ensuring the success of collaborations and cover most of what is discussed in the literature. It is noteworthy to stress that many participants discussed leadership and decision-making issues at length and discussed the importance of creating implementation plans.

Areas that were not identified by the participants included decisions regarding resources (e.g., how resources should/could be shared), a commitment to co-learning, and shared values. According to many scholars, collaborations tend to be a combination of human, social, and material resources but attention needs to be paid to these resources in order to not overextend them and outside financial resources need to be explored (e.g., funding) in order to avoid reliance on members' in-kind contributions in the long-term (Becker et al., 2005; Butterfoss et al., 1993;

Israel, Eng, et al., 2005, Mattessich et al., 2001; Sofaer, 2000; Wallerstein et al., 2002; Wolff, 2001; Wolff, 2010). Several scholars also discuss the need for collaborations to commit to co-learning and capacity building through, for example, evaluation of partners' satisfaction and overall efficiency of collaborations. This commitment can result in improved networking, new ways of sharing information, and shared access to resources (Becker et al., 2005; Israel et al., 2003; Lasker et al., 2001; Leiderman et al., 2002; Wallerstein et al., 2002). Finally, some scholars such as Nelson and colleagues (2001) focus on values by suggesting that the primary concern of a collaboration should be the benefit to marginalized groups; that is, those impacted the most.

Action Stage. In the collaboration process model, this stage is conceptualized as a time when organizations and their partners collaborate to achieve the goals of the collaboration. The literature identifies three main tasks that fit in this stage: (1) manage group dynamics, (2) retain members and grow membership, and (3) institutionalize collaboration(s). Most of the aspects related to managing group dynamics were covered by the participants and were discussed as part of the earlier stages. As discussed elsewhere (Münger & Riemer, 2012), models tend to have shortcomings such as trying to contextualize a dynamic process into a linear model, which becomes evident in the action stage. In fact, many of the group processes related to group dynamics are included in the earlier stages, which makes sense given that these play important roles from the very beginning of the collaboration and throughout its lifecycle. Nevertheless, during the action stage, group dynamics (T8), retaining and growing membership (T9), and questions about institutionalization of the collaboration (T10) are relevant considerations.

T8: Manage group dynamics. Scholars and practitioners clearly identify group dynamics as a vital aspect of collaboration and include: clearly communicated goals, values and

visions; accommodating diverse perspectives; creating social interdependence, a sense of shared ownership, and trust; clear communication; clear leadership and decision-making; clarity with regards to power; encouraging controversy and conflicts; and encouraging diversity with regards to membership (e.g., Johnson & Johnson, 2009).

During the interviews and focus groups multiple themes emerged related to group dynamics, such as *creating common goals, trust, and leadership and decision-making*. These are significant steps in ensuring success of collaborations and cover some aspects of what is discussed in the literature with regards to group dynamics. However, several aspects were only marginally discussed by participants, namely issues of communication; different and dissimilar voices; social interdependence; clarity with regards to power; encouraging controversy and conflicts; and encouraging diversity with regards to membership. As with other areas, the reasons for a lack of discussion in the interviews and focus groups of these aspects may not be related to a lack of practice but a lack of time during the interviews or simply a lack of awareness that these are important aspects of collaboration.

First, in the literature on group dynamics, scholars discuss the importance of communication and suggest a need for open and frequent communication that is, for example, cognizant of differences in languages and communication styles (Israel, Lantz, et al., 2005; Johnson & Johnson, 2009; Mattessich et al., 2001; Wolff, 2001). Second, scholars in group dynamics suggest that difference and dissimilar views are key to finding the best possible solutions thus stressing the need to encourage the inclusion of different and dissimilar perspectives (Israel, Lantz, et al., 2005; Page, 2007; Surowiecki, 2004). Third, group dynamics scholars stress the need for collaborative partners to recognize their social interdependence; that is, the realization that they can only achieve their own goals if everyone in the collaboration

reaches their goals (Johnson & Johnson, 2009), which is predicted to create a sense of ownership among the partners. Fourth, power differentials are in need of much consideration (Lasker et al., 2001). Collaborative partners need to clearly recognize power differentials and address them through sharing of power (Chavez, Duran, Baker, Avila, & Wallerstein, 2003; Cox, 2000; Mertens, 2009; Nelson et al., 2001; Wallerstein & Duran, 2006; Wallerstein et al., 2005). Fifth, controversy and conflict are important for collaboration success and need to be encouraged and well managed (Becker et al., 2005; Butterfoss et al., 1993; Derksen & Nelson, 1995; Israel, Lantz, et al., 2005; Johnson & Johnson, 2009; Lasker et al., 2001; Mattessich et al., 2001; Schulz et al., 2003; Surowiecki, 2004; Wallerstein et al., 2002; Wolff, 2010). Finally, attention should be paid to diversity, in particular demographics, personalities, class, gender, and ability/skills because it can have both positive and negative effects (Butler, 2004; Israel, Eng, et al., 2005; Krauss, 1994; Leiderman et al., 2002; Monk, Manning, & Denman, 2003; Nelson et al., 2001; Peck & Stephens Mink, 1998; Wolff, 2001).

T9: Retain members and grow membership. As discussed earlier, good membership, including members with many different skills, expertise, and experiences is one of the most important keys to successful collaborations. However, membership in collaborations tends to change over time. During the interviews and focus groups, participants only discussed *giving voice* to members of collaborations in order to keep them happy and engaged, which is an important consideration for collaborative success. However, according to the literature, there are several significant considerations that are important to retain members that were not addressed by the participants, namely developing a core group, how to retain members, meeting structures, and the ongoing evaluation of the effectiveness and efficiency of collaborations.

First, scholars such as Sofaer (2000) suggest developing core groups of dedicated

members to ensure the sustainability of collaborations. Second, retention is important and can be increased through practices such as orientations to collaborations, high levels of cohesion, making sure the participants' expertise is used and their views are valued, and providing recognition for their work (Mattessich et al., 2001; Sofaer, 2000). Third, collaborations should pay attention to hosting meetings when members can participate, and may want to consider ensuring time for socializing during meetings which will help to increase a sense of value gained from the collaboration as well as enhance collaboration cohesion (Mattessich et al., 2001). Fourth, collaborations should be evaluated for their effectiveness and efficiency on an ongoing basis (Mattessich et al., 2001).

T10: Institutionalize the collaboration. Some scholars discuss the importance of institutionalizing collaborations within institutions. This may include addressing and potentially adjusting the vision of a collaboration to ensure that organizations promote, encourage, and sustain collaboration (Lank, 2006). During the interviews and focus groups, participants did not discuss the institutionalization of collaboration within their respective organizations. However, while somewhat different, several participants identified the need to formalize a network which could increase the level of institutionalization within the region but not organizations.

Maintenance Stage. In the collaboration process model, this stage is conceptualized as a time when organizations and their partners have successfully managed group dynamics and institutionalized the collaboration, and are able to effectively collaborate on an ongoing basis. Again, during the interviews and focus groups no issues related to maintenance of collaborations were identified.

Collaborative Capacity in Waterloo Region

I don't think we usually consciously think of exactly naming what my goal is what your

goal is and that kind of thing. Sometimes those go unspoken.—Justice 2

Developing and maintaining functional collaborations is a difficult task (Gray, 1989; Mattessich et al., 2001; Longoria, 2005; Wandersman, et al., 2005; Wolff, 2001) that may require not just deliberate practice, but also reflection on the practice. In general, two main interpretations can be drawn from the data. First, taken as a whole, it is reasonable to conclude that environmental organizations in Waterloo Region have a relatively high level of collaborative capacity. This interpretation is based on the interviews and focus group results and also on the fact that there are many successful collaborations in Waterloo Region (according to the participants). Second, most participants may not develop and maintain collaborations deliberately; that is collaborations seem to be developed ad hoc and, while participants spend some time thinking about the different functions and strategies of collaboration, compared to the literature on collaboration, the data may suggest that this may not be sufficient for successful collaborations. This indicates that study participants may not spend sufficient time thinking about collaboration as a process and try to imagine and structure the collaborative work, that is, the work related to the functioning of the collaboration. This may suggest a lack of collaborative capacity because the literature suggests that collaborations, to be successful, need to be developed deliberately.

Third, while participants mentioned many important tasks during three of the five different collaboration stages (Contemplation, Preparation, and Action), some important collaboration tasks and steps were not discussed. Those tasks and steps that were missed can be divided into two components, namely membership and structural considerations for the collaboration. With regards to membership, the missing steps were: the inclusion of symbolic members; considerations of the levels of authority of members; biased member selection and strategies to allow for inclusion of different and dissimilar voices; considerations of when to

invite members; and how to recruit marginalized voices. With regards to collaborative structures, the missing steps included: the overall structure of collaborations (e.g., type and formality); strategies to develop goals; decisions regarding the use and distribution of resources; a commitment to co-learning, and developing shared values.

It is important to note though that participants mentioned two specific steps that are, to the best of my knowledge, not discussed in the literature. First, some participants suggested identifying stakeholders at the Contemplation Stage. This makes perfect sense in particular with identifying not only preliminary goals and structure (T2) but also preliminary and potential partners. Second, some participants suggested meeting in person when inviting potential collaborative partners in the early stages of developing a collaboration. Meeting in person surely would provide advantages for those involved for developing rapport among potential partners. This may be an area where the literature could be expanded by including this strategy, because many of the studies on collaboration effectiveness were conducted in late 1990s and early 2000s, at a time when email and other electronic means of communication (e.g., video conferencing) were not as prevalent, and meeting in person may have been the norm.

In an effort to increase collaborative capacity among environmental organizations in Waterloo Region, based on the literature and the findings of this study, it may be worthwhile to offer training focused on how to improve collaboration practices. The training could include conceptualizing collaboration as a process and focusing on membership as well as collaborative structures in order to address the areas where collaborative capacity may be lacking. All three focus areas could ideally include examples of collaborations, rationale based on evidence, and strategies on how to approach the step. For example, in the case of collaborative membership, it may be advisable for training to focus on recognizing that membership identification,

recruitment, retention, and training should be ongoing throughout the lifecycle of a collaboration with a focus on ensuring all necessary skills, expertise, experiences, and, most importantly marginalized voices, are included.

In terms of strategies related to the selection of members, strategies could include the three-step approach to selecting members suggested by Reed and colleagues (2009): identifying stakeholders, differentiating between and categorizing stakeholders, and investigating relationships between stakeholders. Strategies presented during the training could include the use of expert opinion, focus groups, semi-structured interviews, snowball sampling, interest-influence matrices (categorization according to interest and influence), stakeholder-led categorization (stakeholders create categories and categorize themselves), Q methodology (categorization based on stakeholder perceptions of the issue and commonalities rather than theoretical perspectives), as well as actor-linkage matrices (simple tabulations of existing relationships), social network analysis (see Chapters 10 and 11), knowledge mapping (interviews used in combination with social network analysis), or radical transactiveness (identifying marginalized voices using snow-ball sampling). Reed and colleagues (2009) provide a useful review of the different approaches including necessary resources, strengths, and weaknesses).

Section 3: Integration of Findings

In the third section of this chapter, I incorporate the findings related to definitions, ideologies, benefits, challenges, and practices presented in Chapter 8 into one concept. The literature describes collaboration as a difficult and complex undertaking (Gray, 1989; Mattessich et al., 2001; Longoria, 2005; Wandersman, et al., 2005; Wolff, 2001). This suggests that effective collaboration, namely collaborations that achieve their intended outcomes such as addressing complex problems and eliciting systemic change (Foster-Fishman, Berkowitz,

Lounsbury, Jacobson, & Allen, 2001), are impacted by multiple aspects. In the literature, the desired outcomes of collaborations can include increases in the following areas: effectiveness of services; political influence (e.g., demonstrating and developing public support and critical mass); organizational scope (e.g., engaging in new and broader issues, learning from other organizations); recruitment of diverse stakeholders (e.g., politics, business, marginalized communities); utilization emerging or existing resources; and developing trust among organizations and communities (Lank, 2006; Wandersman et al., 2005).

Aside from the fact that collaboration goals may not be achieved because they are unrealistic or other internal or external contextual factors (e.g., lack of funding, lack of political will), the themes to emerged in this study suggest at least five main aspects which impact collaboration outcomes: namely actual collaborative practice, the many perceived challenges related to collaboration, participants' ideological views of collaboration, the kinds of expected benefits of collaboration, and the external context. Contained in Figure 31 is a visual integration of the first four of these aspects (the influence of context is not pictured here to simplify the figure).

In the literature, the question of *how* collaboration is practiced tends to be emphasized over the question of *why*. In particular, the area of group dynamics (the practice of examining collaborations how those engaged in the collaboration interact with each other), other areas of practice such as steps, strategies, and actions (for example identifying membership needs and specifying purposes and mission), and challenges tend to be underscored. These are questions of how to collaborate. For example, the need for developing clearly identified common missions, purposes, and goals of collaborations are considered paramount for the success of collaborations (Johnson & Johnson, 2009; Mattessich et al, 2001; Selin & Chavez, 1995; Sofaer, 2000; Wolff,

2001). Similarly, building, monitoring, and maintaining high levels of trust among members (part of group dynamics) is considered vital in creating effective collaboration (Becker et al., 2005; Israel, Lantz, et al., 2005; Lasker et al., 2001; Leiderman et al., 2002; Mattessich et al., 2001; Mertens, 2009; Nelson et al., 2001; Parker et al., 2003; Schulz et al., 2003; Wolff, 2010). These two examples related to practice are in part aimed at avoiding some of the challenges and barriers (i.e., inter-organizational issues, group dynamics, and intra-organizational issues) of collaboration as identified in Chapter 8. For example, the lack of a clearly identified common goal can, for example, influence group dynamics and create mission creep (i.e., a change in the overall mission of the collaboration), while a lack of trust can influence group dynamics with regards to decision-making and leadership and can also influence dynamics between organizations because of distrust. These simple aspects can become hindrances to effective collaborations and thus to achieving the outcomes of collaborations.

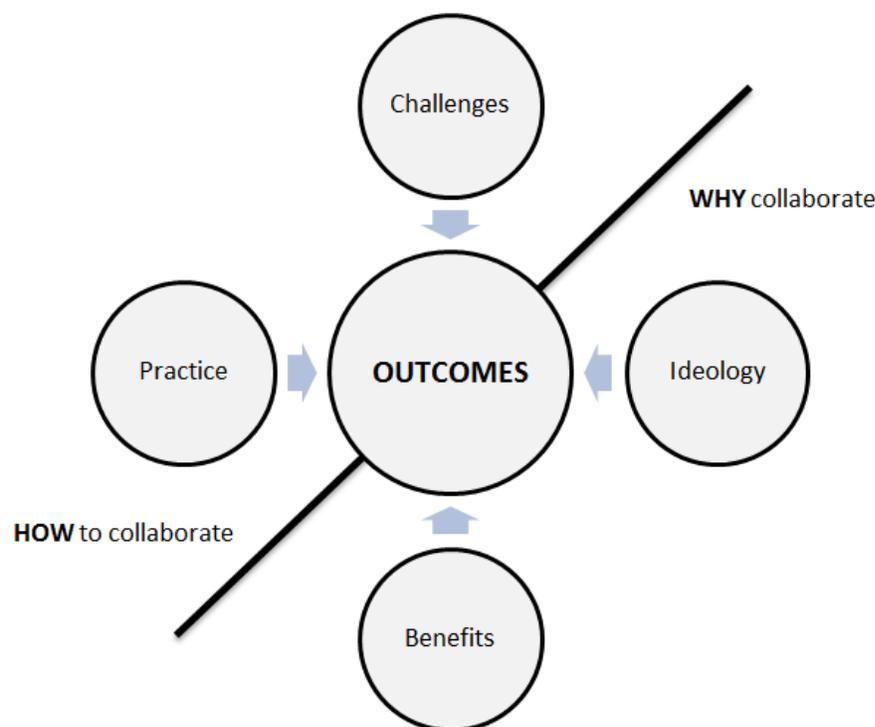


Figure 31. Factors impacting the effectiveness of collaboration.

What may be missing in this focus on the *how* of collaboration (i.e., practice and challenges) is a consideration of individuals' ideological reasons for collaborating and their expected benefits. In fact, there may be an additional layer to effective collaboration, namely why organizations and their representatives collaborate. It may be useful to pay attention to individuals' ideological reasons for collaborating, and in particular to identify differences in ideologies. In this study, participants suggested five kinds of ideological reasons for collaboration. Three very common reasons emerged from the analysis of the definition, namely joint efforts towards common goals, sharing resources, and sharing benefits. Two additional ideological reasons emerged that are not directly tied to the definitions provided by the participants, namely providing people in particular communities with a voice, for example by bringing government and communities closer together, and working towards the common good as a network of organizations.

Since working on this dissertation, I have been asked by one organization that focused strongly on collaboration to help them strengthen their capacity for collaboration by facilitating a process to develop a common understanding of collaboration. This included articulating the organization's reasons for collaborating, as they found that the term collaboration was used in different ways by members and partners of the organization. This should not come as a surprise; as even in the literature there is a lack of a common definition (Longoria, 2005) and the term collaboration is often used interchangeably with terms such as networking, cooperation, and coordination (Mattessich et al., 2001). Similarly important are the kinds of expected benefits of collaboration among collaborative partners. Overall, participants suggested three main benefits: increasing influence with, for example, local politicians and policy makers; increasing publicity and public profile of the organizations; and increasing the capacity of the collaboration.

Both above aspects are related to the reasoning behind collaboration, namely questions of why to collaborate, and may have a significant impact on a collaboration because divergent reasons why organizations collaborate could lead to complex conflict. For example, if partners in a collaboration do not see sharing the benefits as a common ideological reason, are not willing to share resources, and focus on increasing their public profile rather than increasing the capacity of the collaboration, collaborations may fail at any point during the work.

Chapter 10 - Results: Social Network Analysis as a Process Tool

I think it is probably one of the best [tools] to understand levels of collaboration ... It's nice to see the groups because there may be a group or two that I didn't know existed ... I see that [organization x] is working with [organization y]. I didn't know they worked with [organization y]. Maybe [organization y] is more related to what I do than I thought, that kind of stuff gets you thinking.—Education 5

I think [social network analysis] is a good thing ... It seems like this kind of stuff [collaboration] is been going on, whether you understand it or not, and to understand it then helps to advance it and make it more effective.—Other 1

In this chapter, I report the results of the third and final aim of this study, investigating the usefulness of social network analysis as a process tool to improve understanding and to increase informed decision-making for collaboration. These results are descriptive in nature, and are based on the quantitative data from the 2011 survey (see Chapter 4) and qualitative data from interviews and focus groups (see Chapter 5).

The majority of study participants rated social network analysis as a useful process tool for understanding networks and collaboration structures. Participants had several suggestions for improving social network analysis as a process tool, including shortening and simplifying the survey, deepening the level of analysis of data, increasing personal interactions among participants, and adding a directory of the participating organizations during knowledge transfer. One critique in particular addressed the fact that social network analysis provides a single snapshot of connections and that conducting social network analysis requires too many resources for the limited benefits from the snapshot.

This chapter is divided into three sections. In the first section, I present participants'

familiarity with social network analysis. In the second section I focus on the usefulness of social network analysis as a process by presenting themes that emerged from the interviews, such as how well social network analysis represents collaboration, how useful social network analysis is for networks and organizations, and critiques of social network analysis. In the third and final section, I present participant suggestions for improvements to the application of social network analysis as a process tool.

Section 1: Participant Knowledge of and Experience with Social Network Analysis

In the first section of this chapter, I present the levels to which study participants were knowledgeable of and had experience with social network analysis. Data presented here are based on the 2011 survey. Overall, results suggest that the majority of participants had little to no knowledge of or experience with social network analysis prior to this study. Less than one third of the participants had a working understanding of social network analysis and only about one quarter of the participants indicated either understanding social network analysis or being able to apply it.

Knowledge of Social Network Analysis

During the survey in 2011, I asked participants to respond to the following question: What is your knowledge of social network analysis? Participants were able to respond using a five-point Likert-type scale ranging from “never heard of social network analysis” to “expert in social network analysis.” Figure 32 visually illustrates the results of these ratings. The majority of the participants (72%) indicated very little knowledge of social network analysis. More specifically, 24% reported that they had never heard of social network analysis, and 48% had merely heard of social network analysis. Only 16% of the participants reported that they understood social network analysis, and 12% reported that they were able to apply social

network analysis, which is surprisingly high. No participant reported being an expert in social network analysis.

What is your knowledge of social network analysis?

Answered: 25 Skipped: 0

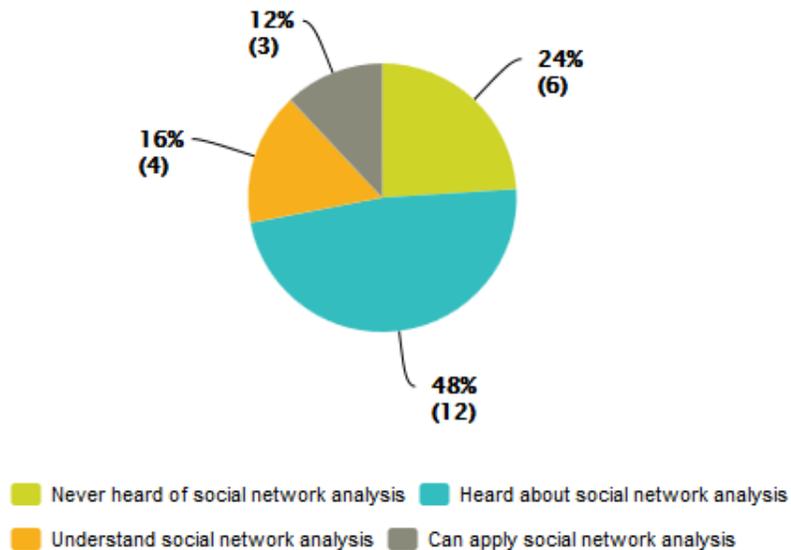


Figure 32. Knowledge of social network analysis ($n=25$)

The mean score for knowledge of social network analysis is 2.16 out of five and the standard deviation is .94 (see Table 18). When I divided the participants into two groups, namely those who participated only in Phase 1 of the study (survey) and those who participated in both Phases 1 and 2 (interviews and focus groups), the results show that the level of knowledge of social network analysis between the two groups is somewhat different. More specifically, the group who also participated in the interviews and focus groups had a slightly higher level of knowledge of social network analysis, as can be seen in the differences between

the means for the two groups ($M=2.29$ and $M=2.0$ respectively). However, this difference is not statistically significant.

Experience with Social Network Analysis

During the survey in 2011, I also asked participants to respond to the following question: What is your experience with social network analysis? Participants were able to respond using a four-point Likert-type scale ranging from “no experience” to “a lot of experience.” Figure 34 visually illustrates the results of ratings. The majority of the participants indicated either no experience (52%) or little experience (24%) with social network analysis. Only 24% of the participants reported that they had some experience with social network analysis and only 4% reported having a lot of experience with social network analysis.

What is your experience with social network analysis?

Answered: 25 Skipped: 0

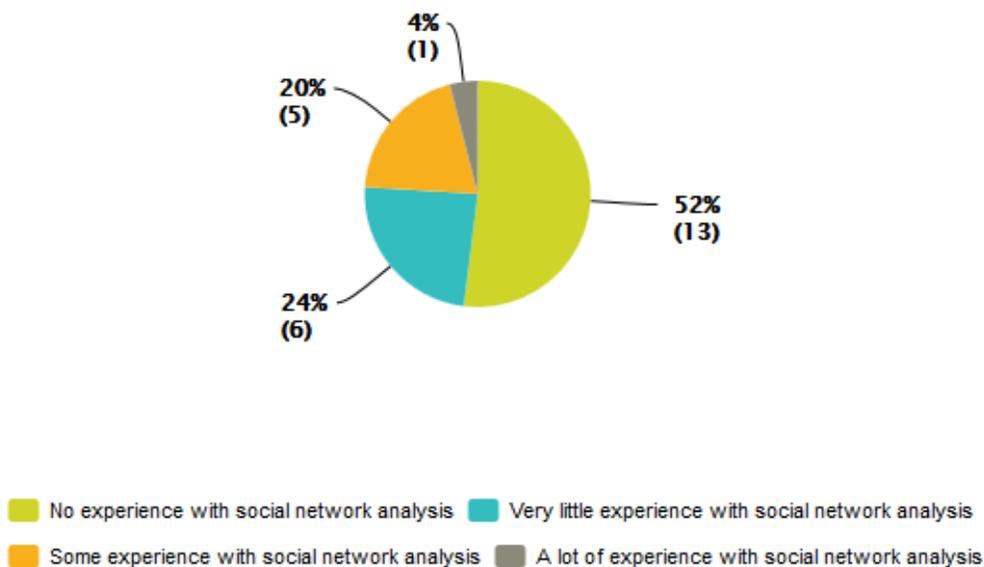


Figure 33. Experience with social network analysis ($n=25$)

The mean score for experience with social network analysis is 1.76 out of four, and the standard deviation is .93 (see Table 18). When I divided the participants again into the same two groups based on participation in the phases, the results showed that the level of knowledge of social network analysis between the two groups was different again. More specifically, the group who also participated in the interviews and focus groups had a higher level of experience with social network analysis as can be seen in the differences between the means for both groups (i.e., $M=2.0$, $M=1.45$). However, this difference is not statistically significant.

Table 18

Frequencies for knowledge of and experience with social network analysis

Participants	N	Knowledge		Experience	
		M	SE	M	SE
All	25	2.16	.94	1.76	.93
Phase 1 only	11	2	.89	1.45	.82
Phase 1 and 2	14	2.29	.99	2	.96

Section 2: The Use of Social Network Analysis as a Process Tool

[Social network analysis] is a very visual way to explain how we work together and with whom.—Energy 2

I'd be skeptical if anyone says [the social network analysis results] wouldn't change their view.—Natural Conservation Focus Group

In this second and most important section of this chapter, I describe the results as they relate to the use of social network analysis as a process tool. The results presented here are based on the analysis of the interviews and focus groups from Phase 2. Four main themes emerged, namely:

(1) how well social network analysis represents data; (2) the usefulness of social network analysis for a network; (3) the usefulness of social network analysis for organizations in general; and (4) critiques of social network analysis.

As can be seen from the quotes above, the majority of participants thought that social network analysis is a useful process tool for understanding and decision-making in networking and collaboration. Participants felt that social network analysis represented their realities of networking and collaboration well, suggesting that this representation is useful for both networks of organizations as well as their own organizations. Nevertheless, some participants provided a critique of social network analysis. In particular, one participant who had an experience with social network analysis in the past suggested that the effort to produce social network analyses requires too many resources.

This section is divided into five parts. In the first part I present the ability of social network analysis to represent collaboration and networking. In the second part, I illustrate the usefulness of social network analysis for an overall network. In the third part, I present the usefulness of social network analysis for organizations. In the fourth part I portray how social network analysis assists in decisions regarding collaborative endeavours. Finally, in the fifth part I present critiques raised of social network analysis. Table 19 contains an overview of the themes and corresponding subthemes.

Representation of Networking and Collaboration

During the interviews and focus groups a main topic of focus was the way in which social network analysis can and did represent networking information among organizations. When presented with the sociograms during the interviews and focus groups, many participants felt that the social network analysis accurately represented the level of networking in 2011, and some

participants stated that they were not surprised by the results. Additionally, participants felt that social network analysis was able to provide new knowledge, such as information about existing collaborations. Nevertheless, participants did list multiple issues as limitations of social network analysis, some of which were related directly to this particular study

Table 19

Overview of themes and subthemes with regards to the usefulness of social network analysis as a process tool

Theme	Subtheme
Representation of networking and collaboration	Accuracy of representation
	Factors influencing accuracy
	Representation of new information
Usefulness for a network	Understanding existing collaborative structures
	Discovering (and connecting to) organizations previously unfamiliar
	Reporting and funding
	Study specific usefulness for the network
Usefulness for organizations	Identifying potential collaborations
	Informing decisions related to collaboration
	Organizational learning and motivation
	New organizations in sustainability or refocusing of organizational goals
Critiques of social network analysis as a process tool	Organizational responsibility
	Snapshot only
	Complexity of the tool versus the helpfulness
	Energy required versus helpfulness
	Framing collaboration as too positive
Study specific critiques	

Accuracy of representation. Numerous participants felt that the sociograms presented the level of networking and collaboration quite well. For example, Energy 2 and Energy 4 suggested that the network in particular ($n=25$) was “fairly” and “pretty” accurate. By and large, participants were not surprised by the sociograms, which indicates an accuracy of representation reflecting participants’ own perceptions of the networks. First, several participants affirmed the position of their own organization in the sociogram. For example, when presented with the sociogram, one of the participants in the Natural Conservation Focus Group suggested “it [representation of collaboration] makes sense from [pause], I can only speak from [our] point of view, makes sense to me.” Similarly, Transportation 2 was very clear when speaking about the location of their own organization: “This is what I thought we would see. This confirmed what I previously thought,” suggesting that, at least in the case of this particular organization, the sociogram accurately reflected the reality. Second, several participants were not surprised at the overall level of networking and collaboration represented in the sociograms. For example, describing the overall level of collaboration among all organizations in the network ($n=25$), Energy 4 suggested:

I wasn’t all that surprised and I would say – it just could be mostly because I just personally know so many of these people of these organizations so I can only assume that they all know each other too, which I know they do, so I wasn’t overly, I wasn’t surprised to see it – I was happy to see it.

Factors influencing accuracy of representation. Along with perceptions of social network analysis as an accurate representation of networking and collaboration, some participants identified the limitations of using social network analysis for this particular study. Limitations identified included (1) a lack of differentiating types and strengths of collaborations,

(2) missing collaborations, (3) the method of categorizing organizations, and (4) the timing of the survey.

Types and strengths of collaboration. Particular to this study, Conservation 1 and a participant in the Food and Agriculture Focus Group both suggested that the presentation of networking and collaboration results in this particular research did not allow for identification of the type and level of collaboration between the organizations, saying “it doesn’t put any weight on the value of the relationship.”

Missing collaborations. Conservation 1 and a participant in the Natural Conservation Focus Group also suggested that, in the case of large organizations, social network analysis may miss some of the collaborations because there is often more than one person involved in collaborative projects. Thus, if only one person completes the survey, actual collaborations may be missed in the social network analysis. Similarly, Justice 2 suggested that with larger organizations and, in particular those that focus on different issues (e.g., social justice), this analysis does not represent the actual connections that the organization has, suggesting that, for example, an organization’s level of connections is underrepresented because only environmental connections are explored.

Likewise, a participant of the Food and Agriculture Focus Group suggested that, due to the focus on environmental organizations, the survey missed some organizations that would not think of themselves as environmental organizations, such as community gardens and organizations working on food issues. Thus, several participants identified the small number of participating organizations and the resulting lack of identified collaborations as a limitation of this particular study.

Categorization of organizations. Some participants stated that they found the survey difficult because it required organizations to choose one particular environmental category. For example, Transportation 2 suggested, “because it puts [organizations] into boxes ... it only shows half of who we are.”

Timing of survey. Multiple participants spoke about the fact that collaborations form and change over time, and thus former and future collaborations were not included in the study. For example, Energy 2 suggested that social network analysis, at least in the case of this study, was limited to the particular point in time of data collection. The participant suggested:

Connections exist in a time and a place. And so when I was filling out the survey last summer, there [were] organizations that I worked a year ago but couldn't include them, organizations I was about to work with but couldn't include them.

Similarly, Energy 4 identified timing as an issue for the particular organization because the organization does seasonal work, meaning that during and before the survey, the organization had a lower amount of active work.

Representation of new information. Additional positive reactions to the sociograms included that many participants indicated some level of surprise at the results presented in the sociograms, suggesting that the information provided by the sociograms was different from what they expected. For example, one participant in the Energy Conservation Focus Group suggested, “I think it [sociogram] is more connected than I had expected it to be.” For instance, one participant in the Natural Conservation Focus Group explained, “I was surprised; there is all sorts of organizations that I hadn't even heard of.” Similarly, Other 1, whose organization is not connected to any of the other organizations, said: “I totally understand that [our organization is not connected] and would be surprised if it were any other way ... but ... I did not know about

all of these [organizations]”, pointing to the others on the sociogram, “I mean I knew there were some [organizations] but I wasn’t aware of all of them, not at all ... but I did not know about all of these.”

Usefulness for a Network

The second overall theme that emerged in terms of the usefulness of social network analysis was directly related to networks of organizations. Participants identified multiple aspects of social network analysis that they perceived as providing assistance or advantages for networks of organizations in relation to collaboration, including the ability to understand existing collaborative structures, discovering organizations that they were previously unfamiliar with, the utility as a tool to report on their organizations and the network, and its usefulness in work with funders.

Understanding existing collaborative structures. Multiple participants declared that the sociograms in particular provided a different understanding of the level of collaboration. For example, Conservation 1 suggested that social network analysis helps those within a network to better understand the existing structure of collaboration including its intricacies: “I think it [social network analysis] is useful from the point of view that the groups that are participating see the complexity of the networking that is there.” Energy 2 supported this perspective:

I would say that the benefit is knowing who is out there and to know who the people are ... and I think it [is] also where the gaps are. It shows you what collaboration is not happening even [where] it would make sense.

This knowledge then, according to Other 1 leads to a better understanding of collaboration which in turn will increase the effectiveness of collaboration:

I think [social network analysis] is a good thing ... It seems like this kind of stuff [collaboration] is going on, whether you understand it or not, and to understand it then helps to advance it and make it more effective.

Discovering (and connecting to) organizations previously unfamiliar. One additional subtheme to emerge was that social networking analysis was said to allow many organizations to discover organizations that they were not aware of. One participant in the Energy Conservation Focus Group, looking at the sociograms said: “it shows you right away a whole bunch of organizations you didn’t even know existed.” For those organizations that are well established, Justice 2 suggested that social network analysis may be useful to identify new emerging players. Interestingly, even the simple act of completing the survey led participants to discover new organizations. For example, one participant in the Natural Conservation Focus Group explained: “Some of these organizations I had never heard of until I got your survey ... some of them I looked up online.” This, according to some participants may lead to increasing collaboration. For example, one participant in the Energy Conservation Focus Group explained:

If we were to do something water related ... this might help to ensure we would reach out to other water groups that might not be in our immediate periphery that is already well connected. There is some value in that.

Reporting and funding. Two participants had interesting views on how networks can use the data for reporting and funding purposes. One participant in the Energy Conservation Focus Group suggested that a network could use this for reporting what organizations are doing region-wide:

What we started here would be one way to report on that in one place so people can come to it and not necessarily have to go to all the organizations to find out what each one of

them is doing. So that to me is an ultimate level of collaboration getting a message out there: we're in a new paradigm, we are all working together towards it. Here is who is involved and why and how and all that sort of thing.

A second participant in the same focus group suggested that the information from social network analysis can be used as a tool to communicate with funders about collaboration: "this could be a great thing to show a funder that is saying: why don't you guys [organizations] collaborate", suggesting that the social network analysis provides evidence of existing collaboration, something funders are increasingly requiring from organizations.

Study specific usefulness. Multiple participants described how this particular study was useful for the overall network. For example, one participant in the Natural Conservation Focus Group suggested that the simple act of participating in the study created action for the participant's organization, saying, "you [researcher] are actually, if nothing else, a vehicle for collaboration." To many participants, it was the meetings where research results were presented and offered some time for the participants to connect that made this study most useful. For example, one participant in the Energy Conservation Focus Group, explained: "of the two meetings [presentations of the results] that I was part of, I had such a wonderful time there, I learned a whole lot, I felt like we were more connected coming out of it." Similarly, one participant in the Food and Agriculture Focus Group suggested, "I think what the research has done is also spurred people to connect better." To sum up the perspectives, Energy 4 suggested:

It was really interesting to even open up to have that conversation [about collaboration] with everybody and seeing this [collaboration] from like this blue sky level ... this and now people even being much more open to collaborating because of that.

Usefulness for Organizations

Multiple subthemes emerged with regards to how social network analysis can be a useful tool for organizations. It can be used, for example, in identifying potential collaborative partners, organizational learning and motivation to collaborate for newer organizations, and it may increase the sense of responsibility for some of the more actively connected organizations.

Identifying potential collaborations. Many participants discussed how increased understanding of how organizations are connected and increased familiarity with existing organizations could lead to potential collaborations. For example, Education 5 said:

Sometimes I think ... you get wrapped up in your own world ... this is kind of opening my eyes that there is a lot of: hey I could do a neat project with [organization] ... so this kind of kicks me in the butt a bit.

Energy 2 suggested that “I think definitely it would get people thinking about other organizations that they hadn’t collaborated before,” adding that this in fact occurred to the participant.

Similarly, Energy 4 suggested that social network analysis is helpful because it identifies opportunities to connect with other organizations, “cause you know you always think of yourself as, yeah I know all those people,” adding that social network analysis allowed organizations to identify other potential collaborative partners. Later during the interview, Energy 4, looking at the sociograms, added, “It’s also a little bit disheartening... how people may not be collaborating when you can kind of see connections between them.”

Despite the positive perspectives with regards to potential partners, Conservation 1 suggested that the utility of social network analysis really depends on the type of collaboration an organization is working towards, saying:

I think it depends on what level of collaboration you are looking for and if you are looking at trying to include everyone who could possibly have an interest, I think mapping it out would probably be a good thing. For us, we tend to sort of throw it out and ask people who have an interest to come back to us.

Informing decisions related to collaboration. Some participants suggested that the results of this social network analysis may lead to more informed decisions when developing collaborations. For example, Transportation 2, talking about another organization, suggested:

Now [organization] knows who [participant] is connected to [and not connected to], so I would say I have time for three meetings this months, I am going to meet with you, you, and you [pointing to organizations on the sociogram].

Similarly a participant in the Food and Agriculture Focus Group suggested:

I think it would give us a big who ... Who is out there, who shares similar goals, how can we connect with, if they're connected to a group of people that we want to access, they would be the main person to do the pitch to the other group.

Energy 2 observed, "I think definitely it would get people thinking about other organizations that they hadn't collaborated before."

Organizational learning and motivation. Some participants suggested that social network analysis can help organizations better understand their own position and learn from that perspective. For example, Education 5 suggested, "[organizations] might see someone on the list and say: why am I not working with them because my colleague is working with them?"

Beyond understanding and questioning one's own location in a network, Justice 2 suggested that using social network analysis may also lead to knowledge sharing on collaboration:

I think it's helpful to see which organizations collaborate more because you might also learn something about that organizationally. If you see collaboration as important to your meeting your goals but you are not doing it, you might be able to do some knowledge sharing with the organizations that are [collaborating], cause there could be barriers that you put up unconsciously ... that resist collaboration and there might be some organizations that are just naturally really good at it. I think this would help you being able to name who to go to figure it out.

Similarly, a participant in the Energy Conservation Focus Group suggested: "There has never been an expectation that you'll work together with others, but if you see everyone else in town working together, suddenly you think maybe we should be working together." Likewise, Transportation 2 suggested that seeing the results may motivate organizations to increase the amount of collaboration, and Other 1 suggested that seeing the amount of other organizations may provide a sense that "hey we are not in this by ourselves, there are other people who are interested in this [particular environmental focus]." Finally, a participant in the Energy Conservation Focus Group reflected on the ability of social network analysis to encourage organizations to do more collaboration through creating kind of constructive competition:

It positions collaboration as successful, you look at this and say the more close I am in the middle the better I am [my organization] ... there is something implicit socially that is wanting me to be more closely to the middle.

New organizations in sustainability or refocusing of organizational goals. Another topic raised by participants was the ability for emerging organizations to use these results.

Justice 2 suggested:

I think it is more helpful for newer emerging organizations if they have access to this data when they are starting – they can quickly get a lay of the land and say: who do I need to talk to that are the major players that can actually – even if my goal is to connect with [organization] – who do I need to talk to get in the door there? So I think it would be very helpful for an emerging organization. For a more mature organization that's been doing this for a while, I think that's probably less valuable cause they are already at the middle and they kind of know this intuitively.

Another suggestion was that established organizations that are changing their focus or adding a new focus could also benefit from this information. One participant in the Energy Conservation Focus Group suggested that this would be helpful for organizations: “If you are entering into another area ... I was thinking ... as we move into new areas such as food.”

Organizational responsibility. One interesting perspective came from Transportation 2 when discussing the organization's central location. The participant suggested:

I know we are in the middle but this also gives us the opportunity to ... as a group: who wants in? So with that spot in the centre comes also responsibility of inviting in people who may have been excluded, right? Who is out here and realizes through seeing this: oh, you know what, I would actually rather be in there. Let's bring them in! There is nothing we lose ...

Critiques of Social Network Analysis as a Process Tool

Despite the many advantages identified by participants, critiques of social network analysis emerged, in particular in one focus group, which examined the limitations of using social network analysis as a process. These critiques included that social network analysis only produces snapshots of what is really happening, the complexity of the tool and results, the energy

required to use the tool, and that, as a tool, social network analysis may over-emphasize the importance of collaboration.

Snapshot only. One participant in the Food and Agriculture Focus Group, who was the most critical of social network analysis as a tool due to a prior negative experience, proposed that social network analysis is limited by the fact that the analysis does not go beyond a simple picture. Social network analysis shows the quantity of collaboration, but does not, for example, portray the quality of the collaboration. In the participant's words:

To me it's such a surface snapshot. It's based on a survey that you're quickly filling out ... and so you are just kind of ticking off whether or not you collaborate or you have any relationship with that organization and if so, how much. But the detail of how you collaborate, like some of the like short forays into those stories we talked about this hour, start to get into all the detail of how different collaborations worked or not, whether they were useful and – probably collaborated with the same organization several different times over several years – sometimes it was good and sometimes it wasn't. It's useful as a really short surface picture of the relationship, but even at that level it can be misleading.

Complexity of the tool versus helpfulness. A second critique by the same participant was that the amount of information produced by a social network analysis is often a barrier to it being taken up through knowledge transfer. Describing a study by another person, the participant in the Food and Agriculture Focus Group explained:

He produced a report that thick [showing one inch with his fingers] that nobody read in the end. There was no way that he could even get their [study participants] attention for long enough to explain even a bit of what was in his head. There was amazing

information in there, like amazing analysis of stuff but even in the hour presentation, he couldn't find a way.

While this may sound like an appraisal of the person conducting the study, the participant did not in any way directly criticize the person but stayed within the context of questioning the relevance and usefulness of all the findings.

Energy required versus helpfulness. A third critique by the same participant in the Food and Agriculture Focus Group was the observation that the tool, including the completion of the survey and the analysis of the data, may take more resources than it generates for the community. The participant suggested:

Like it takes so much mental energy to get your head around what this means that it's, to me in a way, it's almost not worth it. The amount of energy required to collect this information, presented it and then present it in a way that people understand what really means and what it doesn't mean ...

Similarly, Conservation 1, considering if their organization would use social network analysis, felt that the effort would be too big to map out all connections prior to a project: "we probably wouldn't map it out because it probably would take so long for us to do that."

Framing collaboration as too positive. One participant in the Energy Conservation Focus Group criticized social network analysis as, by its nature, having the potential to give collaboration too much weight. The participant explained:

It feels to me like there is a danger of feeling that an organization that is not as well connected to the other organizations isn't doing a good job. I don't think that is necessarily true, if that organization is meeting its target, reaching its target population ...

I don't know if I would feel a need to judge them poorly if they didn't [collaborate] ... I feel like it's the suggestion that you are not successful if you are in the periphery.

Study specific critiques. Several participants identified critical perspectives that were related to this particular study, including issues such as the limited amount of study participants, the length of the survey, and the insufficient time for participants to connect with each other during the presentations of the results. Several participants were somewhat wary of the results given the lack of participation and the resulting limitations of the results. For example, one participant in the Natural Conservation Focus Group suggested: "my concern with the process would be that... just the number of organizations that didn't participate" suggesting that it may have been a process issue such as the length of the survey. The second critique by the same participant in the Natural Conservation Focus Group was the length of the study. The participant explained: "I don't know how long it was so I said ok; I got a bit of time now. So I started it and then I like, no it was way too long I had to do this another time." This was supported by many other participants, including one participant from the Food and Agriculture Focus Group who said, "I don't know how to make the survey any less seemingly overwhelming, and you are doing it through the university so you have to preface it with two pages of research ethics and blah blah blah." Finally, Other 1 thought that there was not sufficient time for participants to connect with each other during the meetings where the survey results were presented.

Section 3: Suggested Improvements for Using Social Network Analysis as a Process Tool

In this third and final section of the chapter, I describe participants' suggestions for improving the use of social network analysis as a process tool. The results presented here are based on the analysis of the interviews and focus groups in Phase 2. Three main themes emerged. These were related to the data collection, data analysis, and knowledge transfer. It

may be important to remind the reader that, for the majority of participants, this was the first time they had participated in a social network analysis. Thus, their ideas for improvements are based on their experience of participating in this particular research project.

Overall, participants expressed that the survey tool should be shortened and simplified. The participants also suggested that analysis of the data should be at a higher level, meaning the inclusion of more details than provided in this study. Finally, participant suggested allocating more time for meeting other participants during the presentation of the data and adding a directory of the organizations to the study results to facilitate understanding of the organizational missions.

This section is divided into 3 parts. In the first part I present subthemes which emerged with regards to the data collection for social network analysis. In the second part, I present subthemes to emerge regarding data analysis in social network analysis. In the third and final part, I present the subthemes to emerge focused on knowledge transfer and the dissemination of results.

Data Collection

Concentrating on the survey, participants had multiple suggestions. These included using different approaches to data collection, increasing incentives for participation, and shortening the length of the survey. Participants in the Natural Conservation Focus Group suggested collecting data over the phone or in person. One participant in the Food and Agriculture Focus Group and one in the Natural Conservation Focus Group also suggested providing higher incentives for participation:

I would a) want to do more introductions and b) have them clear on what they are going to get out of it and have them convinced that they're going to lose out big time if they are not part of the final product [green directory]. (Natural Conservation Focus Group)

Finally, many participants felt that the survey was too long and suggested simplifying the survey by reducing its length. However, Energy 4, who did dread the length of the survey, also seemed to realize the necessity of a longer survey for this kind of study, "however, at the same time, I think that when you don't have a survey that long you're going to miss information at the end."

Data Analysis

With regards to analysis of data, participants had more suggestions, including more detailed analysis to include the types and qualities of collaboration and also mapping the organizations geographically. In this research, for readability of the sociograms, I chose to not distinguish between the types of networking and collaboration; that is, I represented all networking or collaboration connections equally without distinguishing levels of intensity. This prompted several participants to suggest distinguishing between different kinds of collaborations. For example, Conservation 1 suggested: "I think that you can talk about significant networking, so there is going to be major and minor." Similarly, Energy 4 also suggested that seeing the level of strength of collaboration might be useful, "if you are really trying to collaborate with somebody else, you could go and ask them, why their line is so thick, basically. If you were saying well like what are the things that worked within your two organizations." One participant in the Natural Conservation Focus Group likewise suggested, "more specifics maybe on the nature of the collaboration, if that could maybe somehow be incorporated into your network analysis ... what type of collaboration is it ... trying to tease out what's the nature [of the

collaboration].” Furthermore, Other 1 suggested that mapping organizations’ locations from a physical perspective might be useful.

Knowledge Transfer: Reporting the Results

When communicating the results during meetings with the participants, given the importance of personal interactions, some participants suggested focusing more on providing space for organizations to connect when presenting the data and adding a directory to the results. It was suggested that such actions would create more knowledge about other organizations and help participants to get to know each other.

Going beyond the results – meeting in person. Several participants stressed the importance of moving beyond presenting the results and getting people together. Justice 2 suggested using the results as a starting point to engage organizations with each other:

I think the least helpful is you do this project and you give this data and that’s it. I think was helpful about the project is the data is there but you brought people together and discuss it and to capitalize on that energy.

One participant from Natural Conservation Focus Group remarked: “It was nice to be in the same room with the group that you brought together because I don’t think we have been as a group in the same room.” Many participants, such as the participants in the Natural Conservation Focus Group and Other 1, suggested getting all organizations together for large annual or semi-annual event such as a dinner as a next step.

Presenting networking data with a directory. Some participants suggested that it would be useful to have a green guide as part of the study results for organizations to clearly understand who the other organizations are, not just how they are connected to one another. For example, Other 1, who works for one organization that was least connected observed:

I don't know what [organization x] is, I don't know what [organization y] is. I don't know what these things [organizations] are. So if I had a directory, that had a route according do this various [organizations], then I could look in there and I could see where we fit and I could see what other organizations are involved in similar kind of things.

Similarly, Energy 2 suggested:

It would be going to the next step. What I see from a green book is outlining the mission of every organization and having them maybe talk about what sort of collaboration they could do ... sometimes it is hard to do your own research. You could put it into a database and maybe link people up that way – do it!

Likewise, Education 5 suggested that “an easy accessible awareness platform” would be useful as well as “bring people together as well because green book [awareness platform] it's there you can choose to use it if you want or not, but actually creating events and reasons for people to get together.” Justice 2 also suggested that having case studies and bios of the types of collaborations as well as the missions and constituency of the different organizations.

Chapter 11 – Discussion: Social Network Analysis as a Process Tool

[Social network analysis as a process tool] is so cool! The different graphs that you had, the betweenness, the connectedness that you had ... it puts quantitative results on qualitative perceptions that I had ... I love that sort of stuff.—Transportation 2

In this chapter, I interpret the findings from Chapter 10 by assessing the efficacy of social network analysis as a process tool in collaborative work (i.e., the capacity of social network analysis to produce the desired outcomes given the required effort). I do so by structuring the experiences of using social network analysis reported by study participants within an evaluation framework focused on both process and outcomes.

Overall, as illustrated by the data, social network is arguably a useful tool in networking and collaboration. In fact, according to the large majority of participants, social network analysis improved outcomes in terms of awareness of the structure(s) of networking and collaboration, had the potential to generate action as a result of this increased awareness, and had high user satisfaction. Conversely, the process (i.e., implementation of the tool) is, according to scholars such as Reed and colleagues (2005) and in my own experience, very time and resource consuming for both those implementing the tool and those benefiting from the tool (i.e., organizations). This assessment was also articulated by one study participant who suggested that the demands of process outweigh its outcomes.²¹ Thus, in a cost benefit analysis, social network analysis may not fare particularly well, because the level of effort needed to get to the outcomes is indeed high. Efforts required for a social network analysis may include collaborative planning of the study; working closely with important stakeholders to champion the study; meetings to

²¹ It is important to note that this was the only participant with this perspective and may have to do with a past negative experience with social network analysis.

explain the study limitations and ethical considerations; learning a different data analysis tool (if not yet familiar with it); deliberate timing of the survey, analysis and presentation of results; and conducting meetings to discuss the results and next steps. Nevertheless, if those implementing the tool are able to lower the costs (i.e., decrease the amount of time and resources needed by, for example, ensuring a brief and concise survey tool) without jeopardizing the outcomes and the utility of the results for the community, the benefits may very well outweigh the costs. Analyses presented in this chapter will assist those considering the use of social network analysis in making informed decisions with regards to the costs and benefits of social network analysis, and provide them with guidance on how to lower the overall costs.

Chapter 11 is divided into four sections. In the first section, I present the evaluation framework I applied to assess the efficacy of social network analysis as a process tool in networking and collaboration. In the second section, I provide an interpretation of the findings in Chapter 10 as they relate to the process of social network analysis, along with my reflections as the person implementing the tool. In the third section, I provide an interpretation of the findings in Chapter 10 as they relate to the outcomes of the use of social network analysis. In the fourth and final section, I list recommendations aimed at lowering the costs and increasing the chances for success for those implementing social network analysis of organizational networks.

Section 1: Evaluation Framework

Given the increased focus on collaboration, it is reasonable to assume that tools to aid the development of networking and collaboration will gradually become more vital. However, just like social programs, tools to aid collaboration should be thoroughly assessed with regards to the level to which they are successful in achieving their goals. Hence, social network analysis should be evaluated in order to identify (a) the level to which it is successful in achieving its

anticipated outcomes (i.e., increase the level of understanding of existing networking and collaboration among organizations) and (b) which aspects could be altered to make it more successful. In order to methodically assess social network analysis, a well-thought-out evaluation framework is important.

Within the field of evaluation, two areas of foci are prominent: outcome and process (Patton, 2002; Posavac & Carey, 2007). The value of a program, project, or service can be evaluated by assessing its outcomes, namely how successful it has been in achieving the intended goals. Programs, projects, or services can also be evaluated by assessing the degree to which a program, project, or service has been implemented as well as the challenges and success of the process. These two main types of evaluations (i.e., outcome evaluation and process evaluation) can be done either separately or concurrently. When used together, these two evaluation approaches can create a limited version of a cost-benefit analysis.

Tools such as social network analysis can be evaluated in a similar way by examining both the outcomes of social network analyses and the process of conducting a social network analysis (i.e., the implementation of the tool). Contained in Figure 34 is a visual illustration of the evaluation framework developed to evaluate social network analysis as a tool to assess networking and collaboration among organizations in this study.

The process evaluation aspect of social network analysis as a tool in this study included assessments of several different phases in the development of social network analysis, including conceptualization, ethical considerations, data collection and analysis, and knowledge mobilization of the results. Process evaluation allows for insight into the costs of using social network analysis. The outcome evaluation aspect of social network analysis includes assessments of intended outcomes such as general awareness and knowledge of network and

collaboration among the participants, and decision-making based on the knowledge. Outcome evaluations can be used to measure the benefits of using social network analysis as a process tool in networking and collaborative development. As a whole, analyzing both the process and outcomes of implementing social network analysis allows for a holistic perspective of both costs and benefits.

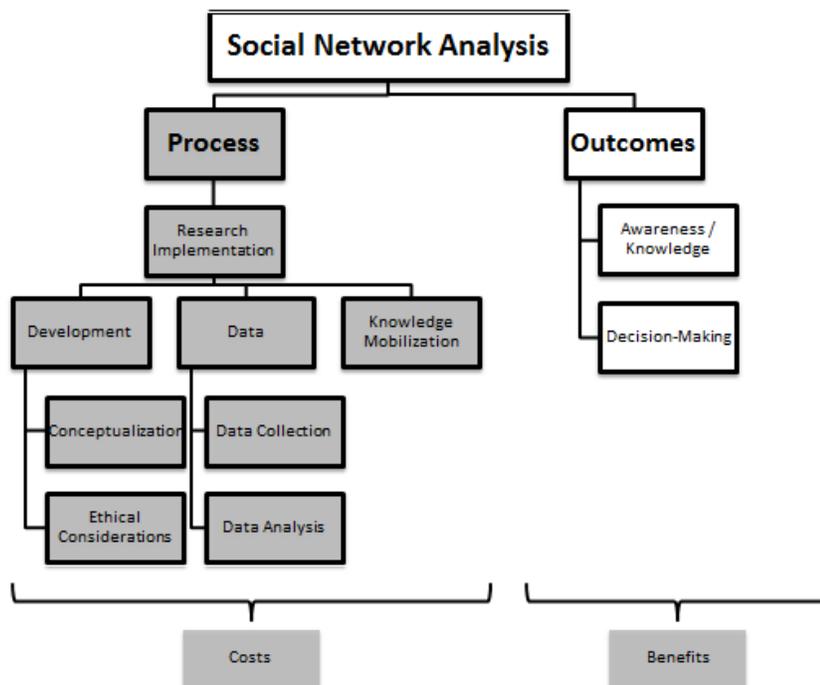


Figure 34. Evaluation framework.

Section 2: Process Evaluation

Social network analysis provides a structured approach that generates important empirical evidence, however, as discussed by scholars such as Reed and colleagues (2003), it is also very time consuming. As someone new to using social network analysis, I agree with the perspective that social network analysis is time consuming and would add that it can also be resource and energy intensive.

The costs of social network analysis as a process tool are numerous. Conducting a social

network analysis can include efforts such as: collaborative planning of the study; working closely with important stakeholders to champion the study; meetings to explain the study limitations and ethical considerations; learning a different data analysis tool; deliberate timing of the survey, analysis and presentation of results; and conducting meetings to discuss the results and next steps. Nevertheless, there are ways to ensure that implementation is smooth and that resources can be spent where they may have most impact. In this chapter, I have listed several recommendations at each stage of the process of implementing social network analysis that may facilitate implementation and the efficient use of resources.

In this section, I provide an interpretation of the findings presented in Chapter 10 as they relate to the process of social network analysis, with my own reflections on the process of implementing the tool. These interpretations and reflections are categorized under three stages of implementing social network analysis, 1) development of the research (i.e., conceptualization and ethical considerations), 2) data collection and analysis, and 3) knowledge mobilization.

Development Stage: Conceptualization

Conceptualizing a social network analysis of organizational collaboration is surprisingly complex. This complexity is the result of several issues, including the facts that social network analysis (a) tends to require more resources than other tools aimed at identifying collaboration (e.g., stakeholder mapping), (b) has different ethical issues (Borgatti & Molina, 2003) (which will be discussed later in this chapter), and (c) requires full commitment from all organizations due to the need to have full participation within bound networks (e.g., Luke & Harris, 2007). As a result, the conceptualization stage of social network analysis to investigate organizational collaboration may require increased resources as well as attention to thorough and clear communication of issues such as the goals and limitations of social network analysis.

Another factor that contributes to the complexity of developing social network analyses is the fact that, while many potential participants are used to regular studies in the social sciences, they are not familiar with social network analysis methods, and are often not used to the intricacies of social network analysis which differs from traditional research (Borgatti & Molina, 2003). In this study, only 28% of participants indicated understanding social network analysis or being able to apply social network analysis. When asked about experiences with social network analysis over 50% of the participants indicated no experience with social network analysis, and only about one in four of the study participants indicated having some or a lot of experience with social network analysis.

Conducting social network analysis requires resources to make up for the existing lack of understanding of social network analysis. The resource commitment may be particularly high in cases where the person implementing the tool has little knowledge of social network analysis as was the case in this study. Having never conducted social network analysis, the process of familiarizing myself with the tool, its potential results, and its limitations took considerable resources, in particular time. Similarly, ensuring that social network analysis is conducted in an environment where all (or most) potential participants are sufficiently knowledgeable and committed to the implementation is advisable to avoid misconceptions and increase buy-in among the participants.

I also believe that this phase of implementation is particularly complex because of the nature of exploring networking and collaboration calls for a collaborative approach. While using a collaborative approach to conceptualizing and planning the social network analysis is predicted to increase participation -- which is vital in order to get valid data, a collaborative approach will also certainly complicate implementation, which, to some degree, was the case in this study.

This is because communicating the different aspects of social network analysis to a group of people who have little to no understanding of social network analysis may be a rather demanding task. While the basic ideas of social network analysis are easy to understand for most participants (in particular the sociograms due to their visual nature), concepts such as density, betweenness, and centrality are more complex to understand. If potential participants do not understand what these measures mean, it may be very difficult for them to understand the need for these measures and the usefulness of the results for the participating organizations.

Development Stage: Ethical Issues

In developing a social network analysis to investigate organizational collaboration, there are also several ethical issues that are important to consider. These ethical issues are somewhat different from the ethical issues normally found in social research such as evaluations or needs assessments, and include issues of consent, anonymity, and confidentiality (Borgatti & Molina, 2003) as discussed in Chapter 2. Even if a social network analysis is not conducted by or in partnership with a university researcher, and thus does not require ethical approval, these ethical issues should still be carefully deliberated when developing a social network analysis of organizational collaboration.

Social network analysis may have different consequences for different organizations, because once a network's organizational positions are made visible through sociograms, the perceptions of certain organizations may be changed in the eyes of other network members. In other words, in making the results of an action oriented exploration of collaboration among organizations meaning, locations of participating organizations will become known. Given that social network analysis tends to frame (or is perceived by the participants as framing) collaboration as positive, perceptions of those organizations that are less central may change

negatively. This did occur to some degree in my study, as I saw some organizational representatives struggle with the realization of their organization's lack of centrality in the network. Furthermore, knowing the location within networks among organizations may expose organizations to criticism, and those located at the centre may use the information to achieve an advantage over those organizations less well connected when approaching, for example, funders or donors. Fortunately, to the best of my knowledge this did not occur among the organizations in my study.

A second ethical consideration is the fact that social network analysis generally does not permit for anonymity, because data collected has to be identified and linked to participants in order for researchers to define relationships between specific participants (Borgatti & Molina, 2003). More importantly, particularly in the context of assessing organization collaboration to improve networking and collaboration, confidentiality cannot be guaranteed. If sociograms are presented without organizational identifiers, networks of organizations may not be able to better understand their network(s) and thus would not be able to improve their levels of collaboration. However, as discussed in more detail above, identifying the organizations in graphs may pose considerable risk to organizations, in particularly those that are not very well connected.

Given these two ethical issues, conducting social network analysis will require spending considerable time making sure those participating understand the different potential consequences of participation. From my personal experience, one of the challenges is that study participants (in particular busy organizational representatives) often do not find sufficient time to thoroughly read informed consent resources, and thus may miss this vital information. Furthermore, informed consent information is progressively becoming longer and more complex. Adding a special section on the additional potential consequences of participating in a social

network analysis may further increase the demands of the consent process, and thus again lower the chances that participants will pay sufficient attention to the details. Based on the literature and these observations, it may be advisable to repeatedly address these potential consequences through the information session, in personal conversations with organizational representatives, and by providing clear but brief consent forms.

Data Stage: Data Collection

Data collection in social network analysis is relatively straight forward. There are, however, four important considerations in this process. First, the length of the survey is an important consideration. In academia and in application aimed at practice, there is always a temptation to collect more data in order to further explore potentially interesting correlations beyond the primary research questions. However, the more complex the overall research questions, the longer and more complex the survey will become. This may be reasonable for an academic endeavor, but excess information may not be useful for organizations because it will require a considerable time commitment by the organizations when completing the survey. Thus the number of necessary questions should be carefully considered. In the case of this study, I did ask many more questions than I included in my report to the organizations, and many of the participants felt that the survey was too long and that shortening the survey would have been useful.²²

A second implementation question is how long a survey should remain open for data collection, and how far back in time collaboration should be explored (i.e., what time span should questions about collaboration cover. For example, should the researcher ask about the

²² It should be noted however that the survey in this study included numerous questions related to a Green Book that were identified by community partners. Hence, the size of this survey would have been much smaller if the questions were only related to the study.

past six months or the past five years?). This is important because, if the researcher asks organizations in the survey about their different collaborations during the past six months, and the survey is open for three months, the timespan assessed ranges up to nine months and the time spans may not correspond for different organizations who completed the surveys at different times (e.g., during the first weeks and during the last weeks). Adding to this another three months for data analysis will result in some of the information being up to one year old by the time the participating organizations see any results. Collaborations are not static, particularly if collaborations form around projects, and tend to evolve over time. Thus, a snapshot that includes information that is up to one year old may not have sufficient applicability for organizations with regards to helping them make informed decisions about organizational networking and collaboration. Furthermore, as pointed out by one organizational representative, the timing of the survey should also be considered. For some organizations, collaboration is time-dependent. For example, an organization might collaborate with a faculty member at the university to do a joint project with the students during the academic semesters, or another organization might hire high school students during summer vacation. Thus if a survey asks for collaboration in the past 3 months, some important collaborations may be missed if they do not occur during the period covered by the survey.

Third, as identified above, the utility of social network analysis results is dependent on the large majority of, if not all, organizations completing the survey. My own experience was that it was very time consuming to collect answers from the less than 30% of organizations that did participate. The issue of participation is probably the biggest hurdle in using social network analysis as a tool to assess and improve collaboration. Thus, anyone trying to collect social network data for the purpose of improving overall collaboration will need to spend considerable

time and resources on generating participation. Strategies to increase the chances of receiving sufficient answers may include actions such as:

- Creating buy in early on in the study by generating a sense of ownership among potential participants (see conceptualization stage);
- Ongoing communication about the importance of participation and the potential outcomes of the assessment (see Section 3 in this chapter);
- Having one or several well-connected individuals actively champion the study; and
- Using different approaches to data collection, including, as suggested by study participants, offering paper versions of the survey, allowing participants to complete the survey over phone with an assistant, or making personal visits to organizations to encourage participation or to help the organization completing the survey.

Fourth, having to enter all data by hand prior to analysis would be very time and resource consuming. Fortunately, in the case of this study, I collected the data online to avoid having to input data from paper surveys by hand. In addition to reducing data entry time, when using complex surveys, online data collection tools such as SurveyMonkey simplify data collection because these tools can easily be set up to allow participants to skip questions if they are not applicable. This is different with printed surveys which can be hard to navigate when they are complex and contain questions that might not be relevant for all participants. Thus, I would suggest avoiding using printed surveys, or keeping them at an absolute minimum (e.g. distributing them to participants who cannot complete the survey online). Given current technology, this is indeed possible even if the researcher travels to the organization to assist them in completing the survey by using a laptop or other technological support (e.g., tablet or smartphone).

Given these four issues related to data collection, conducting social network analysis will require spending considerable resources in terms of time and potentially resources (e.g.,

purchasing a tablet). In particular, it will be necessary to spend a considerable amount of time with potential participants at the very early stages of the study (as discussed earlier) to ensure that the right questions are asked and that only absolutely necessary questions are included. Conducting this preliminary work with potential participants may increase the level of buy-in among the potential participants and increase participation during the data collection phase.

Data Stage: Data Analysis

Data analysis in social network analysis is rather complex and, if the person conducting the analysis is new to social network analysis, will require additional time. While it may be helpful if the person is well versed in statistical analysis, being new to social network analysis will require reading up on social network analysis, researching the best possible tools, and potentially practicing analysis using existing data. In my case, learning and conducting data analysis took considerable time. Over several months (during conceptualization of the study and following the data collection) I reviewed numerous books on social network analysis (e.g., Carrington, Scott, & Wassermann, 2005; Hanneman & Riddle, 2005; and Wasserman & Faust, 1994), read many journal articles, studied websites focused on social network analysis (e.g., the International Network for Social Network Analysis²³), and read several reviews of the different online programs for analyzing social network data. After choosing Ucinet as the tool for analyzing the data, I spent weeks learning the program. After learning the program, I spent several weeks preparing my research data in Microsoft excel for use in Ucinet before being able to start running the different algorithms to analyze the data. While many of these tasks are general tasks related to social research, the fact that the research area and its tools were

²³ See www.insna.org

completely new to me meant a considerable time commitment on my part. My suggestions for those considering future social network analysis projects would include taking a course on social network analysis such as the course offered by the University of Michigan that is available online through Coursera.²⁴

Furthermore, several additional considerations emerged from my reflection of this stage. First, it was important for me to remember that while my knowledge of social network analysis grew daily, and interesting possible levels of analysis frequently occurred to me, I needed to keep in mind that I was analyzing the data for the community while at the same time exploring and analyzing more complex networking phenomena which I present here but did not present to the community. The point is not to reduce the level of analysis but to carefully decide what findings to present to the community. Second, I needed to keep in mind that the data presentation had to be simple enough for the large majority of participants who were not familiar with social network analysis. Third, while triangulation (e.g., Nelson et al., 2004; Posavac & Carey, 2007) in social network analysis is relatively simple to achieve (e.g., having participants provide feedback to the sociograms), other ways of quality control (e.g., having a second person running the different analyses) may be harder to achieve, making it difficult to ensure the accuracy and correctness of the analysis. Based on these observations, it would be advisable for a person knowledgeable in social network analysis to review the analysis to ensure accuracy and correctness. However, given the limited number of people who are experts in social network analysis, this may be a very difficult or resource consuming task (e.g., level of cost).

²⁴ <https://www.coursera.org/course/sna>

Knowledge Mobilization Stage

The sociograms generated in these analyses make knowledge mobilization particularly simple. Being able to see networking and collaboration visually represented makes understanding easy for most participants. As discussed in Chapter 10, most participants indeed felt that the sociograms made understanding the existing networking and collaboration easy, and provided ample opportunity for them identify possible collaborations. Another advantage is that measures such as density and betweenness, while more complex, can also be easily explained through the use of sociograms (see Figures 7, 8, and 9 in Chapter 4).

Nevertheless, there are several important considerations in knowledge mobilization for social network analyses. First, given the lack of understanding of social network analysis among participants, it is advisable that written reports be accompanied by presentations. In fact, in order to provide opportunities for participants to go beyond understanding the results and work towards change, it is vital to conduct meetings with the participants to present that data and allow time for discussion of next steps. Explaining even a limited amount of data to the participants may require significant time because it will be necessary to explain the measures and sociograms and to jointly develop interpretations of the results. In the case of this study, in order to limit the time commitments required of the participants in the study, I limited the first presentation to two hours. Unfortunately, by the time participants had introduced themselves, and I had explained the concepts and presented the results, there was only little time left for the participants to discuss the findings. Thus, we had to schedule a second meeting about four weeks later. At that meeting, some new representatives came, and many of those who attended the first meeting did not remember the results, so we had to again spend a considerable amount of time repeating the results before we could start discussing what these results meant to the representatives and

determining possible next steps. According to some participants in this study, meeting on a regular basis was presented as an important way to follow up.

Second, as mentioned during the data analysis discussion, visual representation of data has to be simple and needs to be easy to read. If sociograms contain too much information, they can become too difficult to read for those not familiar with social network analysis.

Nevertheless, some participants in this study would have liked to see additional information, for example, the level of strengths of collaboration between organizations. Presenting this data would require having two sets of sociograms: one that shows the connections (to create a very simple sociogram) and another one that shows the strengths of the same connections (for those interested in the strengths), since a single sociogram covering both these findings would be difficult to read.

Third, as identified by the participants, it may be advisable to add additional tools for interpretation when presenting results back to the organizations. First, providing a directory may help organizations ensure that they have some understanding of other organizations beyond just a name. This directory could include mission, vision, contact information, and organizational foci, and would be particularly helpful for organizations that are less connected and may have been exposed fewer organizations. Second, the lines between organizations only represent the presence of collaboration. They do not represent the type of collaboration or its purpose or outcomes. For this study, it would have been helpful to provide examples of existing collaboration, which could have included showing which relationships are part of the ClimateActionWR, or which collaborations that are related to education. However, while very useful and promising from my perspective, the implementation of this may be very complex. Nevertheless, it could potentially be done by using an online tool that shows the sociograms and

allows the viewer to click on the lines representing relationships between organizations to view the particulars of the relationship.

Section 3: Outcome Evaluation

It's interesting to even open up that conversation with everybody and seeing this from like this blue sky level ... otherwise we would not have seen this, so I think that was really that was the cool part of it, just to even actually having that overview of it. And now people [are] even being much more open to collaborating because of that.

—Energy 4

As can be seen from the results of this study, there are several positive outcomes of using social network analysis, including increased knowledge of networking and collaboration, and the ability to make decisions that are more informed. In fact, the overall satisfaction with the benefits of using social network analysis, as identified by the study participants was (almost) unanimous.

In this section I provide an interpretation of the findings presented in Chapter 10 as they relate to the outcomes of social network analysis with, added reflections from my experience implementing the tool. To provide an overarching structure for each stage, I will discuss the outcomes with regards to awareness and knowledge, decision-making based on the awareness and knowledge gained, and overall satisfaction with the process.

Awareness and Knowledge

The results of this study confirm that participants' experiences with social network analysis were positive, and that using it as a tool increased their general awareness of networking and collaboration in Waterloo Region. Overall, the level to which participants found the sociograms to be an accurate reflection of the level of networking and collaboration in 2011, and

the perceived utility of the results for networks and their organizations suggests that social network analysis is a useful tool to increase the understanding of networking and collaboration. In fact, as discussed in Chapter 10, most participants suggested that the sociogram of the participating organizations ($n=25$) was largely accurate, and many participants also suggested that the position of their own organization was accurate. Similarly, the fact that several participants reported that seeing the sociograms provided some surprises would additionally suggest that social network analysis, in this case, not only confirmed existing knowledge but also provided some potentially vital new information. Many participants saw the utility of these results for overall networks (e.g., discovering organizations previously unfamiliar) and their own organizations (e.g., identifying potential collaborations), again suggesting usefulness of social network analysis as a process tool. Finally, several participants also discussed how the additional knowledge provided by the use of social network analysis may lead to actions for networks or their own organizations. These actions could include connecting with and identifying potential collaborations with formerly unknown organizations, and learning from other organization's connections.

There are three findings that are particularly worth mentioning related to the utility of social network analysis. These findings were somewhat unexpected and seem to provide additional insight into the usefulness of social network analysis as a process tool. First, as presented by one participant, the idea of using the social network analysis results as a tool to report to funders and apply for further funding is noteworthy. The idea is that, given the focus on collaboration, having the results can help organizations illustrate what has been achieved with funding that was contingent on collaboration. Similarly, if organizations consider applying for funding, using the results of the social network analysis, this may indeed provide a great venue to

illustrate existing partnerships of an organization.

The second noteworthy finding is that awareness of the location of one's own organization can provide two new perspectives: motivation and recognition of responsibility within the larger network. The first effect of perspective is to be expected; that is, being on the outside may potentially motivate organizations to consider how to improve their collaboration and networking to move closer to the middle. What was surprising was that a representative of one of the most central organization suggested that becoming aware of the organizations' central position created accountability towards the other organizations, and a motivation to link others that have not been networked very well in the past.

The third noteworthy finding was introduced by one participant who suggested that knowing which organizations have high levels of collaboration allows other organizations to approach these organizations to ask them share their knowledge, including their knowledge and experiences with collaboration. For example, ClimateActionWR and its parent organization Sustainable Waterloo is in a great position to share their expertise on collaboration with those organizations less involved in collaboration.

Decision-Making

The results of this study further confirm that participant's experiences with social network analysis may go beyond building a better understanding of networking and collaboration, and suggest that the knowledge gained through this project may influence decision-making among organizations. Regrettably, given the short time between the presentations and the interviews and focus groups, interview participants had not yet made decisions that may have been influenced by the study. Thus, their ideas of how this knowledge could affect decision making were only hypothetical. Nevertheless, in the case of this study,

several participants suggested some areas where they believed this knowledge would influence their decision-making. First, some participants suggested that the knowledge would help them to identify organizations to collaborate with in the future. Second, the information could be used when considering new areas of concentration for organizations. A board of directors could use the information from this study during strategic planning by identifying areas that are not sufficiently covered by other organizations, as this network analysis revealed that, for example, there are only a handful of organizations that focus on food. In addition, thanks to the sociograms, these organizations seeking to expand their focus would know right away which organizations to connect with to start conversations.

Section 4: Recommendations for Implementation

As identified in the second section of this chapter, conducting a social network analysis of organizational networking and collaboration requires a significant investment of resources. Whether the final outcomes will be worth the investment will depend on both the amount of resources and the level of outcomes. With every potential project aimed at analyzing networking and collaboration, the question will be how much will the outcomes (i.e., that is improved networking and collaboration) be worth. Despite the large investment required for these studies, the positive findings from this study may suggest advantages of using social network analysis as a process tool. This is particularly true for studies of complex issues such as environmental challenges. For example, an increased capacity to protect sensitive local landscapes through successful collaboration may outweigh the costs of conducting a social network analysis of local and provincial organizations aimed at protecting such landscapes.

Once a decision has been made to conduct a social network analysis of networking and collaboration among organizations, planning a sound implementation process may be vital. The

following recommendations are aimed at minimizing the amount of resources required to conduct a social network analysis of organizational networking and collaboration.

Recommendations during Development Stage

Based on the literature, the results of this study, and my personal experience I would suggest that, given the potentially limited level of understanding of and experience with social network analysis, increased resources will be needed to ensure that all potential participants have a sufficient level of understanding of the objectives, advantages, procedures, ethical considerations, and resource commitments necessary to successfully conduct social network analysis. Thus, I have four recommendations for the conceptualization stage:

- Identify several key stakeholders that will spearhead the development of the social network analysis to increase buy-in among potential participants.
- Provide several information sessions for potential partners to ensure that all potential participants have sufficient knowledge of social network analysis to avoid misconceptions and unmanageable expectations (e.g., recognizing that social network analysis is only a one-time snapshot), and create clarity regarding the level of resources needed.
- Consider ensuring some form of commitment to the use of social network analysis from the stakeholders and those attending the information sessions to ensure participation when collecting data.
- Spend considerable time communicating the ethical issues and the potential consequences of social network analysis, as they differ from traditional research. Of particular importance is the fact that the analysis will not be able to guarantee confidentiality, thus clearly communicate how this issue will be handled.

Recommendations during Data Stage

Based on the literature, the results of this study, and my personal experience planning and conducting data collection also suggest that, depending on the knowledge of the person conducting the social network analysis, increased resources will be needed to develop a survey

that is reasonably short, and allows for easy data entry and uncomplicated data analysis, and quality control, to plan for the best possible timing of the survey, and to ensure participation by all or most organizations, Thus, I have eight recommendations for the data stage:

- Keep the survey as short as possible to increase participation and lower time commitment for those participating in the study. Identify the most important questions and eliminate those questions that are not necessary.
- Carefully plan the timing of the survey, the analysis, and the presentations to avoid those months where individuals have less collaboration, are very busy (e.g., fiscal year end), or are potentially absent (e.g., July and August).
- Collect data over a short period of time (e.g., 1-2 months). This will provide a more accurate snapshot.
- Keep the survey open less than one month, and plan so that analysis can be done as soon as possible following the data collection to avoid presenting data to the community that is irrelevant due to its age.
- Use the key stakeholders (see Recommendation 1 in Development Stage) to champion the data collection by contacting potential participants and stressing the importance of their participation.
- Ensure that the person conducting the social network analysis has sufficient technical and practical knowledge to avoid time delays and confusion. Otherwise, commit additional resources and plan for time to offset issues such as knowledge gaps or potential delays.
- Focus on electronic data collection and avoid or minimize paper data collection.
- During data analysis, bear in mind that the results need to be presented in a way that is easy for the community members to understand, and that presentations need to focus on helping community members to understand and improve networking and collaboration.
- Have a second person review the analyses or re-run the analyses to ensure the quality of the results.

Recommendations During Knowledge Mobilization Stage

Based on the literature, the results of this study, and my personal experience of the knowledge mobilization process suggest that additional resources need to be provided to ensure

that all participants have access to information about the other organizations, understand the results, can see the different types of collaborations, and have an opportunity to discuss next steps among each other. Thus, I have five recommendations for the knowledge mobilization stage:

- Present the data at meetings with the participants rather than just sending a report to ensure that participants have opportunities to engage with each other and plan for next steps.
- Ensure all results (i.e., sociograms and measures) are simple and easily understood. Consider providing handouts with definitions of key terms (e.g., density, betweenness).
- Schedule meetings that are at least three hours long to allow for both presentation of the results and discussions among the participants. Consider scheduling ongoing meetings (e.g., semi-annually) to continue the discussion.
- Provide a directory of organizations at the meeting including (at least) organizational foci, missions, and contact information.
- Consider finding a way to present not only the existence and/or strengths of relationships, but also descriptions of the types of collaboration found in the study.

Chapter 12 - Conclusion

Under the right circumstances, groups are remarkably intelligent, and are often smarter than the smartest people in them.—James Surowiecki 2004, p. XIII

This chapter is divided into seven sections. In the first section, I summarize the principal findings of the study and integrate the three research aims using a metaphor. In the second section I discuss the practical and theoretical implications of these findings. In the third section, I reflect on the study's limitations and strengths. In the fourth section I discuss the transferability of the findings. In the fifth section I propose some key topics for future research. In the sixth section I propose some strategies for knowledge mobilization. Finally, in the seventh section provide some personal reflections as a researcher studying collaboration

Section 1: Principal Findings and Integration of Findings

Failure to create cohesion among environmental organizations, not following good/emerging practice (i.e., creating collaborations without sufficiently diverse voices), and implementing social network analysis without sufficient attention to the numerous costs may impact the ability of organizations and their collaborative partners to successfully address complex problems. In order to avoid investing resources without achieving intended outcomes, organizations and their collaborative partners in Waterloo Region and elsewhere need to pay close attention to intentionally create cohesion, follow good/emerging practices, and apply tools such as social network analysis purposefully and carefully. Table 20 outlines the research aims, main findings, and the main sub-findings of the study.

Table 20.

Research aims, main findings, and main sub-findings.

<p>Research Aim 1 Empirically study the level of networking and collaboration among organizations addressing environmental issues in Waterloo Region.</p>
<p>Main Finding</p> <ul style="list-style-type: none"> • Most environmental organizations in Waterloo Region are well networked, and collaborate broadly with each other through high levels of cohesion and in a decentralized structure, creating strong local collaborative capacity to address complex environmental challenges. <p>Sub-findings</p> <ul style="list-style-type: none"> • Most organizations, independent of their size and foci, engage in collaborations. • The majority of organizations considered the current level of collaboration (quality and quantity) as relatively ineffective. • A range of collaborations exists in Waterloo Region with different scopes, hierarchical structures, and levels of formalization. • The majority of organizations would like to see increases in collaboration effectiveness including some formalization.
<p>Research Aim 2 Contribute to theory and practice development by examining definitions, values, and practices of organizational collaborations by practitioners in Waterloo Region.</p>
<p>Main Finding</p> <ul style="list-style-type: none"> • Environmental organizations in Waterloo Region share similar reasons for and definitions of collaboration, and tend to apply many of the tasks and steps identified in the literature. <p>Sub-findings</p> <ul style="list-style-type: none"> • While collaboration is generally seen as positive, many participants were not convinced that collaboration increases three particular aspects commonly identified in the literature: political influence, influence on funders, or assists in gaining new and additional funding. • Many organizations may not develop and maintain collaborations deliberately; that is collaborations seem to be developed ad hoc. • Two noteworthy ideological tenets emerged: providing people with a voice, and working for the common good. • This study suggest the existence of an additional layer to effective collaboration not explicitly discussed in the literature, namely <i>why</i> organizations collaborate.
<p>Research Aim 3 Investigate the usefulness of social network analysis as a process tool to improve understanding and to increase informed decision-making regarding collaboration.</p>
<p>Main Finding</p> <ul style="list-style-type: none"> • While social network analysis is a useful process tool and has the potential to produce valuable outcomes, the costs of implementing social network analysis are numerous. <p>Sub-findings</p> <ul style="list-style-type: none"> • Conceptualizing and implementation of a social network analysis of organizational collaboration is a relatively complex undertaking given the needed resources, expertise, ethical issues, required organizational commitments, and relative lack of familiarity (knowledge of and experience with) of social network analysis among potential participants and requires a sound process • The sociograms generated in social network analysis simplify knowledge mobilization.

The way in which the three study aims and their findings are connected is that good collaboration requires more than ability to practice collaboration but also knowledge of one's role in collaboration, and how to assess one's position in collaboration. More specifically, good organizational collaboration requires the following:

- Knowing and understanding the position and relationships of one's organization within a system/network of organizations (see Study Aim 1);
- Understanding and agreeing to the reasons for collaboration, agreeing to common definitions, and possessing the capacity to collaborate (see Study Aim 2); and
- Possessing the tools and capacity to assess and adjust the relationships between those collaborating (see Study Aim 3).

The findings and their connections can be illustrated through the use of a metaphor. Authors such as Tapscott and Williams (2010) have used the flying of a flock of starlings, called a murmuration, as a metaphor to describe the processes of collaboration. First, the starlings fly in these systems as a means of protection from predators and they fly interdependently and according to collaborating rules (Study Aim 2: reasons for collaboration and practice of collaboration). The starlings also fly in systems that are based on the relationships between the birds closest to them; that is the starlings know at any given time how close they are to the next bird (Study Aim 1: understanding of collaboration structures) and constantly assess and consequently adjust their position within the flock (Study Aim 3: using social network analysis to assess collaboration structure). All three aspects are necessary for the starlings to successfully create the murmurations to protect themselves from predators without crashing into each other given the high speeds at which they fly. I believe, that, in many ways, these are the same aspects that allow for successful collaborations among individuals, organizations, and even countries.

Section 2: Study Significance

The mobilization of knowledge from theory into practice is a topic of interest among many scholars; particularly those in fields that are intended to train students as scholar-practitioners such as community psychology. The discussions on this topic include questions such as how to ensure research is transformative (Mertens, 2009), how to balance academic excellence with relevance in practice (Frenk, 1992), how to ensure empirical data is translated into policy (Caplan, 1979), and how to increase the uptake of new discoveries and theories in practice (Rogers, 2003). One of the general perspectives is that practice often lags far behind research findings and theory development, making it important for scholars to check in with those working in the field. Doing so helps both researchers and practitioners alike because practice can inform theory and theory can inform practice. The advantage for scholars is that they can see if and how their theories, concepts, or models are being implemented by practitioners and if they provide them with increased benefits; that is testing the theories, concepts, or models in a real context allowing for refining them. The advantage for practitioners is that this allows them to (hopefully) be exposed to better and emerging practices and thus have an opportunity to both increase the effectiveness and efficiency of their practice and to contribute to improving theories, concepts, and models.

The findings of this study contribute to filling the gap in research on organizational collaboration effectiveness and the usefulness of network analysis as a process tool to assess and improve collaboration among organizations. Further, the findings of this study have several theoretical, practical, and methodological implications. Theoretical implications include the need to refine the definitions of collaboration as a result of observing collaboration practice and the need to focus on closing the gap between theory and practice in collaboration. Practical

implications include the necessity for those practicing collaboration (e.g., organizations, funders, and the field of community psychology) to pay attention to good/emerging practices.

Methodological implications include the proposed strategies for those using social network analysis as a process and/or research tool.

Theory

The results of this study contribute to theory by presenting what network structures and collaborations actually look like in practice through the use of social network analysis. The perspectives on connections and types of collaborations presented in this study may assist those writing about organizational collaboration practice and creating models in understanding the different types of connections (i.e., networking and collaboration) and, perhaps more importantly, the different types of collaborations that may occur. The literature generally distinguishes between networking, collaboration, and other forms such as joint ventures, but it lacks clear distinctions between the types of collaboration. Thus, it may be useful to strengthen the theoretical definitions of collaboration in order to distinguish between types of collaborations. As described in Chapter 8, study participants used the term collaboration to refer to organizational collaborations of different scopes, hierarchical structures, and formality. However, it is important to, for instance, differentiate short-term collaborations among two or more organizations that address one relatively simple issue such as communicating a particular project or environmental issue with the public (i.e., educational projects), from longer-term collaborations among multiple organizations that are aimed at addressing complex environmental issues such as global climate change or air quality. In fact, there may be a real danger in the tendency to assume that all collaborations are the same. Further research on different kinds of collaborations will be required to identify standards of good collaboration and to develop a

system of identifying the different types of collaborations.

A second potential contribution to theory is the recognition that, in the case of environmental organizations in Waterloo Region, collaboration practice differs from theories of good/emerging collaborative practice. In fact, this may be one of the most surprising and interesting aspects of this study, thus the question: why this divergence? One explanation may be that while theory is idealistic, practice is more realistic. It is indeed possible that the lack of resources and the immediacy of certain situations (e.g., new policies threatening the conservation of land) do not allow for those at the front-line to spend sufficient time to ensure due diligence when collaborating with other organizations. This would also explain why there is a difference between theory and practice with regards to the selection of partners. In this study, the majority of participants identified that their selection criteria is related to familiarity and trust, which may create homogenous collaborations based on members that share the same or similar perspectives while most theory suggests that collaborations should be heterogeneous through the inclusion and diversity of voices. The reason for their selection criteria could again be related to a lack of time and resources because including those with differing opinions requires a lot of time to negotiate a common understanding.

What further complicates this is the fact that there is no significant difference between perceptions of collaboration (i.e., measurements of benefits, challenges, quality, and quantity) and practice as described in Chapter 6. It would make sense if those less central in the network had the view that collaboration does not provide sufficient benefits or rated the challenges high. On the other hand, those very central in the network would have been expected to rate the benefits higher and the challenges lower. However, neither was the case. While I may not have found statistical significance due to the low number of participants (the correlation estimate and

the scatter plots did not suggest that a larger sample would have produced different results), the reason for it may lie in the fact that collaboration is related to time which was a finding in Chapter 10. What this may indicate is that the organizations on the outside of the network may in fact be there because of the timing of the survey, suggesting that it is not their disinterest with regards to collaboration that is the reason for the low centrality. Another explanation may be that those on the outside with low centrality may, despite low levels of networking and collaboration still perceive collaboration as largely positive.

Future studies assessing how to encourage implementation in empirical findings and theories in practice may go a long way toward bridging the theory-practice gap and improving the overall outcomes of collaborations. In particular, assessing how to move beyond the immediate need of organizations to bring inclusion of diverse voices closer will be vital. Thus, it may be advisable to complement theories such as the ones presented in Chapter 2 with tools that help assess, review, and improve collaboration.

A third potential contribution to theory is the fact that collaboration is perceived positively among the participating organizations in Waterloo Region. One potential reason to explain such positivity is the high density of the network as well as the horizontal structure of the network. More specifically, having a non-hierarchical structure where several organizations are the movers and shakers and possess power and influence may be responsible for positive experiences with collaboration, thus increasing the perception of collaboration as increasingly positive. This may be an interesting point of exploration for future studies by trying to identify if there is a relationship between the structure within networks and the perceptions of collaboration among the different organizations.

Practice

The main implication of the findings of this study for practitioners is similar to the implications for theorists, namely, that there is need to pay attention to good/emerging practices when conducting collaborations and when using social network analysis as a process tool. It is clear from the results of this study there is a tendency for organizations to engage in collaborations with great intentions but limited amount of preparation and deliberate consideration. This may result in negative outcomes, or a failure to maximize the outcomes that could be achieved through collaboration. Hence, if organizations choose to implement collaborative approaches to address challenges, it is advisable to pay attention to questions of good/emerging practices of collaboration. Organizations may need to step back and review their ideas, goals, and past collaborative actions and consider what steps need to be taken to increase the potential of successful outcomes in future collaborations.

Applying social network analysis. One contribution this study makes to collaboration practice is the finding that social network analysis, while resource-intensive, may successfully be used as a process tool to assess and potentially improve networking and collaboration. Though further research is needed to refine and validate this finding, it nevertheless provides a strong case for further development of social network analysis tools for application in practice.

Furthermore, while social network analysis may not be the only applicable tool, given the findings in this study, it may be considered as a viable option despite the potentially high level of resources required because, if done correctly, it will provide organizations with empirical knowledge of their current level of collaboration. However, if social network analysis is applied to assess networking and collaboration, caution is needed and it is advisable to pay attention to the emerging perspectives of how to best implement social network analysis in the context of

organizational collaboration.

Funders. While many funders currently require organizations to collaborate in order to receive funding, the findings of this study suggest that it may be advisable to pay more attention to HOW organizations collaborate rather than on the simple notion that they should collaborate. Rather than simply asking organizations to partner to apply for project funding, it would make sense for applicants to be required to provide evidence of the degree to which the original project idea was developed through a collaborative process that follows good/emerging practices. This may go a long way for funders in ensuring that the projects they fund have been developed using the expertise, skills, and experiences of a broader group and that there is buy-in from many stakeholders. The funders may also ask why applicants are planning to collaborate with particular organizations. To make this task less challenging (given that funding applications are already very challenging), funders could provide some brief guidelines on good/emerging practices on collaboration. Such guidelines could include highlighting that organizational collaborations not only include those organizations that are currently already connected and have similar views, but should also seek to include those organizations with different and potentially marginalized perspectives.

Waterloo Region. Several implications emerged for strengthening networking and increasing the capacity to collaborate in Waterloo Region. The environmental organizations in Waterloo Region and the different levels of government (e.g., municipal and regional) may want to consider building on the momentum generated by this study in terms of networking among organizations. Given the findings of this study, it may be advisable to encourage networking by building upon the December 2012 and April 2013 networking events for environmental organizations, both of which I contributed to by sharing my newly gained knowledge on

collaboration. In order to increase collaborative capacity, local organizations and different levels of government in Waterloo Region may want to consider: a) increasing funding opportunities for the creation of collaborative projects aimed at broader environmental issues (e.g., air quality, transportation), b) developing a more consistent understanding of the advantages and good/emerging practices of collaboration through, for example, educational sessions, and c) actively including those organizations that are less well connected to networks of environmental organizations.

Community Psychology. Three additional implications of this study pertain directly to the discipline of community psychology. First, enhancing collaboration effectiveness and addressing the negative impacts of environmental challenges on individuals and communities are natural areas of foci for community psychologists. Community psychology's founding members clearly set out to focus on collaborations between academics, communities, and citizens (Bennett et al., 1966). As a result, there has been a sizable amount of research and publications on the practice on collaboration in community psychology (see, for example, Dewulf et al., 2004; Foster-Fishman et al., 2001; Nelson et al., 2001; Wolff, 2011). This dissertation provides an example of conducting a sizable study to investigate collaboration, help advance good/emerging practices, and test a relatively new process tool (i.e., social network analysis). Furthermore, community psychologist have not largely focused on advanced quantitative research tools such as network analysis in analyzing the larger contexts of collaboration (Langhout, 2003; Luke, 2005) and studies using network analysis on different forms of collaboration are only slowly emerging. Examples of recent studies include the work of Haines, Godley, and Hawe (2010) and Freedman and Bess (2011), who used network analysis to research interdisciplinary collaborations and food systems change, respectively. The results of this study have the potential

to render community psychology a field with valuable additional insights.

Second, while environmental challenges are not a core issue in community psychology, contribution to research, theory, and practice with regards to how environmental challenges impact individuals and communities also fits the mandate of the field. Riemer and Reich, in the introduction to their 2010 special issue on global climate change in the *American Journal of Community Psychology*, argue that global climate change “has received little attention within the field” despite that fact that “it is an issue of high relevance for community psychologists” (p. 349). The authors demonstrate how well-being and social justice—both of which are values held by many community psychologists—are strongly linked to global climate change (Riemer & Reich, 2010).

Finally, I have argued elsewhere that those in community psychology can apply some of their knowledge base and skills as scholar-practitioners to the area of environmental sustainability (Münger, 2012), including community psychology’s value-based approach, theories research paradigms, and experiences working with stakeholders. Community psychology works explicitly value-based and demonstrates its values through direct action related to justice, equity, and respect for human diversity. Community psychology as a discipline also provides several important theories and concepts including multi-level perspectives and the concept of the ‘Just Community’ by Bob Newbrough (1995). Furthermore, the transformative paradigm sometimes employed in community psychology offers a practical approach to research aimed at targeting systematic change at multiple ecological levels. Finally, many community psychologists have the required awareness of power relations between experts and non-experts, as well as practical experience engaging multiple stakeholders to play the role of “civic expert” (i.e., bridging experiential knowledge with technical and scientific knowledge

through engaging with citizens) (Brand & Karvonen, 2007). I believe that these may be significant contributions that community psychology as a discipline can make to environmental sustainability and that this study provides an example of some of these aspects.

Methodological

The final implication of this study is methodological. The strategies provided in Chapter 11 on how to apply social network analysis in the context of work in the community will hopefully allow those working in similar community contexts and perhaps even those applying social network analyses in the academic context to improve their use of the tool.

Section 3: Strengths and Limitations

This study had a number of unique strengths including its methods, depth of investigation of collaboration within a particular community (in this case Waterloo Region), and its collaborative and practical nature. The study also had multiple limitations including general limitations related to the overall study as well as limitations related to the methods of social network analyses, interviews, and focus groups.

Strengths

One of the strengths of this study, as with most case studies, is the ability to gain insight of a phenomenon in a particular context through the great amount of description and the potential general implications it may suggest in the broader sense (Yin, 2009). Indeed, the findings suggest multiple implications (as discussed above) with regards to the ability to practice collaboration and how to assess, recognize, and possibly change one's position within a network of organizations.

A second strength of this study was the use of social network analysis as a tool, as it provided a different perspective on studying collaboration and networking (Provan et al., 2005).

The use of sociograms in social network analysis allowed the participants to easily understand the levels of networking and collaboration from a different perspective through the visual perspective. A further strength of using social network analysis was that it can create empirical data, which it did in this study to a certain degree. Among other things, empirical data allows for those working on developing collaborations to make evidence based decisions.

A third strength of this study was the use of mixed methods. To best achieve the aims of this study, I incorporated both quantitative data and qualitative data. The quantitative methods assisted me in developing an empirical snapshot of networking and collaboration in Waterloo Region, and generated statistical data on multiple variables such as knowledge of social network analysis and perceptions of the benefits and challenges of collaboration. The qualitative data assisted me in explaining the results of the social network analysis and in developing a more detailed, comprehensive, and in-depth understanding of the definitions, values, practices, and types of collaboration in Waterloo Region and the use of social network analysis as a process tool. I believe using mixed methods in this study has allowed for a multi-layered, different, and distinct way of illustrating networking and collaboration, as well as a more holistic understanding of the definitions, processes, and types of collaborations.

Using a mixed methods design also allowed for easy quality control through triangulation. Using three data sources (quantitative survey, interviews, and focus groups) allowed me to mitigate the limitations of the methods and allowed for a more in-depth understanding of the phenomenon under study (Lincoln & Guba, 2005; Maxwell, 2005; Yin, 2009). More specifically, the feedback from presenting the results from Phase 1 to the participants in Phase 2 provided a direct verification as to the results of Phase 1, given that the

overwhelming response to the sociograms (even those with less empirical foundations; that is the Full Network) was one of no surprise, clearly suggesting confirmation of the results.

This study was further strengthened by its collaborative approach and, more importantly, its orientation toward action. However the study was not a truly action research project given circumstances such as using a university student as the research assistant rather than hiring a community member or the fact that I did not analyze the data with the community which would be the case in proper action research, the study followed several guidelines of action research and collaboration with research participants. This is particularly the case with regards to the impetus of the study and the knowledge transfer aspect. Overall, I believe it is reasonable to suggest that this study has served as a catalyst for multiple projects in Waterloo Region. First, as a direct result of this study, the participants have a better understanding of the different environmental organizations that exist, and the level of networking and collaboration among environmental organizations. Second, and more important, many of the organizations (not just those participating in the study) have met at several events, three of which were direct results of the study, and started collaborating. Finally, over the past two years the environmental organizations in Waterloo Region have started the following projects: a Green Directory (being developed with the leadership of the Social Planning Council of Kitchener-Waterloo using data from this survey),²⁵ several small working groups focused on different issues such as policy and education, and a small but strong group (including a local politician, representatives of several local organizations, and myself) working toward the development of a Green Hub. The Green Hub is a collaborative initiative with a mission to connect organizations with local communities,

²⁵ <http://www.waterlooregion.org/>

catalyze environmental innovation, improve communication, and foster collaboration among environmental organizations, the private sector, and the public.

Limitations

There were several limitations to this study. Some limitations were related to the participants of the study. Others were directly related to social network analysis, and others still were directly related to qualitative data.

General limitations. One of the limitations of this study, as with many case studies, is the inability to create generalizable findings (Yin, 2009). In other words, while producing in-depth local knowledge, this study is not able to create breadth. However, as discussed below in Section 4, the results of this study are transferable by inviting readers to make connections between this study and their own experiences. A further limitation is with regards to the participants of the study was the low participation. As discussed in Chapter 4, the survey response rate of 31.65% (25 of 79 organizations) was very low. In social network analysis, an incomplete response rate cannot provide an empirical picture of the total network in question. Thus, any measures and sociograms will be an estimation at best. However, when analyzing the data for the participants only I was able to produce an empirical picture of the level of networking and collaboration among those participants. Furthermore, because one of the primary purposes of this study was to apply social network analysis as a tool to engage organizations in both a dialogue about collaboration among each other and to identify organizations to interview during the second stage of the study, the data still proved very useful.

A second limitation with regards to the participants of the study was the absence of diverse participants. While I was able to include participants from all different areas of environmental foci (e.g., energy, conservation, food), the demographic of the participants was

quite homogeneous. More specifically, none of the participants in this study had a culturally or ethnically diverse background or identified as being of Aboriginal ancestry. I am not sure how many individuals working in the local environmental are from culturally or ethnically diverse backgrounds or identify as Aboriginal, however, my experience would suggest that there may only be a very small amount in this region. Thus, the homogeneity in this study should not be surprising. This homogeneity nevertheless limits the results because different cultural and ethnic perspectives may have brought out some interesting critical and / or historical perspectives with regards to collaboration. A third limitation is the largely inadequate level of critical reflection on the literature on collaboration practice as well as the findings in this study from perspectives of feminist scholars (e.g., bell hooks, Roxana Ng and Kiran Mirchandani, and Kari Delhi), ecofeminist scholars (e.g., Vandana Shiva, Carol Adams), Marxist scholars (Antonio Gramsci), and critical theorists (e.g., Jürgen Habermas) to name a few.

Furthermore, the small participant sample in Phase 1 limited the selection for Phase 2. I had to select interview and focus group participant from among the 25 participants in Phase 1. Ideally, I could have tried to speak with those that did not participate to discuss collaboration practice, because the reason for their lack in participation may have had to do with a lack in interest in collaboration. Unfortunately, I was not able to do this for ethical and practical reasons. First, I had received ethics approval to select participants from Phase 2 only from the pool of participants from Phase 1. Changing the sampling strategy would have required me to go back to the research ethics board and apply for a substantial change. More importantly, the second part of the interviews and focus groups was focused on the use of social network analysis, thus this part would have not been applicable for participants that did not participate in Phase 1.

Furthermore, since the original data collection, the local context with regards to networking and collaboration has changed, as one would expect to occur over time. However, the networking and collaboration context has also changed as a result of this study.

Finally, given the ethical limitations that restricted me from publicly identifying organizations (except for those organizations that participated in the study during the presentations of the findings), these results have limited utility for the local environmental organizations. This limitation stems from the fact that the sociograms in all public documents (including this dissertation) do not identify the organizations by name. Thus, the community at large is not able to use the data to identify those organizations that are less connected and to encourage them to network or collaborate more.

Social network analysis. One limitation of using social network analyses as a research tool is the lack of longitudinal design. Many scholars who have conducted similar research propose that network studies should be longitudinal rather than one-time snapshots (e.g., Friedman et al., 2007). While this study identified changes over time in perception of the networks' effectiveness and the need for formalization of the network, the study did not use network data to determine if the network has indeed become more connected over time.

A second limitation with regards to using social network analysis was related to the accuracy of responses in the survey. Authors such as Cross and colleagues (2009) suggest using group rating processes to determine the exact results for organizations, because they argue that individual assessments will vary widely depending on the differing positions in an organization. While I originally planned to ask organizations to have two individuals complete the survey, I soon realized that it was not realistic to do so. There were two main reasons for this. First, the timeline and resources of this study did not allow for interviewing two individuals. In fact, it

was time consuming enough to ensure that one person per organization completed the questionnaire, often requiring multiple emails and phone calls. Second, and more importantly, completing the questionnaire required a lot of staff time, and I quickly realized that the lost time of having two staff participate per organization clearly outweighed the benefits that organizations may gain from the study.

A third limitation with regards to using social network analysis was related to the length of time between data collection and the presentation of the results in Phase 1, and between presenting the results of Phase 1 and conducting the interviews and focus groups in Phase 2. First, the length of time between data collection and the presentation of the results was problematic, as the data was approximately one year old by the time the results were presented. This may have limited the uptake among organizations with regards to making decisions on how to improve networking and collaboration. Fortunately, despite the gap in time, the data was still useful to spark important conversations about networking and collaboration. Second, the length of time between the presentation of the results and the interviews and focus groups was short. As a result, when asked if seeing the findings resulted in changes in collaboration, participants were not able to identify many changes since in most cases, none had yet occurred. Obviously, this assumes that changes will take place—a perspective I believe is correct given that many of the participants hypothesized that the findings would impact their collaboration practices in the future.

Interviews and focus groups. One limitation with regards to using interviews and focus groups is related to the fact that data collected during interviews can be subject to errors due to incorrectly recalling situations, response bias, guiding interview questions, or participants answering in ways they believe will please the interviewer (Olsen, 2008; Patton, 2002). In focus

groups among groups of organizations that focus on similar environmental issues, it is very possible that some individuals censored their views and thoughts to protect the relationships with the other organizational representatives (Carey, 1995; Patton, 2002). Recognizing these limitations of interviews and focus groups, I tried to ensure that those participating felt comfortable participating. During focus groups I spent considerable time ensuring that the focus group members agreed to confidentiality and encouraged the participants to contact me if they had any further thoughts that they wanted to share with me.

A further limitation lies in data coding and analysis (Maxwell, 2005; Yin, 2009, Creswell & Plano Clark, 2011). During coding, I had to make choices when developing, refining, combining, and excluding codes. During analysis and reporting, I had to make decisions as to the importance of themes, patterns, commonalities, and when to draw connections between themes. Throughout this study, I have attempted to identify my positionality and personal perspectives on collaboration. Furthermore, I have also tried to include as many codes as possible to maximize the representation of the different voices, sometimes stressing perspectives that were not very common (e.g., critiques of social network analysis), without making the final document too long.

Section 4: Transferability

There are several ways in which the results of this study can be transferred. First, other regions could do the same study to assess the relationships between environmental organizations in their region and compare their findings with the findings in Waterloo Region. In particular, the social network analysis component as well as the survey questions related to the benefits and challenges of collaboration could easily be duplicated using the same, similar, or improved tools, albeit with, as identified in this study, a relative large time investment (e.g., learning network

analysis). This could also uncover some implications of this research that can only be identified through a comparison because challenges with networks and collaboration are difficult to assess from the perspective of a single case.

In all of this, it will be vital for those trying to make connections between their cases and the findings in this study to understand the larger context of this case; that is what makes regional collaboration different. For example, Waterloo Region is generally known as a place that has a culture of collaboration fostered by, for example, the two local universities, as well as different levels of government. Examples include the Accelerator Centre that receives funding from different governments (i.e., Federal and Provincial), Ontario Centres of Excellence, the City of Waterloo, the Regional Municipality of Waterloo, and the University of Waterloo. This Centre provides technology startups through advisory services, networking, and education services among other things (Acceleration Centre, 2009).

With regards to the environmental field in this region, there are a lot of small relatively new environmental not-for-profit organizations. What also makes this region interesting is that it has several established environmental organizations, most of which, while central organizations, play the role of facilitators rather than leaders. As a whole, this may suggest that a successful region with regards to environmental movements is one that has gathered a lot of energy which is channeled into the development of innovative environmental services and are guided by a number of organizations that have leaders who think horizontally rather than vertically and thus encourage those new organizations, create networking opportunities, and support them through means such as resources both tangible (e.g., space) and intangible (e.g., expertise).

As a result, an important aspect of transferability may be the finding that those at the outside of the network do not feel the challenges of collaboration outweigh the benefits but

rather (on average) think about collaboration the same way those more central do. What this could mean is that they may be less collaborative because they are not sufficiently aware of the opportunities. Thus, other regions could use this finding and provide venues to allow for networking in the hopes that this may translate in increased collaboration,

Section 5: Future Research

In this study I demonstrate how organizations are connected through networking and collaboration and how they practice collaboration. I did not explore why the organizations currently collaborating have partnered to work on projects, nor did I study how collaboration practice could be improved, which may be one of the most important aspects of increasing collaborative practice. This area clearly needs future research.

One of the main tensions found in this research was the paradox of diversity and homogeneity in collaborations particularly within the contexts of theory and practice (see also McMurtry and colleagues, 2012). There is a clear need for future research to investigate how to bridge these two needs and resolve the tension between diversity and familiarity through the building of and common goals, increasing trust, and strengthening common ground.

Furthermore, researching more diverse perspectives on collaboration, such as the perspectives of those engaged in environmental and other issues who identify as culturally or ethnically diverse or Aboriginal, may provide important additional perspectives, particularly in the context of cultures that have a stronger focus on interdependence. To the best of my knowledge, very little research has been done to investigate organizational collaboration in culturally diverse contexts.

Similarly, this study used a mostly affirmative position of collaboration and collaboration practices and engaged mostly with mainstream perspectives of organizational collaboration.

Analyzing and reviewing the literature on collaboration through the lens of critical perspectives such as feminist, Marxist, and activist perspectives may help to add some important aspects to understanding collaboration and potentially increasing its levels of success. Furthermore, it may be advisable for further research to frame organizational collaboration in the context of complexity theory, because, according to authors such as Capra (2002) and McMurtry (2012) collaborations in and themselves can be conceptualized as complex systems.

Further research is also needed on the use of social network analysis as a process tool. Understanding the applicability of social network analysis in different situations may paint a more complete picture as to the extent to which social network analysis can fully contribute and increase outcomes without requiring too many resources. Of particular importance for future research are the identified limitations of social network analysis such as the fact that they are onetime snapshots, the energy and resources required and the complexity of the tool versus the helpfulness of applying the tool, and how social network analysis may frame collaboration as too positive.

Section 6: Knowledge Mobilization

One of my main goals for this study was to provide local environmental organizations with actionable results. Knowledge transfer has occurred throughout this study from its very inception, and the overall topic was identified as an area of interest by the local environmental organizations. I achieved this through the close involvement of stakeholders in all stages of the study. I involved them in the conceptualization stage. I presented the networking and collaboration results, which I believe are most important to the local environmental organizations to be able to take action, to them. I also presented on good/emerging practices in collaboration, and have made an ongoing commitment to working with a group of organizational

representatives to develop a Waterloo Region Green Hub. For the latter, I have facilitated the collaborative development of the concept, developed an online assessment, and will apply for funding to review the literature and good/emerging practices. Furthermore, applying a collaboration and action orientation also fostered the production of pertinent knowledge, utilization of the results, and a sense of ownership over the data among participants.

Following the completion of the study, I also plan to share my findings at both academic and practice-focused conferences and peer reviewed journals. It may be interesting to focus some of my attempts toward knowledge mobilization in the areas of sustainability science, complexity science, and interdisciplinary collaboration because there is much overlap with regards to the literature, the goals, and the practices through academic journals and professional associations. Furthermore, while highly ambitious, some of the basic findings, in particular the use of social network analysis as a process tool, could be useful to identify partners in provincial, national, or even international collaborations. I will certainly consider the possibility and look for venues to share my knowledge and experience with those attempting to create these kind of collaborative structures.

Section 7: Personal Reflections

In retrospect, there seem to be two main tensions running through this study. The first tension is related to that fact that I was studying collaboration as an isolated scientist. Hence, according to the literature on collaboration, this study is limited because it represents one perspective and one experience of collaboration – a perspective of a white, male, middle-class, (emerging) scholar. In fact, I am sure that this study would have benefited significantly from a collaborative approach and would have suited my personality better than the isolated work that follows an outdated model of the independent researcher following his/her scholarly curiosity.

Second, as someone committed to the scholar/practitioner model and pragmatism in research, I think my dissertation (not the study in itself) suffered from the tension between academic endeavours such as gaining a doctorate in philosophy and research that is useful in the community context. As a result, in retrospect I think I tried too hard to structure this dissertation to produce what I consider empirical scholarship through using a very formulaic approach, creating a long, dense, and potentially tedious document. Hence, my next steps are clearly laid out. After having demonstrated that I can produce empirical scholarly work, I now need to condense my findings and my knowledge to produce a simple guide on how to apply good/emerging practices of organizational collaboration for those interested in collaborating and for those considering using social network analysis as a process tool. After all, it would be a shame if I were to neglect to share my newly gained knowledge and experiences with those attempting to make a change in this world because, unfortunately, the level of carbon dioxide in the atmosphere continues to rise threatening the very existence of humanity and many species on earth. We are in this together, and the key to humanity's survival may well lie not in the fact that we try to collaborate, but rather in the way in which we collaborate!

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Appendix 1: Phase 1 Study Invitation Letter

Felix Munger
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75 University Avenue West
Waterloo ON N2L 3C5

January 2011

RE: Study to Assess the Level of Collaboration Among Local Environmental Organizations

Dear ;

I am sending you this letter because your organization has been identified as an important participant for a regional study on collaborations among organizations who do environmental work in Waterloo Region. In addition, we would like to include your organization in a new searchable database for the Region called the Green Book. I am sending you this letter to invite you to be part of an important regional study on local environmental collaborations and to become part of a database called the Green Book.

My name is Felix Munger and I am a PhD student in psychology at Wilfrid Laurier University. Together with Assistant Professor Manuel Riemer at Wilfrid Laurier University's psychology department, I am conducting a study called Assessing the Usefulness of Social Network Analysis as a Process Tool to Understand and Improve Organizational Collaboration.

The purpose of the study is to create an analysis of the current level of collaboration among environmental organizations, to facilitate a face-to-face meeting in the Region of Waterloo to discuss the findings, and to provide the participating organizations with a report on the current levels of collaboration. In addition, the study will evaluate the usefulness of using social network analysis as a process tool to increase understanding of collaboration and organizational relationships. Finally, as identified by local organizations, the study will also develop a database of environmental organizations aimed at informing community members, organizations, businesses, and academia of the variety of different environmental organizations, their contact information, addresses, and so on.

The study will invite between 70 and 100 regional agencies (non-profit, public/government, and volunteer/informal) that identify issues related to the environment as part of their organizational goals and will take place between January 2011 and September 2011. These organizational goals include (but are not limited to) agriculture and conservation, transportation, energy, waste and pollution, food, health, and water. Each participating organization will be asked to have two staff members with exceptional knowledge of the organizations level of collaborations (e.g., executive directors) to complete two surveys and have one or two staff attend a meeting to discuss the findings. Thus, the total number of participants will be between 140 and 200 individuals. The study has been approved by the research ethics board at the Wilfrid Laurier University (approval number 2627). Professor Mark Pancer of the psychology department at Wilfrid Laurier University serves as my academic advisor for this study.

Participation in the study includes one online pretest survey in January 2011 (approximately 30-45 minutes) and one online posttest survey in April or May 2011 (approximately 30 minutes). There will also be one meeting in February or March 2011 (approximately 90 minutes) to discuss the findings related

to collaboration among environmental organizations. The duration of completing all aspects of the study will be approximately 2.5 to 3 hours.

Participation is voluntary and participant's answer will be kept confidential. We are, however, looking for participation from all organizations in order to get the most accurate picture of the network because incomplete network representation (missing organizations) can be detrimental, as it might not allow the participating organizations to fully comprehend the existing level of collaboration or to make informed decisions about increasing collaboration effectiveness.

For the local environmental organizations, it is anticipated that the study will lead to:

- A new lens / framework for thinking about and addressing local environmental issues;
- Support for local collaborative efforts and actions;
- New connections and strengthened existing connections;
- Knowledge sharing and joint-learning opportunities;
- A database of regional environmental organizations;
- A stronger collective voice for local and national policy change and action; and
- Maps of the network that will allow organizations to identify, characterize, and prioritize stakeholders and potential partners when relevant new issues emerge.

In the next couple of weeks, Chris Norris (research assistant) or I will contact you by sending you an official email or by calling you to discuss participation in the study. In the meantime, if you have any questions about the research, please contact Felix Munger at mung1340@mylaurier.ca or (519) 884-1970 extension 4250.

As a little token of appreciation we have included 2 gift certificates for a coffee or any other merchandise at the Seven Shores Urban Market & Café (5-8 Regina Street North in Waterloo) to thank the 2 staff members of your organization who we hope will complete the surveys.

Regards,

Felix Munger

Appendix 2: Phase 1 Script for Study Explanation

This script will be read to executive directors or CEOs of potential participating organizations over the phone or in person by the main researcher (Felix Munger) or the research assistant (Christopher Norris) if individuals are being contacted following the flyer and/or invitation letter (not all might have to be contacted personally).

My name is I am a student at Wilfrid Laurier University in Waterloo, Canada.
I received your name and contact information from ... (public record, person)
I would like to invite your organization to participate in an exploratory study called *Assessing the Usefulness of Social Network Analysis as a Process Tool to Understand and Improve Organizational Collaboration*.

To give you some background, during a meeting called by Professor Manuel Riemer at Wilfrid Laurier University in March of 2010, several attending members of environmental organizations expressed the desire to move beyond a loose collection of collaborating organizations and to developing a formalized coalition. We believe that this interest was motivated by a wish to generate joint solutions and a common voice in order to influence local council, government, and communities.
However, critical voices have also suggested that current levels of collaboration should be analyzed before attempts are made to create formalization such as a coalition.

This is where this research comes in: it is a response to the local needs identified by organizations such as yours. As a result, we have worked tirelessly with members of the Community Reference Group of the Community, Environment, and Justice Research Group – which consists of community members and representatives from environmental organizations – to ensure this study is useful to the community and its organizations.

This study has three components.

- First, the study will conduct an assessment of the current level of collaboration among regional environmental organizations by applying social network analysis. This part is intended to assist the organizations to increase their understanding of current levels of collaboration and the relationships between the organizations.
- Second, the study will conduct an evaluation of the practice of using social network analysis to investigate collaboration effectiveness.
- Finally, the researchers involved in this study are committed to putting the needs of the community and its organizations into the forefront. Thus, we are including the development of a directory called Green Book in this study, which is a free local database aimed at informing community members, organizations, businesses, and academia of the variety of different regional environmental organizations.

I / Felix Munger, a PhD student, will be the main researcher conducting this study.

Dr. Manuel Riemer, Assistant Professor of Psychology at Wilfrid Laurier University is the co-investigator.

Christopher Norris, undergraduate students in psychology, is the Research Assistant to the project.
Dr. Mark Pancer, Professor of Psychology at Wilfrid Laurier University serves as my academic advisor.

Research Overview

This study will include between 70 and 100 regional agencies (private, non-profit, public/government, and volunteer/informal) that identify issues related to the environment as part of their organizational goals. Each participating organization will be asked to have up to two staff members participate in the study. Thus the total number of participants will likely be between 140 and 200 individuals.

The study will take place between January 2011 and August 2011.

Participation

If your organization agrees to participate in this study, we will ask you to identify two knowledgeable staff – you could be one of them - in your organization that will – assuming they agree to do so – participate.

1. the staff will be asked to complete an online pretest survey in January 2011 that takes approximately 30-45 minutes.
2. the same staff will be asked to attend a face-to-face meeting that will take approximately 90 minutes in February or March 2011 in the Region of Waterloo – location to be determined. The meeting will be held to discuss the maps that are the result of analyzing the social network data.
3. the same staff will be asked to complete an online pretest survey in April or May 2011 that takes approximately 30-45 minutes.

The total duration of all aspects of the study will be 2.5-3 hours.

Participation in the study is completely voluntary.

Risks

There are little foreseeable risks included in the study.

However, given the novelty of Social Network Analysis research there is a chance that participants might not yet understand the possible consequences of studies such as social network analysis. Please ensure you have will read and clearly understand the risks described in the consent form.

Benefits

We anticipate that this study will

- Create a new lens / framework for thinking about and addressing environmental issues in the Region of Waterloo;
- Support local collaborative efforts and actions;
- Make new connections / strengthening existing connections among organizations;
- Develop a Green Book (comprehensive database of regional environmental organizations);
- Create a collective voice for local and national policy change; and finally
- Create a map of local environmental organizations and their collaboration that will allow the organizations to identify, characterize, and prioritize stakeholders when relevant new issues emerge.

Furthermore, the study's findings may pave the way and eventually result in changes that assist networks, umbrella groups, and collaborations to be more effective by potentially developing tools for organizations to understanding collaboration effectiveness better.

Confidentiality

The study will keep confidentiality of the respondents.

Ethics Approval

This pilot study has been approved by the Wilfrid Laurier University research ethics board. If you have questions, you can contact the chair of the university research ethics board Dr. Robert Basso, (519) 884-0710, extension 5225, rbasso@wlu.ca.

Feedback

Your organization will be provided with the reports and, if desired, individualized feedback of the findings related to your organization.

If you have any questions, please let me know at this stage.

Would you like to participate in the study?

Yes: Thank you. I am delighted that you have chosen for your organization to participate in this study. There are three necessary steps:

1. Please identify two individuals (could/should include you) who will complete the surveys and attend the meeting. Please ensure that they are very knowledgeable of the different levels of collaboration that your organization engages in and should have a sense of what the organizations perspective is of collaboration in general.
2. Please provide me with their names and contact information: email and phone numbers.
3. Independently of the fact if you will personally participate in the study, please review the informed consent form and sign it on paper or complete it online so we have organizational approval for participation in the study – we will still require the organizational representatives who will complete the surveys to personally consent using the same form.

If you have questions at any time about the study or the procedures, you may contact myself, **Felix Munger** at 519-884-0710 ext. 4250 or mung1340@mylaurier.ca or **Dr. Manuel Riemer** 519-884-0710 ext. 2928.

You may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

No: Thank you for your time and allowing me to introduce the research project. If you change your mind, please feel free to contact me any time.

If you have questions at any time about the study or the procedures, you may contact myself, **Felix Munger** at 519-884-0710 ext. 4250 or mung1340@mylaurier.ca or **Dr. Manuel Riemer** 519-884-0710 ext. 2928.

You may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

Appendix 3: Phase 1 Organizational Consent Form

INFORMATION

During a meeting called by Professor Manuel Riemer at Wilfrid Laurier University in March of 2010, several attending members of environmental organizations expressed the desire to move beyond a loose collection of collaborating organizations by developing a formalized coalition, while others have indicated that they would like the current levels of collaboration to be analyzed before attempts are made to create a coalition.

This is where this research comes in: it is a response to the local needs identified by organizations such as yours.

Background

To address the current environmental crisis, scholars, funders, and community organizations are increasingly promoting and applying organizational networks and collaborations. Organizational collaborations, however, can be hard work and are not always successful. To increase the chances of success, an increasing number of researchers assert the need to study collaboration effectiveness and are applying emerging research tools such as social network analysis to study organizational collaborations.

Purpose:

This study has two research components.

1. The study will conduct an assessment of the current level of collaboration among regional environmental organizations by applying social network analysis.
2. The study will conduct an evaluation of the practice of using social network analysis to investigate collaboration effectiveness.

In addition, the researchers involved in this study are committed to putting the needs of the community and its organizations into the forefront and members of the Community, Environment & Justice Research Group (CEJ) Community Reference Group have worked closely with the researchers to ensure that the study results are relevant and useful to the community. As a result, we are including the development of a directory called Green Book in this study. This free local database is aimed at informing community members, organizations, businesses, and academia of the variety of different regional environmental organizations.

This study will include between 70 and 100 regional organizations (non-profit, public/government, and volunteer/informal) that identify issues related to the environment as part of their organizational goals (called environmental organizations from here on). Each participating organization will be asked to have up two staff members with exceptional knowledge of the organizations level of collaborations (e.g., executive directors) to complete two surveys and have one or two staff attend a meeting to discuss the findings. Thus, the total number of participants will be between 140 and 200 individuals.

The study will take place between January 2011 and September 2011.

What is involved in the Study?

If you consent to this research on behalf of your organization to participate in this study, two staff in your organization will be asked to complete online pre-test surveys in February 2011 and one online posttest survey in April or May 2011. The two surveys will each take approximately 30 – 60 minutes (depending on the survey). Organizational representatives are not required to answer all the questions and are free to withdraw from the surveys at any time.

Following the pre-test survey, your organization will be asked to send one or two individuals (not necessary but ideally the same individuals that completed the pre-test survey) to a face-to-face meeting in February or March 2011 that will take approximately 90 minutes and will be held in an appropriate location within the Region of Waterloo. The meeting will be held with representatives of all organizations

that have participated in the pretest to discuss the result of analyzing the social network data and engage the organizational representatives to potentially make decisions related to the effectiveness of collaboration among organizations. Your organizational representatives do not need to attend or need to engage in the discussions and your organization and representatives are free to withdraw from the meeting at any time.

The total duration of all aspects of the study will be 2.5-3 hours.

Procedure:

More specifically, the procedures will include the following:

The online pretest survey consists of questions about personal identification, organizational details (e.g., size, type), perceived effectiveness of collaboration, and perceived need for a formalization of organizational collaboration. We will also ask organizational questions that will be useful to compile a public database called Green Book (see above). In addition, the participant will be asked to indicate with which organizations your organization regularly interacts with in terms of communication, collaboration, as well as which organizations your organization trusts most and which organizations your organization thinks are doing an especially outstanding job related to environmental issues.

Once the data have been collected, the study will construct social network maps like this one:

Example Sociogram

Strategic Mapping for Networks

Example taken from: Strategic Mapping for Networks. Author: Steve Waddell. Date: March 10, 2010. <http://blog.networkingaction.net/?p=271>

Note that these maps contain names. It is important for your organization to understand that there is something different in social network analysis. Research results in general tend to be displayed confidentially. However, because social network analysis is interested in the relationships (in this case between the organizations), results cannot be displayed guaranteeing full confidentiality. For example, even if we provide identification numbers instead of organizational names, it might be possible for someone to recognize theirs and/or another organizations. Furthermore, because this research is trying to provide a forum for discussing how to make the current level of collaboration among environmental organizations more effective, displaying maps without organizational names will not allow the organizations to discuss the current level of collaboration and potentially improve the effectiveness of collaboration.

The study will report results in a written confidential report and a confidential presentation such as communication, past collaboration, and aggregated results such as density,²⁶ centralization,²⁷ centrality,²⁸ degree,²⁹ and cliques³⁰ for all the organizations. If desired, the study will provide direct confidential feedback to organizations regarding their own location among all the local environmental organizations for the trust and prestige/reputation findings.

²⁶ Density describes how each node is connected to other nodes in the overall network thus illustrating the level of cohesion and interconnectivity within the network

²⁷ Centralization describes the existence and or absence of focal nodes, thus illustrating if the network is hierarchical or decentralized

²⁸ Centrality describes the position of an organization which illustrates its importance in the network

²⁹ Degree describes the connectivity of a single node in the entire network

³⁰ Cliques describe the existence of subgroups of three or more organizations

The meeting will focus on the maps that we constructed from the network data (see paragraph above). This face-to-face meeting will consist of all interested and relevant organizations that have participated in the pretest and we will engage in a voluntary process to discuss and potentially make decisions related to the effectiveness of collaboration among environmental organizations.

The online post-test survey will ideally be conducted following the meeting with the same individuals who have completed the pre-test survey and attended the meeting. The post-test questions (numeric and written answers) are related to the use of social network analysis as a tool that helped facilitating a process to increase understanding of the level of collaboration, the relationships between environmental organizations, as well as enhance the level of informed decision-making related to the structure of collaboration among organizations. The post-test data will be linked to the appropriate pretest data. We will ask for permission to use quotes in publications and will give you the opportunity to review, accept, or reject their quotes if you chose so.

RISKS

Since some maps that display names of organizations will be shown during the large meeting following the analysis of the network data, there is a slight chance that other organizations will think less of your organization because of your organization's position among environmental organizations. Therefore, it is possible you may experience some negative or painful emotions when talking about your organization's position among environmental organizations. These feelings are normal and should be temporary. You are allowed to refuse to engage in discussions and are free to leave the meeting. In addition, prior to the meeting, the meeting facilitator will ensure ground rules that include (but are not limited to) respect, equality, group confidentiality, active listening, limiting generalizations, consciousness of body language, and nonverbal responses. The ground rules will be developed as a group process and the facilitator will seek unanimous agreement with the proposed ground rules before continuing with the meeting to ensure common ownership over the ground rules.

In terms of the information for the Green Book, you will be given the opportunity to decide what data can be published online.

Please make sure you understand the potential risks related to confidentiality and anonymity before agreeing to participate. Specifically, given the nature of social network analysis, your organization will not be kept anonymous (anonymity means where the person's or organization's name or other identifying information is not known). This is because data collected has to be identified and assigned to organizations in order for the researchers to be able to define relationships between different organizations.

However, names and information pertaining to the organizational representative who completed the surveys will be kept strictly anonymous.

In the case of trust and prestige measures, every effort will be made to keep organizational information confidential (confidentiality means guaranteeing that identifiable information is only accessible to those authorized) by carefully managing all the data and by replacing organizational names with identification numbers or pseudonyms. However, as discussed above, the study will identify organizations (not organizational representatives) by name for the results such as communication, past collaboration, and aggregated results such as density, centralization, centrality, degree, and cliques in a presentation to the all participating environmental organizations during the meeting and through a written confidential report only for the participating organizations.

BENEFITS

Anticipated benefits include a deeper understanding of the level of collaboration, more knowledge about how to overcome challenges of collaboration, and tools to systematically investigate collaboration effectiveness in your professional work. In addition, I will, upon request, provide your organization with

direct individualized feedback regarding its location with regards to trust and prestige among the local environmental organizations, which should help identify potential organizational improvements. Furthermore, the study's findings may pave the way and eventually result in changes that assist collaborating organizations to be more effective by developing process tools. Finally, as identified by multiple stakeholders, the study will develop a Green Book.

CONFIDENTIALITY

Data will be collected through the use of SurveyMonkey (surveymonkey.com) a US company. Please be advised that confidentiality cannot be guaranteed while data are in transit over the internet.

If your organization decides not to share certain information in the Green Book, the data will be kept strictly confidential.

Furthermore:

- Your personal name will not be disclosed to anyone outside the researchers;
- Study data that includes personal and organizational data will be kept for 7 years post study completion and/or publication and then destroyed by Dr. Riemer on April 30, 2018;
- De-identified electronic study data will be kept indefinitely but all de-identified paper copies will be destroyed on April 30, 2018 by Dr. Riemer;
- Your personal name will not be used in any reports about the study;
- Your organizational name will not be used in any reports about the study EXCEPT for the confidential report to the environmental organizations for the meeting to engage in a process of discussing the level of collaboration effectiveness and in the Green Book.
- Your consent forms and data will be collected through a password protected online data collection tool (SurveyMonkey) and stored either on a password protected computer and/or in a securely locked cabinet in the office of Felix Munger at Wilfrid Laurier University or Dr. Riemer at Wilfrid Laurier University; and
- Electronic data will be kept on Felix Mungers's or Dr. Riemer's password protected computer and hardcopy data will be stored in a locked cabinet in Felix Munger's office or Dr. Riemer's office.

The following individual will be the only people to have access to your data:

- Felix Munger, WLU, PhD Student;
- Christopher Norris, WLU, undergraduate psychology student;
- Dr. Mark Pancer, WLU, Professor; and
- Dr. Manuel Riemer, WLU, Assistant Professor.

ROLES

Felix Munger will conduct the study as the principal investigator under the supervision of Dr. Mark Pancer.

Dr. Manuel Riemer is a co-investigator of the study.

Christopher Norris, in his role as research assistant, will assist Felix Munger in contacting potential participants, collecting and analyzing data, presenting findings at the meeting, and any other tasks related to the study.

COMPENSATION

As a little thank you for those two individuals who will complete the survey, we included two \$5.00 gift cards for the Seven Shores Urban Market & Cafe shop (8 Regina Street North) in the original letter, which your organization should have received.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the principal investigator, Felix Munger: Wilfrid Laurier University, 75 University Ave W. Waterloo ON N2L 3C5, phone: 519-884-0710 ext. 4250, mung1340@mylaurier.ca; Dr. Manuel Reimer, Wilfrid Laurier University, 75 University Ave W., Waterloo ON N2L 3C5, 519-884-0710 ext. 2928, mriemer@wlu.ca (co-investigator), or Dr. Mark Pancer: Wilfrid Laurier University, 75 University Ave W., Waterloo ON N2L 3C5, 519-884-0710 ext. 3149, mpancer@wlu.ca (academic supervisor for Felix Munger).

This project has been reviewed and approved by the University Research Ethics Board (approval number 2627). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

PARTICIPATION

Participation in any procedures of the study is completely voluntary. In addition your organizational representatives can omit any questions or procedures that they wish without any consequence. If your organization or the representatives withdraw from the study, their and your organizational data will be returned to the organization or destroyed.

FEEDBACK AND PUBLICATION

The first set of confidential feedback will be provided no later than March 31, 2011 during a large meeting with participants (date and time to be determined) of the study and will focus on the current level of collaboration among environmental organizations. This feedback will also be provided through a written confidential report.

The final confidential report on the social network data will be available no later than September 30, 2011 and will be sent to the executive director or CEO of your organization by email, mail, or delivered personally.

Felix Munger and/or Dr. Riemer may a) present the results of this study at various conferences nationally or internationally that aim to address research of social networks, organizational collaboration, and other related areas and b) publish the results in professional association or journal publications.

CONSENT

Organizational Name: _____

Personal Name (first and last): _____

Your Position/Title: _____

Your Email Address: _____

Your Phone Number: _____

- I have read and understand the above information
 I have received a copy of this form
 I am the executive director, CEO, or other person with the authority to consent to this research on behalf of this organization

My organization would like to be sent a final copy of the written confidential reports and other study reports.

- No thank you
 Send by email
 Send by mail

If the reports should be sent to an individual other than yourself, please indicate the name and email of the person.

Name: _____

Email Address: _____

Confidential feedback

Our organization might be interested in receiving direct confidential feedback regarding our location among environmental organizations for trust and prestige measurements (if you indicate interest, we will contact you following the large meeting to discuss meeting with your organization in more detail)

- No thank you
 We might be interested

Contacting the organization again

The investigators might like to contact your organization again for future studies related to this research

- I agree for my organization to be contacted again
 Please do not contact my organization again

- I fully understand the study and all of my questions have been answered
 I understand the requirements and the risks of the study
 I agree for the organization to participate in this study

Organizational representative:

Signature: _____

Date: _____

NEXT STEPS

Please identify two knowledgeable organizational representatives (e.g., director, board chair, staff, volunteer, board member) (you could be one of them) in your organization who will – assuming they agree to do so – each complete a survey.

One person will complete the long survey which includes several general questions about your organization plus questions about the kind of collaborations your organization has been engaged in. The first is important for the Green Book (the online searchable data we are creating for Waterloo Region) while the latter is important information for the study. This person should have strong knowledge of the level of collaboration your organization engages in and, given that we are collecting data for the Green Book that will be publicly available, we suggest that the person completing the survey also has the authority to decide what kind of organizational information can be published in the Green Book – ideally a person with your level of organizational authority.

The second person will complete the short survey which includes only the questions about organizational collaboration. This person should have strong knowledge of the level of collaboration your organization engages in.

The methodology used for this study (i.e., social network analysis) requires two informants per organization (if your organization is very small and you have only one staff/volunteer/board member your

organization can still participate). Once you decided who will complete the long and the short surveys, please provide their name, email, and phone number on the next page of the online form. We will then send the individuals each an email with the links to the surveys.

The two gift cards we included in the original letter are for these two individuals. Please also provide one additional knowledgeable individual (this individual should be able to complete either survey) in case one of the first two individuals is not available.

If you do not have the phone number or do not feel comfortable providing the number for these individuals, please complete the question with NA.

Long survey

(This individual should be knowledgeable with regards to organizational collaboration as well as information for the Green Book and have the authority to decide which organizational information can be published in the Green Book)

Name: _____

Email Address: _____

Phone Number: _____

Short survey

(This individual should be knowledgeable with regards to organizational collaboration)

Name: _____

Email Address: _____

Phone Number: _____

Additional Individual

(This individual should be knowledgeable with regards to organizational collaboration as well as information for the Green Book and have the authority to decide which organizational information can be published in the Green Book)

Name: _____

Email Address: _____

Phone Number: _____

Thank You!

Thank you for providing organizational consent for the research. After collecting data from the first survey, they will be analyzed and we will invite your organization to send one or two staff (hopefully including you) to a meeting that will take approximately 90 minutes. The meeting will be held with representatives of all organizations that have participated in the pre-test to discuss the maps/graphs that

are the result of analyzing the social network data and engage the organizational representatives to potentially make decisions related to the effectiveness of collaboration among organizations. Following the meeting, we will invite your organization to participate in a survey to find out the usefulness of using social network analysis as a tool to facilitate a process to increase understanding of the level of collaboration, the relationships between environmental organizations, as well as enhance the level of informed decision-making related to the structure of collaboration among organizations.

If you have any questions, please contact Felix Munger: Wilfrid Laurier University, 75 University Ave W. Waterloo ON N2L 3C5, phone: 519-884-0710 ext. 4250, mung1340@mylaurier.ca.

Again, thank you very much.

Felix Munger

Appendix 4: Phase 1 Individual Consent Form

INFORMATION

During a meeting called by Professor Manuel Riemer at Wilfrid Laurier University in March of 2010, several attending members of environmental organizations expressed the desire to move beyond a loose collection of collaborating organizations by developing a formalized coalition, while others have indicated that they would like the current levels of collaboration to be analyzed before attempts are made to create a coalition.

This is where this research comes in: it is a response to the local needs identified by organizations such as yours.

Background

In addressing the current environmental crisis, scholars, funders, and community organizations are increasingly promoting and applying organizational networks and collaborations. However, organizational collaborations tend to be hard work and are not always successful. Thus, more and more researchers argue the need to study collaboration effectiveness and are applying emerging research tools such as social network analysis to study organizational collaborations.

Purpose:

This study has two research components.

3. The study will conduct an assessment of the current level of collaboration among regional environmental organizations by applying social network analysis.
4. The study will conduct an evaluation of the practice of using social network analysis to investigate collaboration effectiveness.

In addition, the researchers involved in this study are committed to putting the needs of the community and its organizations into the forefront and members of the Community, Environment & Justice Research Group (CEJ) Community Reference Group have worked closely with the researchers to ensure that the study results are relevant and useful to the community. As a result, we are including the development of a directory called Green Book in this study. This free local database is aimed at informing community members, organizations, businesses, and academia of the variety of different regional environmental organizations.

This study will include between 70 and 100 regional organizations (non-profit, public/government, and volunteer/informal) that identify issues related to the environment as part of their organizational goals (called environmental organizations from here on). Each participating organization will be asked to have up two staff members with exceptional knowledge of the organizations level of collaborations (e.g., executive directors) to complete two surveys and have one or two staff attend a meeting to discuss the findings. Thus, the total number of participants will be between 140 and 200 individuals.

The study will take place between January 2011 and September 2011.

What is involved in the Study?

If your organizations executive director or CEO agrees for the organization to participate in this study, two staff in your organization will be asked to complete one online pretest survey in January 2011 and one online posttest survey in April or May 2011. The two surveys will each take approximately 30 – 45 minutes. Organizational representatives are not required to answer all the questions and are free to withdraw from the surveys at any time.

Following the pre-test survey, your organization will be asked to send one or two staff (not necessary but ideally the same staff that completed the pre-test survey) to a face-to-face meeting in February or March 2011 that will take approximately 90 minutes and will be held in an appropriate location within the

Region of Waterloo. The meeting will be held with representatives of all organizations that have participated in the pretest to discuss the result of analyzing the social network data and engage the organizational representatives to potentially make decisions related to the effectiveness of collaboration among organizations. Your organizational representatives do not need to attend or need to engage in the discussions and your organization and representatives are free to withdraw from the meeting at any time. The total duration of all aspects of the study will be 2.5-3 hours.

Procedure:

More specifically, the procedures will include the following:

The online pretest survey consists of questions about personal identification, organizational details (e.g., size, type), perceived effectiveness of collaboration, and perceived need for a formalization of organizational collaboration. We will also ask organizational questions that will be useful to compile a public database called Green Book (see above). In addition, you will be asked to indicate with which organizations your organization regularly interacts with in terms of communication, collaboration, as well as which organizations your organization trusts most and which organizations your organization thinks are doing an especially outstanding job related to environmental issues.

Once the data have been collected, the study will construct social network maps like this one:

Example sociogram

Strategic Mapping for Networks

Example taken from: Strategic Mapping for Networks. Author: Steve Waddell. Date: March 10, 2010. <http://blog.networkingaction.net/?p=271>

Note that these maps contain names. It is important for your organization to understand that there is something different in social network analysis. Research results in general tend to be displayed confidentially. However, because social network analysis is interested in the relationships (in this case between the organizations), results cannot be displayed guaranteeing full confidentiality. For example, even if we provide identification numbers instead of organizational names, it might be possible for someone to recognize theirs and/or another organizations. Furthermore, because this research is trying to provide a forum for discussing how to make the current level of collaboration among environmental organizations more effective, displaying maps without organizational names will not allow the organizations to discuss the current level of collaboration and potentially improve the effectiveness of collaboration.

The study will report results in a written confidential report and a confidential presentation such as communication, past collaboration, and aggregated results such as density,³¹ centralization,³² centrality,³³ degree,³⁴ and cliques³⁵ for all the organizations. If desired, the study will provide direct confidential feedback to organizations regarding their own location among all the local environmental organizations for the trust and prestige/reputation findings.

³¹ Density describes how each node is connected to other nodes in the overall network thus illustrating the level of cohesion and interconnectivity within the network

³² Centralization describes the existence and or absence of focal nodes, thus illustrating if the network is hierarchical or decentralized

³³ Centrality describes the position of an organization which illustrates its importance in the network

³⁴ Degree describes the connectivity of a single node in the entire network

³⁵ Cliques describe the existence of subgroups of three or more organizations

The meeting will focus on the maps that we constructed from the network data (see paragraph above). This face-to-face meeting will consist of all interested and relevant organizations that have participated in the pretest and we will engage in a voluntary process to discuss and potentially make decisions related to the effectiveness of collaboration among environmental organizations.

The online posttest survey will ideally be conducted following the meeting with the same individuals who have completed the pre-test survey and attended the meeting. The posttest questions (numeric and written answers) are related to the use of social network analysis as a tool that helped facilitating a process to increase understanding of the level of collaboration, the relationships between environmental organizations, as well as enhance the level of informed decision-making related to the structure of collaboration among organizations. The posttest data will be linked to the appropriate pretest data. We will ask for permission to use quotes in publications and will give you the opportunity to review, accept, or reject their quotes if you chose so.

RISKS

Since some maps that display names of organizations will be shown during the large meeting following the analysis of the network data, there is a slight chance that other organizations will think less of your organization because of your organization's position among environmental organizations. Therefore, it is possible you may experience some negative or painful emotions when talking about your organization's position among environmental organizations. These feelings are normal and should be temporary. You are allowed to refuse to engage in discussions and are free to leave the meeting. In addition, prior to the meeting, the meeting facilitator will ensure ground rules that include (but are not limited to) respect, equality, group confidentiality, active listening, limiting generalizations, consciousness of body language, and nonverbal responses. The ground rules will be developed as a group process and the facilitator will seek unanimous agreement with the proposed ground rules before continuing with the meeting to ensure common ownership over the ground rules.

In terms of the information for the Green Book, you will be given the opportunity to decide what data can be published online.

Please make sure you understand the potential risks related to confidentiality and anonymity before agreeing to participate. Specifically, given the nature of social network analysis, your organization will not be kept anonymous (anonymity means where the person's or organization's name or other identifying information is not known). This is because data collected has to be identified and assigned to organizations in order for the researchers to be able to define relationships between different organizations.

However, names and information pertaining to the organizational representative who completed the surveys will be kept strictly anonymous.

In the case of trust and prestige measures, every effort will be made to keep organizational information confidential (confidentiality means guaranteeing that identifiable information is only accessible to those authorized) by carefully managing all the data and by replacing organizational names with identification numbers or pseudonyms. However, as discussed above, the study will identify organizations (not organizational representatives) by name for the results such as communication, past collaboration, and aggregated results such as density, centralization, centrality, degree, and cliques in a presentation to the all participating environmental organizations during the meeting and through a written confidential report only for the participating organizations.

BENEFITS

Anticipated benefits include a deeper understanding of the level of collaboration, more knowledge about how to overcome challenges of collaboration, and tools to systematically investigate collaboration effectiveness in your professional work. In addition, I will, upon request, provide your organization with direct individualized feedback regarding its location with regards to trust and prestige among the local environmental organizations, which should help identify potential organizational improvements.

Furthermore, the study's findings may pave the way and eventually result in changes that assist collaborating organizations to be more effective by developing process tools. Finally, as identified by multiple stakeholders, the study will develop a Green Book.

CONFIDENTIALITY

Data will be collected through the use of SurveyMonkey (surveymonkey.com) a US company. Please be advised that confidentiality cannot be guaranteed while data are in transit over the internet.

If your organization decides not to share certain information in the Green Book, the data will be kept strictly confidential.

Furthermore:

- Your personal name will not be disclosed to anyone outside the researchers;
- Study data that includes personal and organizational data will be kept for 7 years post study completion and/or publication and then destroyed by Dr. Riemer on April 30, 2018;
- De-identified electronic study data will be kept indefinitely but all de-identified paper copies will be destroyed on April 30, 2018 by Dr. Riemer;
- Your personal name will not be used in any reports about the study;
- Your organizational name will not be used in any reports about the study EXCEPT for the confidential report to the environmental organizations for the meeting to engage in a process of discussing the level of collaboration effectiveness and in the Green Book.
- Your consent forms and data will be collected through a password protected online data collection tool (SurveyMonkey) and stored either on a password protected computer and/or in a securely locked cabinet in the office of Felix Munger at Wilfrid Laurier University or Dr. Riemer at Wilfrid Laurier University; and
- Electronic data will be kept on Felix Mungers's or Dr. Riemer's password protected computer and hardcopy data will be stored in a locked cabinet in Felix Munger's office or Dr. Riemer's office.

The following individual will be the only people to have access to your data:

Felix Munger, WLU, PhD Student;
 Christopher Norris, WLU, undergraduate psychology student;
 Dr. Mark Pancer, WLU, Professor; and
 Dr. Manuel Riemer, WLU, Assistant Professor.

ROLES

Felix Munger will conduct the study as the principal investigator under the supervision of Dr. Mark Pancer.

Dr. Manuel Riemer is a co-investigator of the study.

Christopher Norris, in his role as research assistant, will assist Felix Munger in contacting potential participants, collecting and analyzing data, presenting findings at the meeting, and any other tasks related to the study.

COMPENSATION

There is a compensation in the form of a voucher for \$5.00 for the Seven Shores Urban Market & Cafe shop for your participation, which your organization should have received with the invitation letter.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the principal investigator, Felix Munger: Wilfrid Laurier University, 75 University Ave W. Waterloo ON N2L 3C5, phone: 519-884-0710 ext. 4250, mung1340@mylaurier.ca; Dr. Manuel Reimer, Wilfrid Laurier

University, 75 University Ave W., Waterloo ON N2L 3C5, 519-884-0710 ext. 2928, mriemer@wlu.ca (co-investigator), or Dr. Mark Pancer: Wilfrid Laurier University, 75 University Ave W., Waterloo ON N2L 3C5, 519-884-0710 ext. 3149, mpancer@wlu.ca (academic supervisor for Felix Munger).

This project has been reviewed and approved by the University Research Ethics Board (approval number 2627). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

PARTICIPATION

Participation in any procedures of the study is completely voluntary. In addition you can omit any questions or procedures that you wish without any consequence. If you withdraw from the study, your and your organizational data will be returned to the organization or destroyed.

FEEDBACK AND PUBLICATION

The first set of confidential feedback will be provided no later than March 31, 2011 during a large meeting with participants (date and time to be determined) of the study and will focus on the current level of collaboration among environmental organizations. This feedback will also be provided through a written confidential report. The final confidential report on the social network data will be available no later than September 30, 2011 and will be sent to the executive director or CEO of your organization by email, mail, or delivered personally. Felix Munger and/or Dr. Riemer may a) present the results of this study at various conferences nationally or internationally that aim to address research of social networks, organizational collaboration, and other related areas and b) publish the results in professional association or journal publications.

CONSENT

- I have read and understand the above information.
- I have received a copy of this form.
- I agree to participate in this study.

(1) Are you the executive director, CEO, or other person in a legal position to consent to this research on behalf of your organization?

- Yes
- No (**please go to questions 6, 7, 8, 9**)

(2) My organization would like to be sent a final copy of the written confidential reports and other study reports

- No thank you
- Send per email
- Send per mail

(3) If the reports should be sent to an individual other than the myself, please indicate the name of the person _____

(4) Our organization might be interested in receiving direct confidential feedback regarding our location among environmental organizations for trust and prestige measurements (if you indicate interest, we will contact you following the large meeting to discuss meeting with your organization in more detail)

- No thank you
- We might be interested

Contacting your organization again:

(5) The investigators might like to contact **your organization** again for future studies related to this research.

- I agree for this organization to be contacted again
 Please do not contact this organization again

- (6) I fully understand the study and all of my questions have been answered
 (7) I understand the requirements and the risks of the study

(8) Quotations

- I consent to allow use of direct quotations from the posttest-survey (without either the organization's and/or representative's name attached to it) in a published document
 I would like to have the opportunity to review, accept, or reject quotes prior to publication. Please note that this process will take place via email and confidentiality of data cannot be guaranteed while data are in transit over the internet.

(9) Contacting you again

The investigators might like to contact **you** again for future studies related to this research.

- I agree to be contacted again
 Please do not contact me again

Study Participant:

Signature: _____

Date: _____

Name: _____

Please Print

Appendix 5: Phase 1 Survey Tool

General Information

Please provide basic information of yourself and your organization for each question listed below. It is fine to estimate if exact numbers are not available. If applicable, please indicate if you agree to publish the information in the database. Only information that asks if it is ok to publish the data in a database will, depending on your answer, be published. Please be advised that even if you decide not to have the data published in the database, please still provide the information for the purpose of the overall study. We will ensure that the information will not be made public.

1. What is the official name of your organization (Publish in Green Book: Y/N)
2. What is the alternate name of your organization (Publish in Green Book: Y/N)
3. What is the acronym of your organization (e.g., REEP, CREW) (Publish in Green Book: Y/N)
4. What is the mailing address of the organization (Publish in Green Book: Y/N)
5. What is the location of the organization (majority of local work) (Publish in Green Book: Y/N)
 - a. Other addresses of the organization (Publish in Green Book: Y/N)
 - b. What is the closest intersection (Publish in Green Book: Y/N)
6. Official organizational contact information (Publish in Green Book: Y/N)
 - a. Phone (Publish in Green Book: Y/N)
 - b. Toll-free phone (Publish in Green Book: Y/N)
 - c. Fax (Publish in Green Book: Y/N)
 - d. Web site (Publish in Green Book: Y/N)
 - e. E-mail address (Publish in Green Book: Y/N)
7. What are the organization's business hours and days (Publish in Green Book: Y/N)
8. Does your organization provide services in another language than English? (Publish in Green Book: Y/N)
9. If answer to question 8 was yes, what language(s) other than English does your organization provide services in (Publish in Green Book: Y/N)? List of languages
10. Please briefly describe your organization's service (if available copy and paste) (Publish in Green Book: Y/N)
11. What is the target population of your organization? (Publish in Green Book: Y/N)
12. What is the organization's eligibility requirements for services? (Publish in Green Book: Y/N)
13. Does your organization charge a fee for its service: Yes/No (Publish in Green Book: Y/N)
14. Is there a application process for services of your organization: Yes/No (Publish in Green Book: Y/N)
15. If answer to question 14 was yes, please describe the application process: (Publish in Green Book: Y/N?)
16. Does your organization have geographic boundaries other than the Region of Waterloo? Yes/No (Publish in Green Book: Y/N)
17. If answer to question 16 was yes, please describe the geographic boundaries within the Region of Waterloo (Publish in Green Book: Y/N)
18. Please briefly describe eligibility criteria for services of your organization (if available copy and paste) (Publish in Green Book: Y/N)
19. What kind of physical access does your organization provide (e.g., accessible building including main entrance and barrier free washrooms, street parking close to entrance, etc.) (if available copy and paste) (Publish in Green Book: Y/N)
20. Organizational mission (if available copy and paste) (Publish in Green Book: Y/N)
21. Organizational vision (if available copy and paste) (Publish in Green Book: Y/N)
22. What is your (person completing survey) first and last name
23. What is your position in the organization?
 - a. Manager

- b. Director
 - c. Executive Director
 - d. Vice President
 - e. CEO
 - f. COO
 - g. Other (specify)
24. Do you work in a particular unit, department, or area (e.g., Public Health if working for the Region) in your organization? _____
 25. How long have you worked in this organization ___years / ___months
 26. How many meetings with representatives with other regional organizations related to the environment have you attended in the past 12 months ____
 27. How long has the organization existed ___years/ ___months (Publish in Green Book: Y/N)
 28. What is the current total number of paid full-time equivalent positions in your organization ____ (Publish in Green Book: Y/N)
 29. What is the current total number of paid employees working at least halftime on environmental issues in your organization ____ (Publish in Green Book: Y/N)
 30. Does your organization provide opportunities for volunteers? Y/N (Publish in Green Book: Y/N)
 31. Does your organization provide opportunities for interns, coop students, or practicum placements? Y/N (Publish in Green Book: Y/N)
 32. What is the total number of volunteers, interns, coop students, or practicum placements? 5 or less; 6-10; 11-15; 16-20; 21-25; 26-30; 31-35; 36-40; 41-45; 46-50; more than 50 (Publish in Green Book: Y/N)
 33. What is the current total number of volunteers, interns, practicum, or coop placements working more than 10 hours per week? 5 or less; 6-10; 11-15; 16-20; 21-25; 26-30; 31-35; 36-40; 41-45; 46-50; more than 50 (Publish in Green Book: Y/N)
 34. What is the current total number of volunteers, interns, practicum, or coop placements working less than 10 hours per week? 5 or less; 6-10; 11-15; 16-20; 21-25; 26-30; 31-35; 36-40; 41-45; 46-50; more than 50 (Publish in Green Book: Y/N)
 35. What was the organization's total budget in 2009? Less than 50K, 51K-100K, 101K-150K, 151K-200K, 201K-250K, 251K-300K, 301K-350K, 351K-400K, 401K-450K, 451K-500K, more than 500K
 36. What is the organization's total budget in 2010? Less than 50K, 51K-100K, 101K-150K, 151K-200K, 201K-250K, 251K-300K, 301K-350K, 351K-400K, 401K-450K, 451K-500K, more than 500K
 37. Approximately, what percentage of the organizations total budget is devoted to the administration and delivery of programs and goals related to environmental issues? Less than 20%; 21-40%; 41-60%; 61-80%; 81-100%
 38. Overall, how important would you say environmental issues are to the overall mission/vision of your organization? 1=little focus on environment, 2= several foci on environmental issues; 3= environmental issues are main focus but some other existent; 4=environmental issues are only focus
 39. Please select the organizational type that best describes the organization you represent (please check one) (Publish in Green Book: Y/N)
 - a. Private (for profit) organization
 - b. Non-profit organization
 - c. Charitable organization (registration)
 - d. Public/Government (e.g., Public Health)
 - e. Volunteer/informal (no employees and/or majority volunteers) organization
 - f. Other (please specify)
 40. Please select the categorizations that best describe the organization you represent (please check only one) (Publish in Green Book: Y/N)
 - a. Advocacy group
 - b. Community organization
 - c. Educational organization

- d. Academic/research
 - e. Funder
 - f. Policy
 - g. Technical advisor
 - h. Political group (elected official)
 - i. Consulting Group
 - j. Environmental business (e.g., production of environmental product)
 - k. Environmental services (e.g., retrofit)
 - l. Other (please specify)
41. Please select the secondary categorizations that also describe the organization you represent (please check all that apply) (Publish in Green Book: Y/N)
- a. Advocacy group
 - b. Community organization
 - c. Educational organization
 - d. Academic/research
 - e. Funder
 - f. Policy
 - g. Technical advisor
 - h. Political group (elected official)
 - i. Consulting Group
 - j. Environmental business (e.g., production of environmental product)
 - k. Environmental services (e.g., retrofit)
 - l. Other (please specify)
42. Please select the primary goals that best describe the environmental focus of the mission/goal of the organization you represent (please check only one) (Publish in Green Book: Y/N)
- a. Agriculture & Conservation
 - b. Energy
 - c. Transportation
 - d. Waste & Pollution
 - e. Water
 - f. Health
 - g. Other (please specify)
43. Please select any other goals that also describe the environmental focus of the mission/goal of the organization you represent (please check all that apply) (Publish in Green Book: Y/N)
- a. Agriculture & Conservation
 - b. Community Supported Agriculture
 - c. Energy
 - d. Green Buildings (Green roofs, energy efficient lighting, LEED designation)
 - e. GHG Audits and Inventories
 - f. Renewable Energy (assessment, installation, and maintenance)
 - g. Carbon offsets and renewable energy credits
 - h. Transportation
 - i. Carpooling
 - j. Car or ride share
 - k. Bike services
 - l. Teleconferencing
 - m. Waste & Pollution
 - n. Waste Audits and reduction strategies
 - o. Waste-to-energy
 - p. Waste education
 - q. Waste-pickup

- r. Contaminated site management
 - s. Brownfield redevelopment
 - t. Water
 - u. Water reduction strategies
 - v. Ground and surface water impact assessment (storm water management)
 - w. Health
 - x. EH&S Compliance Audits
 - y. Environmental Consulting
 - z. Other (please specify)
 - aa. Environmental law
 - bb. GHG strategy development
 - cc. Environmental employee engagement
44. How many multi-organizational initiatives (where your organization works closely with other organization(s) towards common goals) is your organization currently involved in ___ (Publish in Green Book: Y/N)
45. How effective do you think your organization is overall in realizing its environmental goals? 0=very little success, 1=somewhat successful, 2=successful; 3=great success
46. How effective do you think your organization is overall in reaching community members? 0=very little success, 1=somewhat successful, 2=successful; 3=great success
47. How effective do you think your organization is overall receiving funding? 0=very little success, 1=somewhat successful, 2=successful; 3=great success
48. What is your knowledge of social network analysis? 0=none, 1=very little knowledge, 2=some knowledge, 3=very knowledgeable

Network/Collaboration Information

Listed below are all agencies in the Region of Waterloo that we believe are involved in some way in addressing environmental issues. We would like to know what relationships your organization has to the other regional environmental organizations listed below.

Please go through the list and indicate which organizations your organization (this can obviously include organizational representatives of either of the organizations) was involved with over the past 6 months in relation to environmental issues.

49. Communication: 0=none; 1=every 6 months, 2=every two to three months; 3=every month; 4=weekly; 5=more than weekly
 Collaboration: indicate Y if existent

	Communication (not including mass emails/newsletters)			Collaboration			
Agencies	Send information such as coordination/ planning emails or phone calls, reports, research articles, blogs, ideas, events, funding opportunities, etc.	Receive information such as reports, research articles, blogs, ideas, events, funding opportunities, etc.	Have joint meetings related to projects, funding opportunities, planning, etc.	Non-financial formal agreements to work in collaboration on projects such as education, public support, etc.	Financial formal agreements to work in collaboration on projects such as education, public support, etc.	Shared resources such as offices, staff, databases, information technology, HR, wiki sites	Which organizations are represented on your board?

	s, etc.						
1	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	Y	Y	Y	Y
2	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	Y	Y	Y	Y
Other (specify)	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	Y	Y	Y	Y

50. For each of the categories below please identify only the 5 top organizations among the listed environmental organizations.

Which 5 organizations (other than your own) do you

	Communicate with most about issues related to the environment (not including mass emails/newsletters)? Please identify using √	Collaborate with most about issues related to the environment? Please identify using √	Trust most about issues related to the environment? Please identify using √	Admire for doing an especially outstanding job related to environmental issues? Please identify using √	Hope to collabora te in the near future related to environm ental issues? Please identify using √
Agencie s					
1					
2					
Other (specify)					

51. Please list any other groups (e.g., interest groups not listed above), organizations (e.g., newspapers), or individuals (e.g., politicians, experts) your organization is collaborating with (working together to achieve common goals) in terms of your environmental work on a regular basis.

Benefits and Drawbacks of Collaboration and Networking

52. Please provide your organization's general perception of benefits of collaboration and networking by rating the statements below and indicate if you do not expect, expect, or you think they already occurred among local environmental organizations.

1=not at all, 2=somewhat, 3= quite a bit, 4=very much so

A=do not expect to occur, B=expect to occur, C=already occurred

53. Please provide your organizations general perception of drawbacks of collaboration and networking and by rating the statements below and indicate if you do not expect, expect, or you think they already occurred among local environmental organizations.

1=not at all, 2=somewhat, 3= quite a bit, 4=very much so

A=do not expect to occur, B=expect to occur, C=already occurred

My organizations generally believes that collaboration with other organizations results in:	Disagree/Agree	
Taking too much time and resources	1 2 3 4	A B C
Loss of control/autonomy over organizational decisions		
Strained relations within own organization		
Difficulty in dealing with partners		
Insufficient credit given to our agency		

Effectiveness of the Collaboration among Regional Environmental Organizations

54. Please rate the statements below.

1=not at all, 2=somewhat, 3= quite a bit, 4=very much so

The current level of collaboration among regional environmental organizations effectively:	
Unifies organizations towards joint goals	1 2 3 4
Engages organizations in new and broader environmental issues	1 2 3 4
Creates political interest through demonstrating and developing public support	1 2 3 4
Increases critical mass that extends the reach of individuals or organizations	1 2 3 4
My organizations generally believes that collaboration with other organizations results in:	Disagree/Agree
Acquisition of new knowledge or skills	1 2 3 4
Acquisition of new/additional funding or other resources	
Increased utilization of organization's services	
Development of new relationships that are helpful for our organization	
Heightened public profile of the organization	
Enhanced influence in the community	
Enhanced influence on funders	
Enhanced influence on policymakers	
Increased ability to shift resources	
Creates trust among organizations and communities	1 2 3 4
Assembles different resources, skills, and expertise	1 2 3 4
Recruits diverse constituencies (e.g., politics, business),	1 2 3 4
Utilizes emerging resources (e.g., funding, expertise)	1 2 3 4

Formalization of the Collaboration of Regional Environmental Organizations

55. Please provide your organization's view regarding formalization of collaboration among the regional environmental organizations (for example creating more formalized ties, a formal coalition, an umbrella group, or other formalized body).

1=not at all, 2=somewhat, 3= quite a bit, 4=very much so

My organization believes that there is need to:	
Increase the effectiveness of the collaboration of local organizations in general	1 2 3 4

Create more formalized ties among local organizations	1	2	3	4
Create a formalized coalition among local organizations	1	2	3	4
Create a formalized umbrella group or other formal body among local organizations	1	2	3	4

Thank you for participating in this first survey – your information is imperative for the success of this research and for assessing the current level of collaboration among local environmental organizations. Following an analysis of the data, we will invite your organization to send one or two staff (hopefully including you) to a meeting that will take approximately 90 minutes. The meeting will be held with representatives of all organizations that have participated in the pretest to discuss the maps/graphs that are the result of analyzing the social network data and engage the organizational representatives to potentially make decisions related to the effectiveness of collaboration among organizations.

Following the meeting, we will invite your organization to participate in a survey to find out the usefulness of using social network analysis as a tool to facilitate a process to increase understanding of the level of collaboration, the relationships between environmental organizations, as well as enhance the level of informed decision-making related to the structure of collaboration among organizations.

If you have any questions, please contact Felix Münger: Wilfrid Laurier University, 75 University Ave W. Waterloo ON N2L 3C5, phone: 519-884-0710 ext. 4250, mung1340@mylaurier.ca.

Again, thank you very much.

Felix Münger

Appendix 6: Wilfrid Laurier University Research Ethics Approval**LAURIER**
Research

January 19, 2011

Felix Munger
Psychology
Wilfrid Laurier University

Dear Mr. Munger:

Re: REB # 2627

Your Research Proposal Entitled, "Assessing the usefulness of social network analysis as a process tool to understand and improve existing organizational collaboration"

I have reviewed the changes (changes in compensation; clarification of study purpose) to the above proposal and determined that they are ethically sound.

If the research plan and methods should change in a way that may bring into question the project's adherence to acceptable ethical norms, please contact me as soon as possible and before the changes are put in place.

Yours sincerely,



Robert Basso, PhD
Chair, University Research Ethics Board

pb

cc: M. Pancer; U. Glisic.

Office of Research Services

Wilfrid Laurier University, Waterloo, Ontario, Canada N2L 3C5

Telephone: 519.884.0710 Ext. 3689 www.wlu.ca/research

Appendix 7: Phase 2 Letter re Study Modification

May 2012

RE: Minor Changes to the Study on Local Collaboration Among Environmental Organizations

Dear participant,

We, that is Felix Munger and Dr. Manuel Riemer, would again like to thank you and your organization for your participation in the first part of the study entitled *Assessing the Level of Collaboration Among Local Environmental Organizations*.

As a reminder, the original purpose of this study is to create an analysis of the current level of collaboration among environmental organizations, to investigate the usefulness of using social network analysis as a process tool with regards to organizational collaboration, and to develop a database of regional environmental organizations.

Despite some setbacks, we are determined to continue with the study and have proposed some modifications to increase our efforts to investigate questions regarding organizational collaboration. Whenever significant changes are made to the study procedures, we are expected to inform our participants about those changes.

The changes include the following components:

1. Assistant professor **Manuel Riemer** is now the official study supervisor (formerly Dr. Mark Pancer). Manuel Riemer can be reached at Wilfrid Laurier University, 75 University Ave W., Waterloo ON N2L 3C5, 519-884-0710 ext. 2982, mriemer@wlu.ca.
2. The **completion date** of the overall study is now March 31, 2013.
3. The **aim of the study** is now as follows (only one aim is new):
 - Describing the current level of collaboration among regional environmental organizations (existing)
 - Identifying the perceived usefulness of social network analysis (existing)
 - Contributing to theory development and best practice on organizational collaboration by documenting definitions, values, applications, strategies, and outcomes (**new**)
4. The **third study component** has changed from a survey aimed with all participants to interviews and focus groups with selected participants. We plan to conduct 8-14 interviews and 3 focus groups between May and July 2012 each taking between 60 and 90 minutes.

How might this affect your participation in the study?

First, we will not ask you to complete the originally planned survey following the meeting to discuss the network findings in May 2012. However, we will ask a select number of you to participate in either a voluntary interview or focus group. To ensure informed consent, those who will participate in an interview or focus group will be asked to complete a short additional informed consent form.

If you feel that these changes are unacceptable and would like to remove your organization from the study, please let us know.

If you have any questions about the study or the changes, please contact Felix by email or telephone as noted below. These changes to the study were reviewed and accepted by the Office of Research Ethics at Wilfrid Laurier University (approval number 2627). Should you have any comments or concerns resulting

from your participation, please contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

Warm regards,

Felix Munger & Manuel Riemer

Appendix 8: Phase 2 Script for Interview and Focus Group Invitation

Script for contact with potential participants for interviews / focus groups

This script will be read to potential participants for an interview or focus group over the phone or in person

Thank you for your participation so far in the study called *Assessing the Level of Collaboration Among Local Environmental Organizations!*

I would like to invite you to participate in the second part of the study.

To remind you, the overall purpose of this study is to create an analysis of the current level of collaboration among environmental organizations, to investigate the usefulness of using social network analysis as a process tool with regards to organizational collaboration, to develop a database of regional environmental organizations, and to contribute to theory development and best practice on organizational collaboration.

As you will remember from the recent letter I sent, we are determined to continue with the study and have proposed some modifications to increase our efforts to investigate questions regarding organizational collaborative.

The changes include the following components:

5. Assistant professor **Manuel Riemer** is now the study supervisor (formerly Dr. Mark Pancer).
6. The **completion date** of the overall study is now March 31, 2013.
7. The **aims of the study** now are as follows (only one aim is new):
 - a. Existing
 - i. Describing the current level of collaboration among regional environmental organizations
 - ii. Identifying the perceived usefulness of social network analysis
 - b. New
 - i. Contributing to theory development and best practice on organizational collaboration by documenting definitions, values, applications, strategies, and outcomes
8. The **third study component** has changed from a survey aimed with all participants to interviews and focus groups with selected participants.

Hence, I plan to conduct 8-14 interviews and 3 focus groups between May and July 2012.

PARTICIPATION

Given your experience with collaboration and your role within your organization, I would like to invite you to participate in an interview/focus group.

The interview/focus group that will last approximately 60-90 minutes. You will meet with me to talk about your thoughts on issues on collaboration and social network analysis such as:

- To what extend do you think the communication of network analysis result may facilitate a) improved understanding of collaborative structure and b) informed thinking about collaboration decision-making)

- Definitions, experiences, challenges, benefits, examples, values, applications, strategies, and outcomes of organizational collaboration.

Participation is completely voluntary. In addition, you can omit any questions or procedures that you wish without any consequence. You also have the option to conceal your identity during the interview/focus group. If you withdraw from the overall study, your and your organizational data will be returned to the organization or destroyed.

The interview/focus group will be audio taped, unless you prefer the interview not to be audio taped, transcribed (by me or a research assistant), any identifying information will be removed, and the original audio recording will be destroyed. I may also take notes during these sessions.

If you prefer the interview/focus group not to be audio taped, I will take handwritten notes during the interview.

Depending on availability, preference, and convenience, interviews will take place at either: your home, your office, an office within the university, or over the phone.

RISKS related to the interview/focus group

There are little reasonably foreseeable psychological or emotional risks related to the interview/focus group of this study. It is possible, however, that you may experience some negative or painful emotions when talking about your organization's position during the interview or focus group. These feelings are normal and should be temporary. You are allowed to refuse to engage in discussions and are free to leave the interview or focus group.

BENEFITS related to the interview/focus groups

Anticipated benefits include a deeper understanding of collaboration, more knowledge about how to overcome challenges of collaboration, and tools to systematically investigate collaboration effectiveness in your professional work.

Furthermore, the study's findings may pave the way and eventually result in changes that assist collaborating organizations to be more effective by developing process tools.

COMPENSATION

There is no compensation for participating in an interview or focus group.

The modifications to this study have been reviewed and approved by the University Research Ethics Board (approval number 2627). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

FEEDBACK

If you wish, you will be able to receive a copy of the research report, which should be available by March 2013.

If you have any questions, please let me know.

Would you like to participate in the interview/focus group?

- 1) **Yes:** Thank you. I am delighted that you have chosen to participate. Are you willing to set up an interview/focus group or would you like to receive the consent form prior to making a decision?

If you have questions at any time about the study or the procedures, you may contact myself, **Felix Munger** at 519-884-0710 ext. 4250 or mung1340@wlu.ca, **Dr. Riemer** faculty and supervisor, 519-884-0710 ext. 2982 or mriemer@wlu.ca. This project has been reviewed and approved by the University Research Ethics Board. You may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

2) **No:** Thank you for your time and allowing me to introduce the research project. If you change your mind, please feel free to contact me any time.

If you have questions at any time about the study or the procedures, you may contact myself, **Felix Munger** at 519-884-0710 ext. 4250 or mung1340@wlu.ca, **Dr. Riemer** faculty and supervisor, 519-884-0710 ext. 2982 or mriemer@wlu.ca. This project has been reviewed and approved by the University Research Ethics Board. You may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

Appendix 9: Phase 2 Addendum Consent Form

Thank for agreeing to participate in an interview or focus group. Please familiarize yourself with the original informed consent statement for the study because it still applies to the overall study. Then please carefully read the information below and decide if you are still willing to participate

CHANGES TO ORIGINAL STUDY

We are asking you to read and complete an addendum to the informed consent statement because this study has been modified as communicated in an earlier letter.

To remind you, the study aims have slightly changed and are now as follows:

- Existing aims
 - Describing the current level of collaboration among regional environmental organizations
 - Identifying the perceived usefulness of social network analysis
- New aim
 - Contributing to theory development and best practice on organizational collaboration by documenting definitions, experiences, challenges, benefits, examples, values, applications, strategies, and outcomes of organizational collaboration

As a result of the new aim, the third procedure has changed and is now an interview or focus group for a selected number of participants instead of a survey.

What is involved in an interview/focus group?

If you agree to participate in the new third study procedure, you will be asked to participate in a one-on-one interview or a focus group that will last approximately 60-90 minutes. You will meet with me to talk about your thoughts on collaboration and social network analysis such as:

- To what extent do you think the communication of network analysis result may facilitate a) improved understanding of collaborative structure and b) informed thinking about collaboration decision-making)
- Definitions, experiences, challenges, benefits, examples, values, applications, strategies, and outcomes of organizational collaboration

You do not need to answer these questions and you are free to withdraw from the interview/focus group at any time. You also have the option to conceal your identity during the interview and focus group.

The interview/focus group will be audio taped, unless you prefer the it not to be audio taped, transcribed (by me or a research assistant), any identifying information will be removed, and the original audio recording will be destroyed. I may also take notes during these sessions.

If you prefer the interview/focus group not to be audio taped, I will take handwritten notes during the interview.

RISKS related to the interview/focus group

There are little reasonably foreseeable psychological or emotional risks related to the interview /focus group. It is possible, however, that you may experience some negative or painful emotions when talking about your organization's experiences with collaboration during the interview/focus group. These feelings are normal and should be temporary. You are allowed to refuse to engage in discussions and are free to leave the interview/focus group. At the end of this addendum, you will find a list of local crisis services. If need be, I will stay with you in person or over the phone until such services are being obtained.

BENEFITS related to the interview/focus group

Anticipated benefits include a deeper understanding of collaboration, more knowledge about how to overcome challenges of collaboration, and tools to systematically investigate collaboration effectiveness in your professional work.

Furthermore, the study's findings may pave the way and eventually result in changes that assist collaborating organizations to be more effective by developing process tools.

CONFIDENTIALITY related to the interview/focus group

Every effort will be made to keep your personal information confidential:

- Your name will not be disclosed to anyone outside the researchers.
- Study data that includes personal and organizational data will be kept for 7 years post study and then destroyed by Dr. Riemer on April 2018;
- De-identified electronic study data will be kept indefinitely but all de-identified paper copies will be destroyed on April 2018 by Dr. Riemer;
- Your name will not be used in any reports about the study;
- Your consent forms and interview notes will be collected by me and stored in a securely locked cabinet in my office at Wilfrid Laurier University; and
- Electronic data will be kept on my or Dr. Riemer's password protected computer and hardcopy data will be stored in a locked cabinet in my office or Dr. Riemer's office.

The following individual will be the only people to have access to your data:

Felix Munger, WLU, PhD Student;
Dr. Manuel Riemer, WLU, Assistant Professor.

COMPENSATION

There is no compensation for participating in the interview/focus group.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the principal investigator, Felix Munger: Wilfrid Laurier University, 75 University Ave W. Waterloo ON N2L 3C5, phone: 519-884-0710 ext. 4250, mung1340@mylaurier.ca; or Dr. Manuel Riemer, Wilfrid Laurier University, 75 University Ave W., Waterloo ON N2L 3C5, 519-884-0710 ext. 2928, mriemer@wlu.ca (academic supervisor for Felix Munger).

The modifications to this study have been reviewed and approved by the University Research Ethics Board (approval number 2627). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 5225, rbasso@wlu.ca.

PARTICIPATION in the interview/focus group

Participation in any procedures of the study is completely voluntary. In addition, you can omit any questions or procedures that you wish without any consequence. If you withdraw from the overall study, your and your organizational data will be returned to the organization or destroyed. If you decide to withdraw from the interview/focus group, your data will be destroyed.

CONSENT

- I have read and understand the modifications of the study.
- I have read and understand the above information related to the interview/focus group.
- I have reviewed my original informed consent form.
- I have received a copy of this form.

I agree to participate in an interview/focus group.

(8) Quotations resulting from interviews/focus groups

I consent to allow use of direct quotations from the interview/focus group (without either the organization's and/or representative's name attached to it) in a published document

I would like to have the opportunity to review, accept, or reject quotes prior to publication.

Please note that this process will take place via email and confidentiality of data cannot be guaranteed while data are in transit over the internet.

Study Participant:

Signature: _____

Date: _____

Name: _____

Please Print

Waterloo Region Crisis Services

Police	519 653-7700 or 911
Grand River Hospital	519 742-3611
St. Mary's Hospital	519 744-3311
Mobile Crisis Team	519 744-1813 or 1-866-366-4566

Distress Lines

CMHA (Community Mental Health) distress line	519 745-1166
K-W Crisis Clinic	519 742-3611
Victim Support Line	1-888-579-2888

Appendix 10: Phase 2 Interview and Focus Group Guide

Introduction

Thank you very much for agreeing to meet with me today.

Before I begin, I'd like to remind you of the changes to this research as outlined in the addendum consent form and the information letter.

This study now aims to

- Describing the current level of collaboration among regional environmental organizations (existing)
- Identifying the perceived usefulness of social network analysis (existing)
- Contributing to theory development and best practice on organizational collaboration by documenting definitions, values, applications, strategies, and outcomes (new)

Having already conducted a network analysis of the collaboration among environmental organizations, I am now trying to deepen my understanding of organizational collaboration in terms of how it is defined, valued, and what some of the negative and positive outcomes are.

I would also like to discuss in detail how collaborations are developed in terms of the process and what tasks tend to be or should be most important in developing good collaborations. I would like then to move on to discuss the network structure identified through network analysis and if seeing the structure may be useful or not.

Provide handout of sociogram to interviewee(s) showing particular group.

People have different views of the value of collaboration. It is very important that you are very honest with me so I can get the best possible picture on collaboration.

Please feel free to go off track at any time during this focus group when your thoughts lead you away from the actual interview questions. This information is equally important to me.

Let us establish some norms: please consider confidentiality of the information shared by the other participants of this focus group. You do not have to share your personal identities and you do not have to answer questions that you do not feel comfortable answering.

Finally, please let me know at any time if you feel uncomfortable to answer any of my questions.

Do you have any questions or concerns before we get started?

I understand that you agreed for this interview to be recorded. Is that correct?

I will turn the recorder on now. Please let me know if at any time you would like to me to turn off the recorder to say something "off the record."

Collaboration

1. First, I'd like to discuss organizational collaborations.

- When you think of organizational collaboration, what comes to mind?
 - What do collaborations generally look like?
 - What are the generally the goals of collaborations?

Now, I would like to present you with the way I conceptualize organizational collaboration

Provide handout of information below to interviewee(s)

I see organizational collaboration as organizations working with other organizations on joint projects with a common goal. Examples include

- education,
- research,
- programs, and
- advocacy.

Such collaborations are characterized by

- working collaboratively towards common goals with different levels of agreements (ranging from informal to formal and from non-financial to financial) and
- can include shared resources such as offices and staff.

Collaboration does not mean simply sending or receiving information and/or having joint meetings but can include action group meetings, roundtable meetings, or umbrella group meetings where the work is towards a commonly identified goal.

- What do you think about this definition?
- Does it fit with your experience of this collaboration? If not, what is different?

2. Now I would like to ask you a few questions about the overall experiences collaborating among each other – collaborating among the organizations that are focussing on ISSUE.

- Given the definitions above, would you consider your groups efforts collaboration?
- When did you start collaborating as a group?
 - How and/or by whom was the collaboration initiated?
- Reflecting back on past collaborations, how would you describe how you went about go about developing this organizational collaborations?

Prompts

- Progression over time – provide an example
- Different actions, steps, tasks – provide an example
- As a group, what kind of tensions did you experience?

Prompts:

 - Values and beliefs that guided the initiation of these organizational collaborations
 - Challenges
 - Benefits
 - Have you personally enjoyed or appreciated participating
- Are there power struggles related to your particular collaboration?
 - Gender
 - Size,
 - Organizational focus
 - Organizational age
- In terms of some of the challenges you have described, do you think there were any particular steps, tasks, actions that were missed?
 - Different actions, steps, tasks – provide an example

3. Part of what I am interested in is finding out the way in which organizational collaborations develop over time from an initial idea to implementing an organizational collaboration such as (use example provided by interviewee).
- Reflecting back on past collaborations, how would you describe how organizations tend to go about developing successful organizational collaborations?
 - Prompts**
 - Progression over time – provide an example
 - Different actions, steps, tasks – provide an example
 - Some of the collaborations you have described that were not successful, do you think there were any particular steps, tasks, actions that were missed?
 - Different actions, steps, tasks – provide an example

Network Analysis

In this last section, I'd like to discuss the use of network analysis as a tool to understand and inform organizational collaboration. When answering the questions, please consider that the analysis of the network happened about one year ago.

1. First, let's talk about the visual representation of local organizational collaboration.
 - What is/was your first reaction seeing the overall level of collaboration among environmental organizations in the region that existed one year ago?
 - Were you surprised, concerned, impressed?
 - How well do you think the visual representation reflects the overall level of collaboration among environmental organizations in the region that existed one year ago?
 - What is different
 - What is off
 - Why/how
 - If necessary, what actions could be taken to increase the level of local organizational collaboration?
 - If necessary, what resources should be provided to increase the level of local organizational collaboration?
 - How do you see the future of organizational collaboration in Waterloo Region?
2. Now, let's talk about the usefulness of network analysis in understanding and informing collaboration.
 - What do you think about network analysis as a process tool to understand levels of collaboration among organizations?
 - Most helpful aspect
 - Least helpful aspect
 - Do you think the use of network analysis to visualize local collaboration might impact the way you and/or your organization think of organizational collaboration?
 - Why do you think it may inform or may not inform thinking about organizational collaboration?
 - How do you think it may inform or may not inform thinking about organizational collaboration?

- Will you use the information from the network analysis to **inform or change** the way you and/or your organization collaborate with other organizations?
 - Why do you think it may inform or may not inform action regarding organizational collaboration?
 - How do you think it may inform or may not inform action regarding organizational collaboration?
 - Are you planning to use the information?
- Looking back at the use of network analysis, was there something about this particular process that might have made the application of network analysis more useful?
- What should be done differently next time when using network analysis?
- Are there any circumstances where network analysis could be useful in organizational collaboration?

Is there anything else you think I should know about and that you would like to share?

Thank you very much for participating in this interview/focus group.