

Western  Graduate&PostdoctoralStudies

Western University  
Scholarship@Western

---

Electronic Thesis and Dissertation Repository

---

12-14-2018 10:00 AM


# The uphill battle of environmental technologies: Analysis of local discourses on the acceptance and resistance of Green Bin programs

Carrie Warring  
*The University of Western Ontario*

Supervisor  
Baxter, Jamie  
*The University of Western Ontario*

Graduate Program in Geography  
A thesis submitted in partial fulfillment of the requirements for the degree in Master of Arts  
© Carrie Warring 2018

Follow this and additional works at: <https://ir.lib.uwo.ca/etd>

 Part of the [Environmental Studies Commons](#), [Human Geography Commons](#), and the [Political Theory Commons](#)

---

## Recommended Citation

Warring, Carrie, "The uphill battle of environmental technologies: Analysis of local discourses on the acceptance and resistance of Green Bin programs" (2018). *Electronic Thesis and Dissertation Repository*. 5951.

<https://ir.lib.uwo.ca/etd/5951>

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact [wlsadmin@uwo.ca](mailto:wlsadmin@uwo.ca).

## Abstract

Many Canadian municipalities have been looking for alternative sustainable waste management solutions since landfill capacity has been decreasing and siting new facilities often results in vehement local opposition. In Ontario, there is no provincial mandate for organic waste diversion targets, where most large-sized municipalities have implemented a Green Bin program while other jurisdictions of varying size still have not. This paper uses discourse analysis to explore predominant and counter discourses that have resulted in Guelph sustaining a Green Bin program, while London has not implemented a Green Bin. Manuscript one explores the interaction of provincial and local municipal discourses in London, Ontario in not adopting a Green Bin program. The findings of this study contribute to understanding the power of discourses in technological and environmental debates to overcome the inertia of the *status quo*. To examine this further, manuscript two is a comparative case study focused on two municipalities, London and Guelph each with a different approach to the management of organic waste as it relates to Green Bin. This study identified the prominent discourses that represent eco-centric positions, as found in Guelph, are more often discursively juxtaposed against economic conservatism discourses, such as in London. In this study, the discursive positions (eco-centric and conservative) are ingrained within

the local municipal discourse and is highly representative of a community coherence on an environmental issue. Overall, the implications of this study find that there is an interface between community coherence and perceived risk of new technology. Such that, in the face of crisis or perceived risk, the community tends to be risk averse, prompting less risky intermediary acceptable risks to be supported.

## **Keywords**

Environmental policy, discourse analysis, organic waste, Green Bin, organic waste technology, place, identity.

## **Co-Authorship Statement**

Both integrated articles within this thesis will be submitted for publication in peer-reviewed journals. Chapter 3 and Chapter 4 are my original work, with Dr. Jamie Baxter, Dr. Sarah Mason-Renton and Dr. Isaac Luginaah as co-authors on Chapter 3. Dr. Jamie Baxter, my thesis supervisor, is a co-author on both Chapter 3 and Chapter 4. I am the primary author and performed all data collection, analysis, and writing of each article. Dr. Sarah Mason-Renton and Dr. Isaac Luginaah were involved in the development of the theoretical framing in Chapter 3 as a component of completed course work.

## Acknowledgements

This thesis could not have been completed without the great support that I have received from so many people over the years. First and foremost, I would like to begin by acknowledging my incredible advisor, Dr. Jamie Baxter for his continued support, guidance, and feedback. Early on, Jamie was instrumental in broadening my knowledge in human geography and challenged my critical thinking over the past four years, exponentially adding to my intellectual growth. For this, I cannot thank you enough.

Secondly, I would like to thank my geography friends and colleagues who have supported me along the way including, but not limited to, Fatih Sekercioglu, Christine Smith, Sarah Mason-Renton, Yvonne Rollins, Lori Johnson and Isaac Luginaah. To all of you who have been a strong source of support and encouragement along the way. I will cherish all of the many conversations and insights that you have shared with me. I would also like to express my appreciation to the faculty members who have strengthened my understanding of philosophy; Dr. Hopkins and Dr. Ashmore, research design; Dr. Moser, qualitative methodology; Dr. White, environment and health; Dr. Luginaah, and a very special thanks my committee member to Dr. Hunsberger.

This experience has been a source of tremendous learning and growth for me both academically, professionally and personally. I am truly grateful for all of the amazing experiences and have found this process to be invaluable and rewarding.

# Table of Contents

Abstract.....	i
Keywords .....	ii
Co-Authorship Statement.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables .....	vii
List of Figures .....	viii
List of Appendices .....	ix
<b>Chapter 1: Introduction</b>	
1.1. Research Context .....	1
1.2. Review of Literature .....	2
1.2.1. International Context.....	2
1.2.2. Ontario Provincial Policy .....	4
1.2.3. Review of local technologies.....	5
1.2.4. Economics of waste management.....	6
1.2.5. Renewable technologies .....	8
1.3. Research Goal and Objectives.....	10
1.4. References .....	12
<b>Chapter 2: Methodology</b>	
2.1. Discourse Analysis Overview.....	14
2.2. Manuscript One Methodology.....	16
2.2.1. Criteria for data .....	16
2.2.2. Document Selection .....	17

2.3.	Manuscript Two Methodology.....	18
2.3.1.	Overview .....	18
2.3.2.	Participant Selection Criteria .....	18
2.3.3.	Participant Sampling .....	19
2.3.4.	The Interview Process.....	21
2.3.5.	Document Analysis.....	22
2.4.	References .....	23

**Chapter 3: Paralysis by Analysis or Precautionary Paralysis: Policy and Environmental Discourses in the Management of Residential Organic Waste**

3.1.	Introduction .....	1
3.2.	Theoretical Framework of Policy and Discourse.....	4
3.3.	Community Context.....	8
3.4.	Methodology – White paper and media analysis .....	11
3.4.1.	Data Sources.....	11
3.4.2.	Coding the policy claims.....	14
3.5.	Results.....	14
3.6.	Discussion .....	32
3.7.	Conclusion.....	35
3.8.	References .....	38

**Chapter 4 Municipal Identities: The case of residential food and organic waste curbside collection (Green Bin) in London and Guelph, Ontario**

4.1.	Introduction .....	44
4.2.	Background and Review of Literature .....	46
4.2.1.	Environmental Policy .....	46
4.2.2.	Conceptualizing Waste as a Resource .....	51
4.2.3.	Municipal contexts for the case studies .....	52
4.3.	Methodology.....	56
4.3.1.	Media and Document Analysis.....	56
4.3.2.	In-depth Interviews.....	57
4.3.3.	Participants.....	59
4.3.4.	Participant Selection.....	59
4.4.	Results.....	61
4.5.	Summary .....	77
4.6.	Discussion and Conclusion.....	78
4.7.	References .....	82
	<b>Chapter 5: Synthesis .....</b>	<b>86</b>
5.1.	The intersection between policy making, community coherence and discourse.....	86
5.2.	Limitations .....	90
5.3.	Future Research.....	90
5.4.	References .....	92
	<b>APPENDICES .....</b>	<b>I</b>

## List of Tables

<b>Table 3.1</b> Key Provincial legislation and white papers and city of London planning strategies regarding organics management and Green Bin: categorized by year and type of uncertainty .....	12
<b>Table 3.2</b> The Provincial discourse surrounding organic waste and representative claims. ....	16
<b>Table 3.3</b> London’s local discourse and counter discourse .....	20
<b>Table 4.1</b> Historical review of policy decisions in London, Guelph, and the provincial government.....	54
<b>Table 4.2</b> Semi-structured Interview Guide.....	58
<b>Table 4.3</b> Key Stakeholders in London and Guelph .....	60
<b>Table 4.4</b> Meta-discourse and predominant discourses in London and Guelph .....	61



## List of Figures

<b>Figure 1.1</b> Waste Hierarchy .....	3
<b>Figure 3.1</b> Map of London Ontario .....	9
<b>Figure 4.1</b> Map of Guelph and London .....	52

## List of Appendices

<b>Appendix A</b> Interview Guide.....	I
<b>Appendix B</b> Letter of Information.....	III
<b>Appendix C</b> Autobiographical Statement.....	VIII
<b>Appendix D</b> Research Ethics Approval Form for Use of Human Participants.....	IX

# Chapter 1: Introduction

## 1.1. Research Context

In Ontario, Canada many large municipalities have adopted and implemented a residential organic waste separation and collection system, known as Green Bin. Many of these large-sized municipalities have decreased landfill capacity and sought to achieve an alternative method to ensure waste continues to be managed locally, thereby adopting a Green Bin program with aerobic or anaerobic processing. Despite this shift towards alternative methods, one large-sized municipality has not adopted a Green Bin program, which begs the question, why not?

The decision to implement a Green Bin program for a number of municipalities is due to the state of landfills, as most municipalities have landfills with limited life span capacity or have no available new landfill sites. This situation forces municipalities to look for more sustainable options as a solution. Many municipalities have implemented a Green Bin program with varying success. Since 2016, approximately 24 municipalities in Ontario have implemented a Green Bin program (Resource Productivity & Recovery Authority, 2016). While the Green Bin program offered a new solution to a growing problem, the program was met with varying levels of success across the province. Success is often measured solely by municipal waste diversion rates. However, it can also be discussed in terms of costs, level of community support, and improvement over time. Municipalities are also faced with making decisions on the type of organic waste

processing technologies to employ, such as aerobic or anaerobic digestion with energy recovery. Currently, there are a limited number of studies focused on why municipalities vary in the strategies to manage organic waste (landfill vs. composting vs. energy recovery).

To better understand these strategies at a local level, this thesis will contribute to the emerging literature on waste policy decisions by using London and Guelph, Ontario as in-depth case studies and drawing comparison between the two municipalities with different organic waste management approaches; one municipality with a Green Bin program (Guelph) and one municipality without a Green Bin program (London). The aim of this thesis is to explore the predominant and counter-discourses that persuade for the acceptance or rejection of a waste technology, Green Bin, within two Ontario communities.

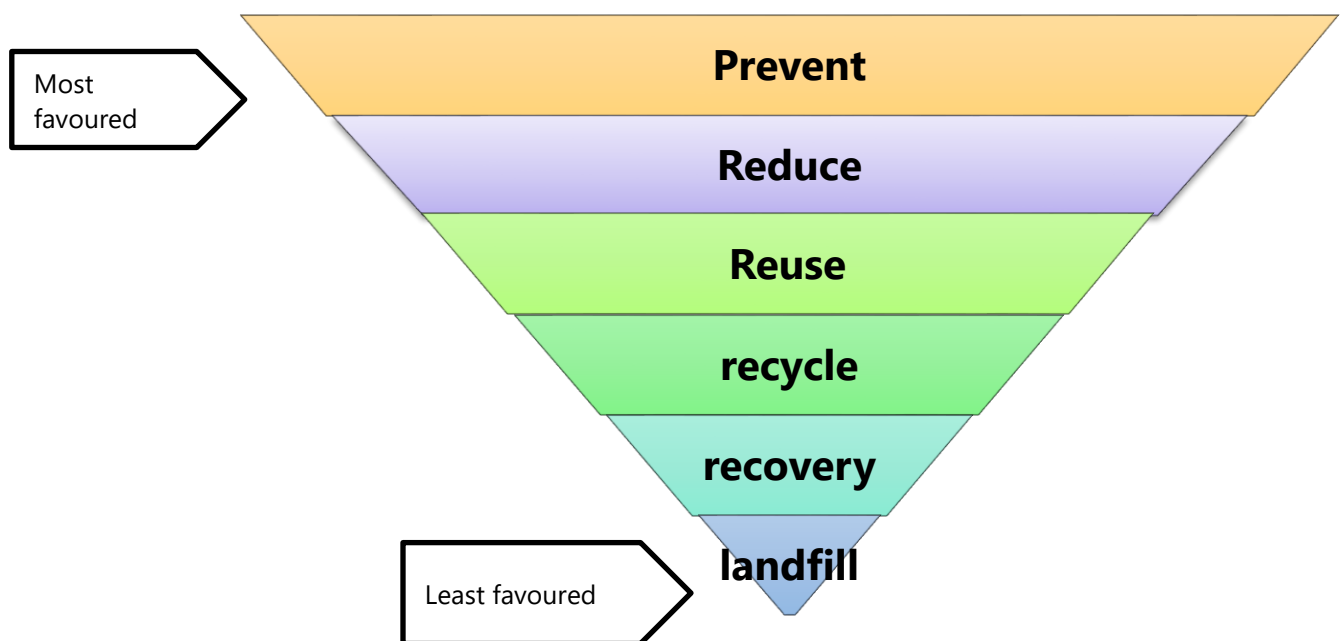
## **1.2. Review of Literature**

### **1.2.1. International Context**

Most of the academic literature on waste management analysis and policies stems from the European Union (EU) and the United Kingdom. One notable piece of legislation was the Waste Framework Directive (WFD) (European Parliament Council, 2008) that was passed in 2008, as this legislation made waste management programs mandatory for the EU member states (European Commission, 2015). The WFD emphasizes the importance of protecting the environment and human health as a

central tenet to planning waste policies by local authorities. The EU politicians recognized the limited capacity of landfill space and decided to investigate long lasting sustainable management waste solutions (European Commission, 1999). As a waste management policy strategy, the EU used the waste hierarchy to aid in the decision-making process to ensure the most favourable option is utilized to limit environmental impacts. The top option in the hierarchy is prevention, followed by reuse, recycle, recover and lastly disposal (Papargyropoulou et al., 2014; Bulkeley & Askins, 2008) (Figure 1.1). Waste prevention is a recurring theme in the literature, at both the industry and private household sectors as a priority area, as it aims to reduce excess and unnecessary waste generation. Whereas, the lowest and least favourable disposal option is landfill (Papargyropoulou et al., 2014; Bulkeley & Askins, 2008).

Figure 1.1 Waste Hierarchy (adapted from the EU waste framework directive) (2008)



Since the enactment of the WFD, many European countries, in particular the United Kingdom (UK), have conducted research into the management of waste. Bulkeley and Askins (2008) examined a review of the current state of biodegradable waste in the UK system shortly after the WFD was implemented. The study reviewed the status of waste management before and after the waste framework directive. In the 1990s, the waste management system in the UK closely mirrored the current situation in Ontario, such that landfills were seen as economically efficient and the disposal option of choice. Once the WFD was enacted in 2008, a shift occurred and the waste “issue” was then framed in terms of its environmental impacts and not in terms of the cost efficiency of disposal (Bulkeley & Askins, 2008). Apart from this example, a growing number of policies have focused on food waste prevention from households given the potential to reduce Green House Gas (GHG) emissions generated from the methane gas they produce in landfills (Adhikari, Barrington & Martinez, 2006).

### **1.2.2. Ontario Provincial Policy**

While the international context surrounding waste reduction has been on-going since the early 1990s, in Ontario the implementation of such policies are in its infancy. The Province of Ontario has released several white papers on waste management priorities and sets the tone for municipal approaches in tackling various waste sectors. The white papers fall under the authority of the Ministry of Environment, Conservation

and Parks (MECP)<sup>1</sup>. The notable white papers surrounding organic waste began in 2004, as The Ministry of Environment (MOE) focused on the large contribution of organics in the waste stream with an emphasis on voluntary municipal Green Bin programs. In 2009, the focus shifted toward emerging green technologies for waste processing, such as aerobic digestion facilities, while in 2013 the increased responsibilities of private industries was the predominant focus. The latest white paper, published in 2015, focused on building the circular economy and views waste as a resource. The circular economy means “an economy in which participants strive to minimize the use of raw materials, to maximize the useful life of materials and other resources through resource recovery, and to minimize waste generated at the end of life of products and packaging (MECP, 2018, p. 28) Each white paper builds upon the current challenges and political direction within that timeframe.

### **1.2.3. Review of local technologies**

There are few empirical studies conducted in Ontario that evaluate the effectiveness of household source separated organics collection and treatment (Green Bin). One study conducted by Otten (2001) compared the effectiveness of 2-stream (organic and recyclables) versus 3-stream (garbage, organic, recyclables) separation to increase public interest and participation at the residential level. The study presented

---

<sup>1</sup> Formally the Ministry of Environment (2003-2014), Ministry of Environment and Climate Change (2014-2018) and current Ministry of Environment, Conservation and Parks (2018-)

waste diversion systems in three Canadian cities: Lunenburg, Nova Scotia, Guelph, Ontario and Caledon, Ontario. The study found that the 2-stream (organic and recyclables) was highly effective, as demonstrated by Guelph's 98% participation rate.

Other organic diversion studies have examined the source of waste and the effectiveness of discouraging the generation of household food waste as a method of diversion from landfill. To quantify the impact of household food waste, Gooch, Felfel and Merenick (2010) found that Ontarians wasted approximately \$27 million in food annually, half of which is at the household level. The causes for food waste are the result of cooking/ preparing too much, not using the food in time and not consuming left overs in time (Gooch, Felfel & Merenick, 2010). To address household waste management, Parizeau, von Massow & Martin (2014) found that waste management policies should not primarily focus on end stage processing solutions, as equal importance should be placed on efforts to minimize waste at the household level through food waste reduction, and education focused on household food wasting behaviours.

#### **1.2.4. Economics of waste management**

One of the most influential factors in municipal decision making is the cost associated with providing waste management services. The economic costs of waste management can be difficult to evaluate, as Otten (2001) found there are discrepancies and inconsistencies in calculating the costs associated with various collection and



disposal methods, finding the financial assessments provide numerical estimates, at best. One reason for the difficulty in providing estimates to compare various organic waste management options is that it is often context specific, with no clear cut solution. Blair et al. (2014) conducted an economic feasibility study for the municipality of Chatham-Kent that reviewed three options for the management of organic waste: to continue with landfill, backyard composting and Green Bin. The results indicate the costs of backyard composting are comparable to landfill, whereas programs like Green Bin are nearly double the amount, attributed to high collection and transportation costs. Although the costs of Green Bin were high, Blair et al. (2014) found that the landfill life would have been expanded for approximately four more years using this option.

An additional context specific consideration is logistical planning as demonstrated by Jahre (1994), who conducted a study that used postponement theory to evaluate the most efficient means of implementing a Green Bin program.

Postponement is the degree to which activities or a final end product is delayed by the number or steps required or the time it takes to complete the task. The study found that, from a cost point of view, it is most beneficial to reduce transportation costs which can be achieved by having one waste stream or trucks that can carry multiple waste stream materials simultaneously (blue box, paper, organic waste) (Jahre, 1994). The study also took note of the high costs of operating a large processing facility to separate the waste streams, yet determined that costs are likely to decline with future

improvements in material separation facilities relative to the higher costs of transportation. Hence, the uncertainty in estimating the true cost of a Green Bin program will depend on contextual factors including the current municipal infrastructure in place such as transportation, landfill, and available processing technologies.

#### **1.2.5. Renewable technologies**

There is a growing urgency to examine waste management alternatives in light of the rapidly decreasing landfill space and increased costs for transportation and disposal for many municipalities. This sense of urgency for many municipalities has spurred interest in examining alternative processing methods, such as anaerobic digestion, composting and incineration. In Ontario, anaerobic digestion has been an emerging technology that converts organic waste into bio-gas energy, which is potentially cost-effective and efficient in reducing GHG emissions (Sanscartier, MacLean & Saville, 2011). Sanscartier et al. (2011) found that facilities using anaerobic digestion were capable of processing greater than 30,000 tonnes of organic waste per year, indicating that anaerobic digestion was cost-competitive against landfilling. Alternatively, Schott et al. (2013) suggested that minimizing household organics and food waste through prevention measures, as the food waste hierarchy aims to achieve, anaerobic digestion resulted in lower energy potential since the amount of organic waste would be reduced by an estimate of 20%. The other alternative to anaerobic digestion is aerobic composting. Composting can potentially divert large amounts of organic waste from

landfill and also provides potential revenue from the sale of the final compost product (Probert, Dawson & Cockrill, 2005). However, Dawson and Probert (2007) also point out the difficulties in marketing final compost from household organic waste due to the inconsistent quality and mixture of nutrients and it can be expensive to operate the large-scale facilities resulting in higher selling prices in the market compared to other available alternatives.

Incineration, or energy-from-waste, has been widely used in European countries over the last 20 years. However, Ontario has been slow to implement or use this type of technology due to the perceived risk of potential health impacts from incineration emissions (Ollson, Knopper, Aslund & Jayasinghe, 2014). However, Ollson et al. (2014) found that there was no adverse health risk associated with incineration to local residents, farmers or other receptors and could reduce up to 90% of municipal waste. A study conducted in Ottawa (Mohareb, Warith & Diaz, 2008) looked at the most efficient means of reducing GHG emissions by processing method and ranked the technologies finding increased diversion of recyclables and incineration will have the greatest GHG reductions, where anaerobic digestion would require a ban of organics in landfill to significantly reduce GHG emissions.

Ontario municipalities are faced with the goal of reaching a higher diversion of waste from entering the landfill. This is a critical time, as most landfills have a limited life span capacity, leaving municipalities to look to the future for sustainable options. The

alternative processing options of anaerobic digestion, composting, and incineration leave municipalities weighing in on the benefits and disadvantages of each option and deciding what approach to take when considering organic waste. Thus, there are a number of potential discourses on the management of municipal organics, ranging from economic and environmental concerns, GHG reduction and sustainable future development. Despite the range of possible discourses, there is a lack of research on how these discourses play out at the municipal level when there is no overriding provincial-level policy in Ontario.

### **1.3. Research Goal and Objectives**

The aim of the thesis is to address the problem of insufficient waste diversion, as Ontario has not been able to attain a 60% waste diversion from landfill goal that was set in 2004 (MOE, 2004). To better understand the intersection of municipal organic waste, specifically Green Bin and policy decision making, this thesis will focus on the following objectives:

- a) To understand why municipalities vary in the strategies used to manage organic waste by examining the predominant and counter discourses that persuade for the acceptance or rejection of organic waste technology, Green Bin, at the municipal level; and
- b) To understand the interrelation of discourse in policy decisions and the associated facilitators and the barriers to increase organic waste diversion.

This thesis follows an integrated article format that includes two complementary qualitative manuscripts to understand why municipalities vary in the strategies used to manage organic waste. The first manuscript will use discourse analysis to uncover the predominant and counter discourses that have resulted in London, Ontario maintaining waste management as *status quo* by not adopting a Green Bin program through an examination of the influence of the provincial level discourse and the intersection of the local municipal discourse.

The second manuscript is a comparative case study focused on two Ontario municipalities, London and Guelph, Ontario, each with a different approach to the management of food and organic waste as it relates to Green Bin collection. Discourse analysis is used to explore predominant and counter discourses that have resulted in Guelph sustaining a Green Bin program and London that has not implemented a Green Bin.

## 1.4. References

- Adhikari, B.K., Barrington, S., & Martinez, J. (2006). Predicted growth of world urban food waste and methane production. *Waste Management and Research*, 24 (2006) 421-433.
- Bernstad Saraiva Schott, A., Vukicevic, S., Bohn, I., & Andersson, T. (2013). Potentials for food waste minimization and effects on potential biogas production through anaerobic digestion. *Waste Management and Research*, 31 (8) (2013) 811-819.
- Blair, A., Hollands, G., McIntosh, K., MacDonald, A., Mehta, B., Umali, H., & Pagsuyoin, S. (2014). Alternative management of organic waste in Chatham- Kent, Ontario, Canada. *2014 Systems and Information Engineering Design Symposium*. Charlottesville, VA. Pp. 74-77.
- Bulkeley, H., & Askins, k. (2008). Waste interfaces: Biodegradable waste, municipal policy and everyday practice. *The Geographical Journal*, Vol. 175 No. 4 (2008) 251-260.
- Dawson, G.F., & Probert, E.J. (2007). A sustainable product needing a sustainable procurement commitment: The case of green waste in Wales. *Sustainable Development*, 15 (2007) 69-82.
- European Commission. (1999). EU Focus on Waste Management. Luxemburg: office for official publications of the European Communities, 1999. Retrieved from: [http://ec.europa.eu/environment/waste/publications/pdf/eufocus\\_en.pdf](http://ec.europa.eu/environment/waste/publications/pdf/eufocus_en.pdf)
- European Commission Environment (2015). Waste Management Planning. Retrieved from: <http://ec.europa.eu/environment/waste/plans/index.htm>
- European Parliament Council (2008). Directive 2008/98/EC of the European Parliament and of the Council of 19 2008 and repealing certain Directives. Journal of the European Union. Retrieved from: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0098&from=EN>

- Gooch, M., Felfel, A., Merenick, N. (2010). Food Waste in Canada: Opportunities to increase the competitiveness of Canada's agri-food sector, while simultaneously improving the environment. *Value Chain Manage. Center*, 16.
- Jahre, M. (1994). Household Waste Collection as a Reverse Channel: a theoretical perspective. *International Journal of Distribution & Logistics Management*. Vol 25(2) 39-55.
- Mohareb, A., Warith, M., & Diaz, R. (2008). Modelling greenhouse gas emissions for municipal solid waste management strategies in Ottawa, Ontario, Canada. *Resources, Conservation and Recycling*, 52 (2008) 1241-1251
- Ollson, C., Knopper, L., Whitfield Aslund, M., & Jayasinghe, R. (2014). Site specific risk assessment for an energy-from-waste thermal treatment facility in Durham Region, Ontario, Canada. Part A: human health risk assessment. *Science of the Total Environment*, 466-467 (2014) 345-356.
- Otten, L. (2001). Wet-dry composting of municipal solid waste: current status in Canada. *Canadian Journal of Civic Engineering*, 28 (1) 124-130.
- Papargyropoulou, E., Lozano, R., Steinberger, J.K., Wright, N., & bin Ujang, Z. (2014). The food waste hierarchy as a framework for the management of food surplus and food waste. *Journal of Cleaner Production*, 76 (2014) 106-115.
- Parizeau, K., von Massow, M., & Martin, R. (2015). Household level dynamics of food waste production and related beliefs, attitudes, and behaviours in Guelph, Ontario. *Waste Management*, 35 (2015) 207-217
- Probert, E.J., Dawson, G.F., & Cockrill, A. (2005). Evaluating preferences within the composting industry in Wales using a conjoint analysis approach. *Resources, Conservation and Recycling*, 45 (2005) 128-141.
- Sanscartier, D., MacLean, H. L., & Saville, B. (2011). Electricity production from anaerobic digestion of organic household waste in Ontario: Techno-Economic and GHG emission analyses. *Environmental Science and Technology*, 46 (2012) 1233-1242.

## **Chapter 2: Methodology**

This chapter will review in-depth the qualitative methodology used in manuscript one and two. According to Baxter and Eyles (1997) it is important to explicitly discuss the qualitative approach used to ensure rigour and meaningful inference of the study.

Both manuscripts utilized discourse analysis but with slightly varied data sources. Manuscript one conducted discourse analysis by using documents (e.g., Provincial white papers, municipal strategic reports, and newspapers) as the primary source of data. Manuscript two conducted discourse analysis by using participant interviews and documents to provide an in-depth analysis.

### **2.1. Discourse Analysis Overview**

This thesis uses discourse analysis to explore why local Ontario communities either accept or reject an environmental technology, such as Green Bin. Discourse analysis does not prescribe to a standardize approach in conducting the analysis. However, various authors, including Hajer and Versteeg (2005), Prior (2004) and Foucault (1972), discuss discourse analysis from varying perspectives to inform methodological considerations. Foucauldian discourse analysis was utilized in manuscript one and two as it examines the power dynamic of discourse and resultant policy outcomes.

Foucauldian discourse analysis stems from the philosopher Michael Foucault. Foucault, focuses on the relationship between discourse and power. Foucault (1972)



asserts that certain discourses have more power and influence over others as it works to restrict, limit and offer what can (or cannot) be said about a subject matter. While the use of evidence and factual information in the form of claims-making can be persuasive, Foucault (1972) suggests that the power of influential discourses have a larger effect than evidence alone. For instance, claims or factual information pieces are found in strategic planning documents, media sources and scientific research, which on the surface may appear benign but are often used to support a discourse or counter-discourse toward a particular stance or policy issue. In terms of power, governmentality views the power structures of discourse as enabling certain agents or entities empowerment (or disempowerment) of their views that contribute to the normalization of those discourses in the population (Prior, 2004). In other words, certain key agents have more power in persuading for a particular discourse. While this is true in most cases, it should be noted that discourses attached to certain agents (text with author), versus discourse that exists without an author (text without author) continues to be a debate in the field of discourse analysis. Text without author presumes that the most persuasive and powerful discourses are propagated and dispersed without a particular author, spokesperson or figure. Whereas text with author recognizes that some authors, spokesperson or figures have the persuasive power to propagate a particular discourse. This thesis considers the discourses as text without author as they are representative of the local municipal community and the influence of discourse on municipal decision

making. The following is a review of the methodologies used in both manuscripts. As well, additional methodological information will be provided within each manuscript.

## **2.2. Manuscript One Methodology**

### **2.2.1. Criteria for data**

Manuscript one conducted discourse analysis by using documents as the primary data source. The source of the data plays an important role in the analysis of the discourses, as sources such as key municipal strategies, newspapers, and media contain valuable evidence to illustrate discourses.

The first manuscript analyzed documents from a variety of data sources such as provincial policy whitepapers, municipal strategic plans, city council reports and newspaper articles. Of these sources, a total of 65 documents were included as they contained relevant content and focused primarily on Green Bin in London. The sources of data in the document analysis span a 12-year period from 2002 to 2015, as this time frame reflects when the initial provincial white papers began to strongly encourage municipal waste management planning adopt Green Bin. In London, initial responses to the provincial white papers started to occur from 2008 to 2012, when London politicians debated, conceptualized, implemented and evaluated a pilot Green Bin program.

### 2.2.2. Document Selection

The document selection process was aimed to capture primary documents that are influential surrounding Green Bin. This manuscript included four provincial white papers that were influential during the period of time where Green Bin was strongly encouraged by the province. The municipal documents included were official policy documents and newspaper articles. The official policy documents, such as municipal waste management strategic plans, council reports and other supporting materials, were accessed from publicly available and online sources. City council reports were obtained from the municipal website through the City archives of committee meetings. The data collection of newspaper articles focused on the *London Free Press* as it is the prominent newspaper in London with a high circulation rate. *The London Free Press* has an average weekly circulation of 417,901 that portray discourses shared in the community (News Media Canada, 2015)..

The media review of newspaper articles was conducted through an online search of key terms within the newspapers online archive. The key search terms used to collect articles on the Green Bin program in London included, green bin, waste, garbage, organics, organic waste, food waste, waste technology, and odour. The data collection process concluded once all available documents during the timeframe of 2002 to 2017 were reviewed and saturation was reached.

## **2.3. Manuscript Two Methodology**

### **2.3.1. Overview**

The second manuscript is focused on a comparison of local discourses in Guelph and London, Ontario that utilized participant interviews and document analysis as the primary data sources. Manuscript two is based largely on in-depth interviews using a semi-structured interview guide to dive deeper into the perspectives of various stakeholders that influence decision making on the Green Bin program. Key informants and community stakeholders in both London (n=13) and Guelph (n=13) who are influential in persuading policy directions in their communities were selected.

Manuscript two also used document analysis of city documents (master plans, council packages, public-facing strategic plans) and online newspaper articles (London 60, Guelph 158) to ensure saturation was reached. The newspapers selected were the London Free Press and Guelph Mercury Tribune (formerly, Guelph Tribune). The Guelph Mercury Tribune has an average weekly circulation of 68, 014 and is the prominent newspaper in Guelph (News Media Canada, 2015). The London and Guelph municipal documents were accessible online through the archives. The timespan for the municipal documents included in the review were between the years of 2002 – 2017 to capture pivotal activities within each municipality.

### **2.3.2. Participant Selection Criteria**

Participant selection was guided by a principle of heterogeneity to ensure varying perspectives were captured as well as depth to uncover the current discourses surrounding decisions surrounding the Green Bin program. Manuscript two used inclusion and exclusion criteria as a mechanism to decide who does or does not address the research question. The inclusion criteria were participants who previously held or currently hold positions relevant to municipal waste decision making in London or Guelph or those who have participated actively in non-governmental advocacy groups surrounding organics waste management were included. The exclusion criteria included those who do not or have not influenced (directly or indirectly) policy decisions on waste management in London or Guelph. The participants who directly influence municipal policy are considered to be key stakeholders in the local municipalities who represent the municipal departments of waste management, City Councilors, and City Council Advisory Committees and directly influence municipal decisions on Green Bin. The local non-governmental community groups include those that focus on environmental issues, participated in Green Bin discussions, and are knowledgeable about Green Bin policy in the municipality.

### **2.3.3. Participant Sampling**

To ensure the key stakeholders and community group participants are appropriately selected, theoretical sampling was used. Theoretical sampling is a form of purposeful sampling aimed to select participants who can discuss in-depth on a specific

event or experience or who have knowledge of specific influential events (Strauss & Corbin, 1990). This form of sampling was achieved by accessing publicly available data on those who have held past or current positions in municipal waste decision making and those who have participated actively in community groups. The use of snowball or referral sampling was utilized by asking the participants to provide the names of other stakeholders who hold similar and opposing viewpoints. This process continued until interviewees' provided sufficient information on the topic and saturation was reached. Saturation is reached when no new information or concepts have emerged from the informants (Bryman, Bell & Teevan., 2012).

A total of 26 participants were included in this study, exceeding the adequate number for a critical case study (Sandelowski, 1995). There were 13 participants from London and 13 from Guelph. Interviews were conducted between 2015 and 2016.

When the interviewees are those in positions of power, such as municipal directors or City Council members, it is important to adjust to the power dynamic between the interviewer and the interviewee. The initial contact is important in creating access and buy-in from the key stakeholders. Harvey (2010) discussed the implications on gaining access to elite groups, acknowledging the insider and outsider dynamics, and the need for transparency. To gain initial access and determine the level of willingness of local municipal stakeholders to participate in the interviews, sampling focused on organic waste management professionals to start. Emails were sent to City waste

management officials outlining the purpose of the study. Subsequently, additional participants were contacted once the initial key stakeholders had been informed. In addition to the participant information letter, a consent form was included to obtain signed informed consent.

#### **2.3.4. The Interview Process**

The interview process has been conceptualized by Miller and Crabtree (2004) noting, participants may present different motivations during the interview that include interactional elements, such as politeness, persuasion, drawing attention or reference to certain forms of knowledge and power relations. These factors were considered when questions were developed for the semi-structured interview guide, as the questions are designed to be simplistic and neutral to generate and encourage candid narratives. The questions focused on the participants experience and views on waste management, in particular, organic waste in their municipality (Appendix A: Interview Guide). Prior to the initiation of the interview, participants were provided with a Letter of Information that was reviewed to ensure the participant had informed consent to participate (Appendix B: Letter of Information and Consent form). It is also important to build rapport with participants that encourages trust and openness during the interview (Dwyer & Buckle, 2009). Therefore, the use of probing questions were used to encourage openness and allow the participant to elaborate, such as asking for additional examples to their responses. Another consideration in qualitative research is to be reflexive and to check

researcher biases or preconceived notions, whether intentional or not. This can be achieved through self-reflection and transparency through an autobiographical position statement as found in Appendix C – Autobiographical reflexive statement. Ethical approval for this study was obtained from the Western's Non-Medical Research Ethics Board (File#106991) (see Appendix D).

### **2.3.5. Document Analysis**

To guard against threats to the qualitative study, such as bias in interpreting the interview data, triangulation was used to increase rigour in this study. Triangulation is defined as using multiple methods, researchers and sources of information, to give support to the findings (Bowen, 2009). Therefore, document analysis using media and municipal documents were used to supplement the participant interviews surrounding organics separation programs at pivotal points in decision-making processes in each municipality.

The analysis of the data in both manuscript one and two was conducted using NVivo, a qualitative software program (Richards, 1999). NVivo allows multiple sources of data to be analyzed iteratively by using thematic codes based on predominant claims and subsequent discourses. The coding process in manuscript two was iterative between the analysis of the documents and interview data sources. The analysis of the coded data enabled comparisons to be made on organic waste management strategies between London and Guelph and an examination of the local discourses.



## 2.4. References

- Baxter, J., & Eyles, J. (1997). Evaluating Qualitative Research in Social Geography: Establishing 'Rigour' in Interview Analysis. *Transactions of the Institute of British Geographers, New series*, 22(4), 505-525.
- Bowen, G. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9 (2), 27-40.
- Bryman, A., Bell, E., & Teevan, J. J. (2012). *Social Research Methods, Third Canadian Edition*. Canada: Oxford University Press.
- Dwyer, S., & Buckle, J. (2009). The space between: on being an insider-outsider in qualitative research. *International Journal of Qualitative Methods*, 8 (1): 54-63.
- Foucault, M. (1970). *The archeology of knowledge and the discourse on language*. Trans. A.M Sheridan Smith. New York: Tavistock.
- Hajer, M. & Versteeg, W. (2005). A decade of discourse analysis of environmental politics: achievements, challenges, perspectives. *Journal of Environmental Policy & Planning*. 7 (3). Pp. 175-184.
- Harvey, W. S. (2010). Methodological approaches of interviewing elites. *Geography Compass*, 4 (3). Pp. 193-205.
- Miller, W. L., & Crabtree, B. F. (2004). Depth Interviewing. In Nagy Hesse-Biber, S. and Leavy, P. (Eds) *Approaches to Qualitative Research: A reader on Theory and Practice*. Oxford University Press.
- News Media Canada (2015). 2015 Daily Newspaper Circulation Report. Retrieved: <https://nmc-mic.ca/about-newspapers/circulation/daily-newspapers/>

- Prior, L. (2004) Following in Foucault's footsteps. In Nagy Hesse-Biber, S. and Leavy, P. (Eds) *Approaches to Qualitative Research: A reader on Theory and Practice*. Oxford University Press.
- Richards, L. (1999). *Using NVIVO in Qualitative Research*. Los Angeles: Sage.
- Sandelowski, M. (1995). Focus on Qualitative Methods: Sample Size in Qualitative Research. *Research in Nursing and Health*. 18, 179-183.
- Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage.

## **Chapter 3:** Paralysis by Analysis or Precautionary Paralysis: Policy and Environmental Discourses in the Management of Residential Organic Waste

### **3.1. Introduction**

Across Canada, many local municipalities are facing challenges associated with dependence on landfill for managing residential waste such as decreased landfill space, no available land to site a new landfill, and increasing community opposition. This has resulted in a “crisis” situation to manage locally collected residential waste sustainably (Ministry of Environment (MOE), 2013). As one component of the solution, many municipalities have implemented an organic waste source separation and collection program, also known as Green Bin. However, we do not fully understand why such a system is adopted in some places yet resisted in others. There is ongoing debate in the field of organic waste management over the economic and environmental merits of Green Bin programs. From an economic standpoint there is some debate among decision-makers regarding the efficiency of Green Bin programs in capturing organics, participation rates, and effectively reaching diversion targets (Otten, 2001). In addition, the promise of emerging technologies to manage the bulk of the waste stream has been in the spotlight for many decision makers across Canada but has come with mixed success such as Ottawa’s broken deal with a plasma gasification plant that was dismantled for financial reasons or success as demonstrated by Edmonton’s gasification to ethanol plant that has taken time to become viable. This highlights the prospect of

promising “green” solutions around the corner (Chianello & Pearson, 2015; Macklin, 2015).

This environmental policy paper is focused on waste diversion programs like Green Bin, which are nevertheless situated in intersecting uncertain science and emerging technology with policy decisions that have historically measured costs more easily than carbon reductions or material flows. A recent systematic literature review by Ma and Hipel (2016) cites a policy gap in the literature in understanding the effectiveness of waste management policies due to implementation issues that tend to differ from one location to another. Thus, the context for this study is set within debates in waste management on: i) how to design policies in order to fit the local situation; as well as ii) the role of discourse on policy adoption by focusing on the debates surrounding uncertainty in organic waste processing.

Increasingly, organic waste policies are tied to environmental concerns. The environmental dimension of organic waste is increasingly associated with environmental impacts due to its decomposition into greenhouse gas (GHG) emissions, such as methane when landfilled (Adhikari, Barrington & Martinez, 2006). Parizeau *et al.*, (2015) also list other environmental and social impacts of discarding high levels of food waste into landfill such as: nutrient loss, as well as the inefficient use of water, energy, and fuel used for foods that will likely be wasted in the supply chain. However, the scientific measurement of GHG produced by new technologies is not entirely clear. Studies that

have evaluated the life cycle impact of organic waste processing technologies note many limitations and uncertainties. Some of the uncertainties arise from balancing differing local contextual factors such as collection and transportation methods, calculations for alternative processing technologies, as well as behavioural uncertainties such as public participation rates and types of organic wastes collected, with the only consistent finding being to avoid landfilling organic waste (Yoshida, Gable & Park, 2012; Eriksson *et al.*, 2005; Langley *et al.*, 2009). Since the science of organic waste management does not point to any clear-cut path for local waste management policy and decision- making, there is room for better understanding the decisions municipalities do make under such *relative* uncertainty.

To better understand effective organic waste policy decisions at the local level, discourse analysis will be used to uncover the predominant and counter discourses that are locally debated. This paper looks at the provincial legislative organics waste discourse and how that intersects with municipal discourse in the context of no clear guides from our scientific understandings of organic waste systems. The provincial discourse is targeted toward an audience of municipal waste management stakeholders to provide program direction and establish mandatory programs, while Green Bin is not mandatory in Ontario, provincial documents hint strongly toward Green Bin program implementation beginning in 2004. We use the case study of London, Ontario to explore

local municipal discourses that have resulted in not implementing the Green Bin program.

### **3.2. Theoretical Framework of Policy and Discourse**

We address three broad aspects of environmental policy processes and the intersecting influence of discourses: the rational policy approach, paralysis by analysis, and policy under pressure.

The rational policy model assumes the policy process flows in a logical and linear manner with complete information on all aspects (e.g., scientific, environmental, social, financial) to make informed decisions (Pal, 2005). An example of the rational policy process that results in highly influential outcomes are demonstrated in other spheres, particularly medical interventions that use randomized-controlled trials, which is deemed to be the gold standard. Evidence-based decision making has worked rather well at producing increasingly better medical treatments that rely on the inherent conservatism of science. However, the translation of the rational policy model into the public policy sphere more generally has been problematic because of the inherent complexities of social systems (Althaus, Bridgman & Davis 2013). The functions of science and politics are interconnected and are further complicated when scientific uncertainty is high combined with the fairly long-time horizon for new science and technological development that can take decades to become viable. Consequently, a criticism of the rational model is that it readily leads to paralysis by analysis – wrought

by a conservatism that relies on an insatiable need of information before a final decision can be made. As bureaucratic processes are increasingly dependent on the rational model, Lenz and Lyles (1985) warn of excessive rationality in planning strategies that are "inflexible, formalized, and excessively quantitative...that will develop an inertia all of its own and can stifle creative thought" (p. 64). Paralysis by analysis is also fueled by a political environment that requires a dispersion of power among many individuals who are involved in decision-making and the degree of formalized evaluation that is required (Langley, 1995). Thus, excessively rational policy making tends to support the *status quo* in the short term at least.

In the meantime, policy making tends to involve policy under pressure to make decisions within much shorter time horizons (e.g., 5-years or less). As well, some policy decisions are increasingly made in crisis which may further influence local contextual factors (e.g., attitudes of residents) and threaten the survival of the *status quo*, such as the ongoing use of landfill technologies. Reliance solely on landfill technologies is often considered untenable amid rapidly dwindling landfill capacity and increasing residential density near existing landfill (re: nuisance complaints) (Pal, 2005). This is what happened in the city of Naples, Italy. Protests emerged to discontinue landfilling due to a myriad of illegal dumping and insufficient waste technology planning leading to large amounts of household garbage accumulating in the streets (Pasotti, 2010).

Environmental policy processes are most often discursively debated given a backdrop of scientific uncertainty and political claims-making. According to Aronson (1984) claims are political statements used in argumentation that appear on the surface as fact despite elements of scientific uncertainty; and where successful claims-making can be attributed to having the ability to command attention and access to resources to defend against criticism. Claims are used to substantiate the predominant discourse of a policy subsystem, while the role of counter-claims are used to substantiate a counter-discourse to persuade for an alternative policy outcome. The power of discourses in policy planning, decision making, and governance will be a focus of this paper, specifically to explore the relevance of discourse in explaining policy adoption or resistance.

Foucault (1972) argues that the power of discourse is much more relevant than evidence alone. On the surface, the various claims constituting the main discourse may appear to be a series of factual statements that are used to persuade and stabilize a policy position that is bolstered through strategic planning documents, media sources and scientific research. The role of counter claims are to present a different discourse (or set of claims) to bolster support for an alternate policy position. Further Foucault (1972) asserts that discourse is a key source of power in the political sphere as it works to restrict, limit and arrange what can (or cannot) be said about a subject matter. Those who control the discourse around a phenomena work to empower (and disempower)



what is known about the issue (Prior, 2004)<sup>2</sup>. In organic waste literature, the way in which waste is socially defined through overarching waste management planning at the highest levels is at the root of discourses that would influence the desirability of different waste management approaches downstream (Hultman & Corvellec, 2012). The provincial and municipal authorities represent both policy makers and waste management professionals, who use the tools of claims-making, persuasion and argumentation to promote solutions that are believed by decision makers to be the right course of action which in turn leads to discourses in the policy debate (Garvin & Eyles, 1997; Darier, 1996). McMullen and Eyles (1999) discuss the tools of persuasion in claims making by framing the issue in terms of value-statements (e.g., pro-economic or pro-environmental) that are used to demand and justify action in the public arena. According to Hird *et al.* (2014), waste management decisions tend to become an issue in the public arena when a potential change occurs to the routine operations that may have an effect on the community such as introducing new waste management technologies and or facilities (e.g., green bin combined with increased truck traffic and municipal organics “digestion” facilities). For example, Darier (1996) studied the controversy surrounding a proposed incinerator in Halifax, Nova Scotia, and the tension

---

<sup>2</sup> A thorough treatment of discourse and knowledge as a forms of power according to Foucault and others is beyond the scope of this paper. There are numerous such reviews, for example Prior (2004) and Hajer & Versteeg (2005).

between local authorities and environmental groups, finding a crisis situation created the catalyst to find a homegrown solution and resultant ban of organics in landfill.

Traditional discourse is often focused on addressing the waste needs of the community through a linear technocratic model of waste management focused on finding appropriate end-of-pipe technologies, while also addressing the socio-ethical issues of over- consumption or dedicated efforts of food waste prevention (Gregson & Crang, 2010; Hird *et al*, 2014). However, the municipality is still seen as predominantly controlling residential waste management. The residents are primarily responsible for fully participating in the municipality's waste system through household sorting activities and placing the receptacles out for pick-up.

### **3.3. Community Context**

London (population 366,151) is the largest city in southwestern Ontario and the sixth largest municipality in Ontario (Statistics Canada, 2011). Most London residents live in single dwelling homes (71%), while the remaining primarily live in apartment dwellings (28.5%) (London, 2013b), which is similar to provincial proportions - 69.8% and 29.7% respectively (Statistics Canada, 2011). The majority (70%) of London residents are of adult working age (15-65 years), with an aging older adult population (London, 2013c). London is politically separate from the adjoining Middlesex County, and as such, waste management services are provided to residents within the city limits only. London's waste management division provides waste collection and

disposal for approximately 110,000 single dwelling homes, 45,000 apartment units and 1,500 small businesses (London, 2007a).

**Figure 3.1** Map of London Ontario



London owns the W12A landfill site, which has been in operation since 1977 and as of 2017 is estimated to have 9 years of capacity remaining, coupled with on-going discussions to expand the landfill in the future. Due to London's remaining landfill lifespan capacity there is no perceived crisis, with little urgency to find alternate disposal options; a situation that is in contrast with many other Ontario municipalities<sup>3</sup>. However, the Ministry of Environment (MOE<sup>4</sup>) has applied some pressure by setting criteria, such as increased organic waste diversion targets to gain landfill expansion approvals (ETC, 2010). Due to these increasing pressures towards increased waste diversion, London has long debated the implementation of a Green Bin program. London also has two private composting facilities, Orgaworld and Stormfisher (Green Valley). Orgaworld is an aerobic composting facility that processes Green Bin material from neighbouring cities, such as Toronto. Stormfisher is an anaerobic facility that accepts organic material from commercial and institutional sectors.

---

<sup>3</sup> The most noteworthy example is Toronto, who bought a private landfill to deal with a longstanding waste capacity problem that had for many years been resolved by shipping to the U.S. Ironically, Toronto's "new" landfill is approximately 25 km from London and 200 km from Toronto itself.

<sup>4</sup> In 2014, The Ministry of Environment (MOE) changed its name to the Ministry of Environment and Climate Change (MOECC), in 2018 the MOECC has changed its name to the Ministry of Environment, Conservation and Parks (MECP).

### **3.4. Methodology – White paper and media analysis**

To better understand the portrayal of environmental policy discourses in the provincial and local municipal documents, we used Foucauldian discourse analysis; which is described by Sharp and Richardson (2001), as “different systems of meaning or discourses that compete for influence in society and, consequently, that structural changes in society can be conceptualized as shifts in the relative influence of different discourses. It follows that these wider discursive struggles condition what happens in specific policy-making processes” (p. 196). With regards to organic waste management, these discourses may be analyzed at a range of intersecting scales. In our case, we conducted an inductive analysis using NVivo to identify the claims in the provincial and local municipal discourses on increased organic waste diversion planning (Richards, 1999). The time frame of the document analysis is 2002- 2015, which reflects the period of time when provincial white papers emphasize municipal waste management planning to adopt Green Bin. One of London’s key responses began in 2008 - 2012, when they debated, conceptualized, implemented and evaluated a pilot Green Bin program.

#### **3.4.1. Data Sources**

A variety of print and media sources were used in the analysis (n= 65). Table 3.1 presents a timeline overview of notable documents from the MOE and London and what are interpreted as key forms of uncertainty identified in each document as

elaborated in sections 3.1 to 3.2. Documents analyzed for provincial policy claims about organics waste management (n= 4) are MOE (CC) (2004; 2009; 2013, 2015) and for London, strategic planning documents released to the community (n=4) (2007a; 2008; 2013a; 2014b). The public portrayal of claims within these documents are played out as discourses in the media, but also through claims-making at London's City Council and associated committees. London's committee documents reviewed here (n=11) include any city committee that had involvement in discussions about waste management; primarily the Environment and Transportation Committee (ETC), the Advisory Committee for the Environment (ACE), the Civic Works Committee (CWC), and the Community and Neighbourhoods Committee. Relevant newspaper articles from 2009-2015 which captures the reaction to the key documents produced by the province and the city that focuses on Green Bin from the *London Free Press* (n=46) were also analyzed, particularly as they relate to local debates on implementation. The *London Free Press* is the dominant newspaper in London with the largest circulation (417,901; weekly) of any newspaper in Southwestern Ontario (News Media Canada, 2015). There are no other significant competing newspapers in London.

**Table 3.1** Key Provincial legislation and white papers and city of London planning strategies regarding organics management and Green Bin: categorized by year and type of uncertainty

- Table 3.1: Key Provincial legislation and white papers and city of London planning strategies regarding organics management and Green Bin: categorized by year and type of uncertainty.

Year	Notable legislation, white papers, and events	Uncertainty
<b>Provincial Policy</b>		
2002	<b>Ontario:</b> passes the <i>Waste Diversion Act</i> and established Waste Diversion Ontario (WDO) (London, 2007c).	<ul style="list-style-type: none"> <li>• Voluntary approach to organics stream</li> <li>• How success is measured</li> <li>• Prioritizing waste sectors</li> </ul>
2004	<b>Ontario:</b> <i>Ontario's 60% Waste Diversion Goal – A Discussion Paper</i> – white paper (MOE, 2004).	
2009	<b>Ontario:</b> <i>From Waste to Worth: The Role of Waste Diversion in the Green Economy: Minister's Report on the Waste Diversion Act 2002</i> – white paper (MOE, 2009).	
2013	<b>Ontario:</b> <i>Waste Reduction Strategy Report</i> – white paper (MOE, 2013).	
2015	<b>Ontario:</b> <i>Strategy for a Waste Free Ontario: Building the Circular Economy</i> –white paper (MOECC, 2015).	
<b>Local Policy</b>		
2006	<b>London:</b> Advisory Committee on the Environment (ACE) released a discussion paper titled <i>Getting to 60: A discussion Paper on Waste Diversion in London</i> – white paper (London ACE, 2006).	<ul style="list-style-type: none"> <li>• How to achieve diversion goal</li> <li>• Pilot project implementation</li> <li>• High cost of implementation</li> <li>• Proposed provincial legislative changes uncertain to pass</li> </ul>
2007	<b>London:</b> releases <i>A Road Map to Maximize Waste Diversion in London</i> for public consultation -white paper (London, 2007a).	
2008	<b>London:</b> releases <i>Guidance Document for Waste Diversion Decisions including the Green Bin Program</i> after a comprehensive public consultation process -white paper (London ETC, 2008).	
2010-	<b>London:</b> Green Bin Pilot project -event.	
2012	<b>London:</b> <i>defers decision on Green Bin instead aim to focus on waste reduction and community composting – event (London, 2013a)</i>	
2012	<b>London:</b> releases <i>Road Map 2.0 The Road to Increased Resource Recovery and Zero Waste</i> -white paper (London, 2013a).	
2013 - 2014	<b>London:</b> releases <i>Interim Waste Diversion Plan 2014 to 2015</i> -	

### 3.4.2. Coding the policy claims

Coding as described by Charmaz (2004) is a pivotal link between collecting data and developing emergent theories to explain the data. It leads to developing theoretical categories and forces interpreters to think about the material in new ways. The coding process was conducted using NVivo to aid in identification of specific claims relevant to organic waste management, proposed solutions, and the direction of the claim to persuade support for the policy discourse in the provincial whitepapers, London's strategic planning white papers and local newspaper (Howland *et al.* 2006; Richards, 1999). The analysis is inductive in the sense that each document was first coded by the predominant claim that emerged from the text and then further examined to explore the use of the claims to develop the predominant discourse within the environmental policy subsystem.

## 3.5. Results

*3.1 Ontario's provincial policy discourse: historically a predominant focus on economics in waste management planning with less focus on tangible environmental benefits.*

The provincial discourse has recognized the increased financial burden on local municipalities to increase diversion from landfill and have been focused on finding equitable accountability for private industry while aiming for 60% diversion from landfill. The aim of the provincial white papers (MOE, 2004; 2009; 2013; MOECC, 2015) are to



increase waste diversion across Ontario by addressing waste management challenges across a variety of sectors. The 2004 MOE white paper focused on the large contribution of organics in the waste stream with an emphasis on municipal Green Bin programs; the 2009 paper is focused on emerging green technologies for waste processing; the 2013 paper focuses on the increased responsibilities of private industries and the latest 2015 paper focuses on building the circular economy. Each white paper builds upon the challenges presented in the previous paper to tackle emerging priorities in the waste sector over time. The provincial policies articulate a need to increase waste diversion across all sectors to reduce waste going to landfill. There is also consistency in recognizing dependence on landfill as not being a sustainable option for most Ontario municipalities. However, the claims and persuasiveness of the arguments made in each paper are open to uncertainty down the pipe to local municipalities. In particular, organic waste continues to have an uncertain future in the sense that they: still encourage a voluntary approach to organic waste diversion programs, leave uncertain whether they will develop mandated programs or targets for organics, and provide little guidance on how success is to be measured in terms of environmental and economic impacts. The significance of environmental measures of success are discussed in terms of claims surrounding GHG reduction goals in previous white papers and newly proposed legislation, *The Waste Free Act Ontario Act (2016)*, through the *Draft Strategy*

for a Waste Free Ontario: Building the Circular Economy (MOECC, 2015). Table 3.2

captures the predominant claims from the provincial white papers.

**Table 3.2** The Provincial discourse surrounding organic waste and representative claims.

<b>Ontario’s provincial policy discourse: historically a predominant focus on economics in waste management planning with less focus on tangible environmental benefits.</b>
Claim 1: Municipalities are encouraged to adopt Green Bin
Claim 2: The organic sector is difficult to mandate
Claim 3: Measurement of diversion and environmental targets need to be consistent

*Claim 1: Municipalities are encouraged to adopt Green Bin*

The difficulty in mandating organic waste diversion is a predominant claim stalling the development of a mandated organics legislation that would require municipalities to adopt a Green Bin program. The difficulty in mandating organics legislation is considered to be largely due to the inherent logistical issues of managing the organic waste stream (e.g., contributors to food waste across the supply chain from farm to fork) (MOE, 2013). In 2004, the estimated amount of organic waste in the residential stream was 38% of total household waste, while the institutional, commercial, and industrial (IC&I) sector contributed 11% (MOE, 2004). Other challenges identified are in terms of municipal population size, geographic considerations and timelines for achieving 60% diversion targets. Initial diversion targets and timelines were proposed in 2004 for large municipalities with populations over 250,000 to achieve 60% diversion by 2008, whereas medium-sized and small municipalities would have longer timelines

and/or recognition that a centralized composting facility would not be feasible (MOE, 2004). From an economic standpoint, the large-sized municipalities are the central target for implementing centralized composting programs due to the significant resources and capital start-up costs that would be required (MOE, 2004). Further, the debate surrounding the economics of waste management extended to the larger issue of shifting management costs away from municipal taxes and businesses to the producers of products (MOE, 2009).

*Claim 2: The organic sector is difficult to mandate*

The claim surrounding the voluntary approach to implementation of Green Bin for organics in the provincial white papers contrasts to the fully mandated approaches taken with other waste streams sources, such as recycling, hazardous wastes and tires (MOE, 2009). However, there are claims made in the paper *Ontario's 60% Diversion Goal – A Discussion Paper* (MOE, 2004), that strongly hint at a policy position involving Green Bin. Since many municipalities opted into the Green Bin program voluntarily and municipal diversion rates were increasing in comparison to the IC&I sector over a 5-year period, the urgency to target residential Green Bin programs appeared muted in strategic planning documents after the release of the initial white paper targets yet were subsequently viewed as a key component in the overall success in achieving 60% residential diversion in Ontario (MOE, 2009; 2013).

*Claim 3: Measurement of diversion and environmental targets need to be consistent.*

Claims about diversion targets and measuring success has been difficult as the definition of diversion has traditionally excluded technologies that use burning, landfilling, and land application of designated materials (MOE, 2009). The uncertainty around what counts as diversion has been debated with regards to new technologies. Traditionally, technologies that use energy recovery are preferable to those technologies without energy recovery, ultimately the debate discouraged investments in emerging processes and technologies (MOE, 2009). Therefore, clear and specific diversion definitions are an important consideration for Ontario's measurement of diversion targets. In addition, a spotlight is emerging on the individual producers bearing more responsibility for meeting diversion targets (MOE, 2013).

What is curiously absent from the provincial discourse of waste management strategies are any claims about the environmental impacts associated with various diversion methods as these seem to be almost tacitly understood. We might expect such claims because on a global scale, such as within the European Union (2008) Waste Framework Directive heavily focuses on the environmental impacts of waste disposal options and the potential to reduce GHG emissions generated by landfills (Bulkeley & Askins, 2008; Adhikari, Barrington & Martinez, 2006). Yet, a search of the term "greenhouse gas, GHG, CO<sub>2</sub>" across the initial three white papers mentioned these specific terms as an environmental consideration three, seven, and three times respectively (MOE, 2004; 2009; 2013). Most of the references are generic, for example in

MOE, 2013 references include phrases such as “diverting organic waste from landfills, we reduce potential pollution, lower greenhouse gases and conserve valuable resources” (p. 31), or about recycling versus extraction of virgin material sources (MOE, 2013). It is not until the release of the most recent white paper, *Draft Strategy for a Waste Free Ontario: Building the Circular Economy* (MOECC, 2015), where GHG emissions are used as an explicit vision for Ontario to achieve zero GHG emissions in the waste sector, using quantified GHG emissions to compare various waste management approaches and setting priorities for resource recovery and waste reduction programs. While there is a renewed spotlight on managing organics, there are no specific recommendations for Green Bin program implementation or processing technologies such as anaerobic digestion at this time. The traditional focus on economics instead of environmental benefits has set the stage for measurement of success based on program planning that is sustainable and delivered at a low cost to residents.

*3.2 London's local discourse: Proposed provincial legislation might change how organic waste is managed, the costs to implement Green Bin are high, and environmental factors are uncertain with community opposition of current processing technologies.*

London's strategic documents and newspaper articles are key sources of predominant claims – ones meant, presumably to persuade the public about particular policy paths that do not involve Green Bin. The claims surrounding Green Bin were

coded into two central discourses with regards to discussions on Green Bin: policy uncertainty and environmental uncertainty (Table 3.3). London’s policy uncertainty is primarily focused on claims made about the financial costs of Green Bin program implementation and the uncertainty surrounding changing provincial legislation. Environmental uncertainty includes environmental and social claims and are presented together in one code since they often occur together within the discourse: for example, the idea that a local aerobic digestion facility emitting odours has contributed to a poor quality of life for surrounding neighbours and associated concern of pollutants emitted.

**Table 3.3** London’s local discourse and counter discourse

<b><i>Dominant Discourses and Claims</i></b>	<b><i>Source</i></b> <sup>5</sup>
<b><i>London’s dominant local discourse: Proposed provincial legislation might change how organic waste is managed, the costs to implement Green Bin are high, and environmental factors are uncertain with community opposition of current processing technologies.</i></b>	
<b>Discourse: policy uncertainty supporting the <i>status quo</i>- no Green Bin.</b>	
Claim PU1: If the province doesn’t prioritize it, why do we have to?	City documents
Claim PU2: high cost of Green Bin implementation	Media
<b>Discourse: environmental uncertainty – Green Bin trucking and facilities create unacceptable odours and impact quality of life.</b>	
Claim EU1: Adverse effect of odours on neighbours.	Media
Claim EU2: Transporting organic waste is not “environmentally friendly”.	Media
<b><i>Counter Discourse: But Green Bin works in other cities!</i></b>	Media

<sup>5</sup> The sources referenced above are considered the primary source. The claims listed here have also been supported by the interviews conducted in London as conducted in manuscript two.

### 3.2.1 Discourse: Policy uncertainty supporting the *status quo* – no Green Bin

Claim PU1: If the province doesn't prioritize it why do we have to?

The claim that provincial policy changes are proposed but uncertain to pass has been a significant contributor to the discourse of maintaining the *status quo* of not implementing Green Bin. London was initially supportive of Green Bin when the MOE emphasized reaching a target of 60% diversion from landfill. However, support for Green Bin wavered in light of proposed legislative changes in the transition from the *Waste Diversion Act* (WDA, 2002) to the *Waste Reduction Act* (WRA, 2013) thereby using the policy uncertainty discourse as justification for delaying Green Bin. This can be traced in both the media and the city's white papers back to 2013 and is prominent in London's internal documents until at least 2015. The essential claim within this discourse is that the provincial direction on new diversion targets and funding in Ontario's waste management sector is uncertain and may result in changes to municipal planning. Within multiple (7) internal London reports, the significance of the new proposed provincial direction (with 37 mentions) on local waste planning is discussed, such as:

The Province is also proposing a new Waste Reduction Strategy (WRS). If passed by the Legislature, the Waste Reduction Act and accompanying WRS will result in significant changes to how recyclables, organics and residential waste (garbage) are to be managed in Ontario (and London). (London CWC, 2013, p.2).

The proposed legislation and attendant uncertainty regarding “significant changes” had the effect of stalling London’s decision making, while it was debated by the provincial legislature. At the time, London officials refrained from implementing diversion strategies based on existing legislation for fear that new legislation and accompanying strategies would significantly change the way different waste streams are to be managed in the province. The specific concerns were around increased responsibility for producers to pay for recycling costs and the subsequent funding changes to the municipality. Ultimately the proposed legislation was not passed which further impeded local decision making as demonstrated by a London (2014b) internal report indicating uncertainty about revival of the legislation:

The future of waste management in the Province of Ontario is at a critical juncture. It is possible that the provincial government may re-introduce proposed waste management legislation that died when the provincial election was called. This legislation would have replaced the current industry funding programs with Industry Producer Responsibility (IPR) programs for tires, electronics, household special waste and the Blue Box Program. Most costs of the Blue Box recycling system would also be shifted to the producers. It is possible that funding to the City would increase as much as \$2 million to \$2.5 million. (p. 1).

London subsequently decided to continue with the status-quo and only support small projects with minimal costs, deferring large-scale projects, such as Green Bin to a later time:

Until there is more certainty on the direction for waste management from the new provincial government, an Interim Waste Diversion Plan (Interim Plan) has been prepared. The Interim Plan identifies elements from Road Map 2.0



that can be initiated in the shorter- term (2014 to 2015) at minimal cost (London, 2014b. p.1).

Thus, Green Bin in London was postponed due to political uncertainty broadly through the 2013 *Waste Reduction Act* that ultimately did not pass, but also through provincial delay in officially addressing the organics stream. London has not yet taken voluntary action to increase their diversion rates using Green Bin at a local cost since provincial legislation has not yet mandated these strategies. The provincial documents do not immediately intend to provide direction on organic waste. Thus, it is not prioritizing Green Bin. London comments on the provincial delay addressing organics by providing some context as to when the management of organics will be addressed:

The role of organics in the WRS is a long-term initiative (beyond four years) and would not have any immediate impact on London. (London, 2014a; 5).

The political claim portraying organics management as not a continued urgent provincial strategy, not surprisingly creates local policy uncertainty and a shifting of resources to other competing municipal needs. The shift in focus on regulating IC&I, extended producer responsibilities, and local municipal waste planning creates a stagnant political environment regarding organic waste management. This is further amplified as the MOECC (2013; 2015) has expressed a delay to specifically tackle organic waste management for a projected four to five years and subsequently an additional two years. The stall in addressing organic waste deprioritizes the perceived value of

diverting organics from landfill and perhaps the management of organics broadly speaking.

*Claim PU2: high cost of Green Bin implementation*

While London initially supported a Green Bin program after the release of the 2002 *Waste Diversion Act*, the claims surrounding prohibitive financial costs became significant in local municipal debates since the Green Bin program is voluntary with no on-going funding available from the provincial government. The discourses surrounding Green Bin's financial costs initially were viewed as manageable as portrayed in both London planning documents and in the local newspaper (2004-2010). This support is demonstrated by London's communication in the media on strategies to keep the costs of Green Bin lower than projected:

The green-bin program, once fully rolled out, would cost \$5.5 million annually to operate. But changes to how much industry must put toward recycling costs could eventually cut that cost in half. There would also be annual landfill savings of about \$500,000. The [annual] cost per household of running the green-bin program is estimated at about \$35. (Maloney, 2010).

London supported Green Bin implementation at this time and also highlighted opportunities to supplement the high costs through other means of funding, landfill savings, and job creation, a three-year phase-in period, and end market value of compost products (ETC, 2010).

However, shortly after 2010, the momentum in support of Green Bin stalled during the debates of the proposed *Waste Reduction Act* when political inconsistency

influenced the discourse concerning *unacceptable financial costs as a deterrent* and this widely influences local municipal decisions. For example, the high costs and uncertain future of Green Bin is discussed in a *London Free Press* article:

For London, like Kermit the Frog, it's never been easy being green.

But it could get much tougher, with new estimates showing the costs of starting a city green-bin recycling program for organic waste are running millions of dollars higher than expected... launching such a program would cost \$12 million [and] annual operating costs would add another \$4.5 million. (O'Brien, 2016).

While the above article (O'Brien, 2016) identifies operational costs as amounting to an approximate 1% increase in property taxes, it also references reduced waste management costs through landfill diversion as well as supplements from other provincial tax revenues as funds which could offset operational costs, making the relative expense to tax payers negligible. Thus, the tax payer would not have to bear the full burden of these increasing costs. While these cost offset regimes are mentioned briefly, it is notable that the absolute costs are more commonly referenced as the hindrance to successful Green Bin implementation. Interestingly, a community feedback survey on preferred waste management options in London's 2014- 2015 interim report indicate a high level of community support for green bin and willingness to pay higher costs (\$35- 60/ household) for reaching 60-80% diversion (London, 2014b). Despite evidence of community support for Green Bin, the prominent discourse of *unacceptable financial costs as a deterrent* in the local newspaper reinforces the instability for the

portrayal of success of Green Bin and therefore leads to continuous deferral until new information is presented or such a program becomes provincially mandated or when the public will make stronger demands.

3.2.2 Discourse: environmental uncertainty – Green Bin trucking and facilities create unacceptable odours and impact quality of life.

The environmental benefits discussed in London's city documents (9 / 15 documents) include pro-environmental claims on GHG emission reduction, extending the landfill life, and energy savings as related to increased waste diversion. However, environmental uncertainty is cited as a stronger persuasive argument primarily in the local newspaper for cautioning against Green Bin in the short-term, subsequently supporting the no-Green Bin *status quo*.

The environmental claims are largely the result of an independent aerobic processing plant located within London's borders but which does not currently process London's residential organics. There are odour complaints by neighbours and adverse effects on the quality of life claims of nearby residents reported in the media. This resulted in surrounding residents' opposition to this regional aerobic processing facility to continue operating. There are also concerns surrounding the environmental effects of increased transportation and hauling of Green Bin materials in contrast to backyard composting methods.

*Claim EU1: Adverse effect of odours on neighbours.*

The adverse odour claims propagated by the opening of this aerobic digestion facility<sup>6</sup> in 2007 within London's borders ostensibly to process Green Bin waste from other cities received widespread criticism from the London community and deterred supportive claims for Green Bin programs locally (Gillespie, 2012). The criticisms primarily stemmed from the odours and the impacts these have on residents' quality of life in the community. One resident who lives near the processing plant spoke to the London Free Press expressing his negative experiences and concerns:

The odour problems persist, says one neighbour... They've affected his property's values and those of his neighbours, he says. "We're a residential community and who's going to want to live there?" [He] contends the smell is more than adverse to him and his neighbours — it's affecting their lives seriously. "It's a dumpy, sewage, garbage smell," he said. "It's a smell that's unacceptable."

The odours were investigated and the facility faced 24 *Environmental Protection Act* charges relating to the odours' adverse effects on the community and site operations (Maloney, 2012). These charges helped to legitimize residents' concerns regarding the impact of increasing compost processing in London and the impact this could have on their wellbeing. The social impact of the aerobic processing facility is discussed in terms of environmental injustice for residents living with the adverse outcomes of organic waste processing. One resident comment's on this environmental injustice by stating:

---

<sup>6</sup> This facility is a private company that accepts Green Bin materials from other municipalities and is located near some high estate homes located in an area zoned for light industrial businesses.

"We deserve a better quality of life" said one area resident. One woman suggested the plant would never have been built near north London's Masonville neighbourhood. "Who would put with it in Masonville? She asked. "Just because we're south of the 401 highway doesn't mean our quality of life should be different (Pedro, 2012).

The residents' negative view of the aerobic processing plant is fueled not only by the odour but also from the emotive personal impact on quality of life. The environmental injustice claims are most persuasive during the environmental investigation and subsequent charges pressed against the compost processing facility. The context within which odours become an issue is a very important consideration. London is in contrast to other compost facilities, such as Toronto's Dufferin Organics and Disco Road Biogas facility, which have not had a significant issue with odour complaints (Moloney, 2010). A search of the *Toronto Star*, *Globe and Mail*, and *Toronto Metro* produced zero results for compost odour concerns in Toronto.

Claim EU2: Transporting organic waste is not environmentally friendly.

While city councillors debated where to send Green Bin waste collected from the pilot project, the claim of increased transportation to an alternate processing plant (120 Km from London) emerged after London's local composting facility closed temporarily to implement odour reduction strategies, while at the same time a new anaerobic digestion facility was entering London but not operational, occurred:

Most politicians were made cautious over concerns about processing in Ontario – particularly, the need to truck table scraps from the pilot project to a

Guelph-area facility because two possible plants are unavailable for the foreseeable future. (Maloney, 2010b).

Similarly, City Councillors and active environmentalists questioned the environmental benefits of Green Bin since it would require increased transportation. One London environmentalist wonders:

If the trucks and plants needed for citywide collection offset any environmental gains from waste diversion. "To put (food scraps) out on the road and have someone come in a truck and pick it up and haul it off . . . is that a smart thing to do?'... Among the alternatives suggested... are community composting stations at schools and churches that could be used by entire neighbourhood (Maloney, 2010b).

The negative impacts of transportation are seen as more concerning than the benefits gained from diverting organic materials from landfills. However, the same article by Maloney (2010b) found within in the lower portion of the text referenced the potential of Green Bin GHG reduction is equivalent to taking 700 vehicles off the road. Despite the GHG reduction, support is subsequently focused on alternative composting measures. Residents call on individual responsibility for organic waste whereby it is diverted from the landfill stream but does not require industrial collection and processing technologies on a larger scale, which they argue have negative environmental impacts. These 'negatives,' are seen as being avoidable through the implementation of community and backyard composting.

London has taken a stance on diverting organic waste by supporting local low cost composting programs instead, such as increased uptake of home composting and piloting community composting initiatives (London CWC, 2012; 7; CWC, 2015)

Home (or “backyard”) composting has played an important role in waste reduction in London since the mid-1990s. Between 1995 and 1999 the London participated in a provincial grant program to provide subsidized home composters to residents.

The uptake in home composting programs in London is emphasized in ten of the waste management strategic documents with close to 103 mentions, while the discourses surrounding Green Bin references are often discussed in terms of delaying the decision to implement the program. This is a mechanism by the city to transfer responsibility of waste diversion back onto the individual homeowner, rather than implement a costly city-wide collection program requiring both transportation and industrial processing. The counter claims to using backyard composters as an effective strategy to organic waste diversion are relatively negligible in public documents. While, success is measured based on the number of backyard composters purchased, there remains little coverage as to how much organic waste is successfully diverted through this initiative.

The claims surrounding uncertainties stemming from environmental concerns with odour, transportation, and uptake of alternative composting methods together support a powerful discourse in the London community. It is interesting to note that the London community primarily draws on environmental uncertainty claims to propagate a discourse which opposes the Green Bin program.

### *3.2.3 Discourse: But Green Bin works in other cities!*



Locally in London there is a propensity for the policy and environmental uncertainty discourses to dominate so much they silence counter-discourses that would support Green Bin programs including the claim that Green Bin is deemed “a success” in other communities. Those who support Green Bin cite successes elsewhere in the form of: increased diversion from landfill, extended landfill life, and reduction in GHGs. The environmental benefits of Green Bin are most predominant in City documents versus the local newspaper. For example, when the city introduced an interim business plan for Green Bin in 2011, staff reported that Green Bin would reduce GHG

s by approximately 65,000 tonnes per year, it would reduce energy consumption equivalent to supplying 22,000 homes per year, would extend the life of the landfill and would enable London to reach the provincial goal of 60% waste diversion (London ETC, 2010). However, the environmental benefits did not have a strong presence in the local newspaper amidst the environmental uncertainty and high financial cost discourses.

Support also came from positive claims around London’s Green Bin pilot project participants who were part of an initiative in 2011- 2012 to determine participation rates and success projections if implemented. The results of the pilot project demonstrated expected participation rates that are comparable to other cities and that most residents were very satisfied with the program (London, 2013a). Therefore, the Green Bin program has been recognized as successful if

implemented, as it is in other cities. However, despite the successful projections the dominant discourse discussed above outweigh these supportive claims.

### **3.6. Discussion**

Pal's (2005) policy framework on discourse and policy claims is useful for understanding how the lack of provincially mandated organic waste programs fuels local municipal debate on the implementation of a Green Bin program. London's policy discourses are the result of both policy and environmental uncertainty claims-making. The claims-making in this policy debate exists at multiple levels including the provincial authority, the local municipal government and news media. The dominant discourse propagated by London's municipal level emphasize the uncertain provincial legislation and postponing a strategic approach to the organic waste sector, which deprioritizes the Green Bin program. The top down portrayal of policy uncertainty from London to community residents is primarily emphasized through the debate on high financial costs as the most persuasive deterrent. While, the discourse surrounding environmental concerns tends to be the dominant discourse of London's newspapers in response to odour complaints.

McMullan and Eyles (1999) draw attention to claims that do not just emphasize conditions, but also frame problems in ways that intend to persuade. Persuasion is evident in this policy sub-system since the provincial commitment to organic waste is undetermined; the issue then falls in the realm of political claims-making and

negotiation at the local level. The majority of stakeholders, including environmental groups, in this policy subsystem advance several different claims (e.g., high costs, odour concerns, GHG from trucks) but nevertheless contribute to a discourse that does not support Green Bin. The pro-environmental counterclaims used to support Green Bin implementation lack persuasive advocates to vocalize the merits of Green Bin and are therefore silenced in the debate. Our longitudinal policy analysis highlights that London initially attempted to use persuasion in favour of a Green Bin program by discussing how costs could be managed and offset when such a program was seen as mandated by the MOECC. However, uncertain legislation changes surfaced and this persuasion soon swayed towards claims against Green Bin.

The environmental uncertainty claims are also not as persuasive for decision makers as it is for local residents. The environmental uncertainty claims by the residents are focused on the adverse effect of odour associated with the two private organic waste facilities that are considered to be separate from the waste management operations by the municipality. Thus, the odour and nuisance concerns from nearby residents and highlighted in the local newspaper did not appear to resonate with local politicians when discussing the municipal approach to managing organics. As well, the larger-scale environmental benefits of reduced GHG emissions at the national and global level seemingly do not resonate with the community. This is not surprising since the uneven uptake of green technologies that are implemented to combat global

initiatives like climate change is noted by Pal (2005) as having several challenges including slowed local economic growth, lack of ownership over common resources such as air and water, and global initiatives that require short-term individual efforts where people are often reluctant to comply despite long-term environmental gains.

In addition, those who sustain the dominant discourse are powerful stakeholders which speaks to the notion of how more powerful stakeholders can change the dynamic of a policy problem depending on the stand they take (Foucault, 1972). At the provincial level, the control over waste management direction is controlled by the MOECC. The MOECC is responsible for developing Ontario's waste regulations and strategic direction planning. The MOECC emphasized the significant portion of organics in the residential waste stream, which resulted in many large municipalities opting into a Green Bin program. Yet, maintaining the voluntary nature of Green Bin has allowed London to cautiously wait for emerging technological innovations and the ability to assess success rates in other municipalities, due in large part by the lack of perceived landfill crisis. This is in contrast to other provinces, such as Nova Scotia, and other countries that have had severe landfill limitations and implemented bans on organic waste from entering landfill. The decision to force a complete ban on organics in landfill has not only increased diversion rates but can also aid in the progression of organics processing technologies. Wagner (2007) discusses the bold approach taken by the provincial government of Nova Scotia to progressively change the waste management model:

The rejection of traditional disposal methods at the highest level of the provincial government, combined with the creation of a legal mandate, provided an opportunity to craft a new solution and increased the political will and impetus for action. In the context of crisis, the conditions necessary to champion a new model for solid waste management were in place – political capital, media attention, public support, and the identification of a workable homegrown solution. (p. 471)

The crisis condition is often required to create progressive action which contrasts the current situation in London where the perception is that there is sufficient time to wait until the appropriate information is available with a higher degree of certainty before a decision can be made. Here in lies the notion that London is in a paralysis by analysis whereby maintaining the policy *status quo* is the favoured option under the pretext of waiting for new information. However, Lenz and Lyles (1985) argue that paralysis by analysis requires the act of collecting and interpreting data, not waiting for provincial direction or for a city council to vote in favour of a program. London has already determined the Green Bin program would meet expected participation rates as demonstrated in the local pilot project (London, 2013a). Therefore instead of a paralysis by analysis, we label this as precautionary paralysis, referring to the circumstances of reasonable caution in light of many uncertainties to explain this environmental policy inertia.

### **3.7. Conclusion**

This paper demonstrates the role of discourse in a policy subsystem that has resulted in maintaining the *status quo* for London's waste system and the inertia in

implementing a Green Bin program. The *status quo* has immense inertia (object tends to stay at rest) but even when you budge it to overcome that inertia (e.g., pilot programs) powerful policy claims supporting specific discourses can handily slow it right back down to rest again. More science does not necessarily help overcome inertia, it is the discourses that do. That we choose to mute discourses that highlight GHG benefits of proven technologies like Green Bin and anaerobic digestion we risk falling behind on GHG targets provincially and nationally. While this empirical study focuses on London's Green Bin debate, the implications of the policy discourses that emerged from this research can transcend to other environmental policy problems (e.g., alternative energy, public transit, among others).

The relevance of discourse in understanding policy problems is in the manner that it produces material effects. Discourse plays a vital role in environmental policy debates as it has the power to influence the policy direction toward support or resistance. As this study demonstrates the messy complex nature of environmental issues that occur at global, national, and local levels, consideration must be given to the interplay of varying discourses that can aid in forecasting the success of a given policy. Policy planning, to be successful must consider both the broader and local implications, specifically that success is often limited to implementation issues that may differ from one location to another. Discourses of uncertainty highlight the absence of strong or persuasive claims to overcome the *status quo*. Policy processes such as the rational

policy model and paralysis by analysis require a catalyst, in the form of persuasive discourse, toward successful adoption. The policies that result from a crisis situation are pushed to policy adoption as a result of the urgency needed to make a decision. Therefore, policy planning that includes discourse analysis as a component of the policy planning framework will likely help to overcome precautionary paralysis.

### 3.8. References

- Althaus, C., Bridgman, P., and Davis, G. (2013). *The Australian Policy Handbook*. Allen & Unwin: Sydney. 5th edition.
- Adhikari, B. K., Barrington, S., and Martinez, J. (2006). "Predicted growth of world urban food waste and methane production." *Waste Management and Research* 24: 421-433.
- Aronson, N. (1984). "Science as a claims making activity: Implications for social problems research". In J. Schneider, & J. I. Kitsuse (Eds.), *Studies in the sociology of social problems*. (Pp.1-30). Norwood, N. J.: Ablex.
- Bulkeley, H., and Askins, K. (2008). "Waste interfaces: Biodegradable waste, municipal policy and everyday practice." *The Geographical Journal* 175 (4): 251-260.
- Charmaz, K. (2004). "Grounded Theory". In Nagy Hesse-Biber, S. and Leavy, P. (Eds) *Approaches to Qualitative Research: A reader on Theory and Practice*. Oxford University Press.
- Chianello, J., and Pearson, M. (2015). "Ottawa severs ties with Plasco as company files for creditor protection." *Ottawa Citizen*, February 10. Retrieved: <http://ottawacitizen.com/news/local-news/plasco-energy-group-files-for-creditor-protection>
- Darier, E. (1996). "The Politics and Power Effects of Garbage Recycling in Halifax, Canada." *Local Environment* 1 (1): 63-85
- Eriksson, O., Reich, M., Carlsson, Frostell, B., Bjorklund, A., Assefa, Getachew, Sundqvist, J.Olov, Granath, J., Baky, Andras, and Thyselius, L. (2005). "Municipal solid waste management from a systems perspective." *Journal of cleaner production* 1 (3):241-252.



- Fairclough, N. (2003). *Analysing discourse: textual analysis for social research*. Routledge Taylor & Francis Group: London and New York.
- Foucault, M. 1972. *The archeology of knowledge*, trans. A. Sheridan. London. Tavistock.
- Garvin, T. and Eyles, J. (1997). "The sun safety metanarrative: Translating science into public health discourse." *Policy Sciences* 30: 47-70.
- Gillespie, I. 2012. "Turning garbage into compost a smelly job." *London Free Press*, October 11. Retrieved: <http://www.lfpress.com/2012/10/11/turning-garbage-into-compost-a-smelly-job>.
- Gregson, N., and Crang, M. (2010). "Materiality and waste: inorganic vitality in a networked world." *Environment and Planning A* 42: 1026-1032.
- Hird, J. M., Loughheed, S., Rowe, R. K., and Kuyvenhoven, C. (2014). "Making Waste Management Public (or falling back to sleep)." *Social Studies of Science* 44 (3): 441-465
- Howland, D., Larsen, M., and Prelli, J. L. (2006). "Merging Content analysis and the policy sciences: a system to discern policy specific trends from news media reports." *Policy Sciences* 39: 205-231.
- Hultman, J., & Corvellec, H. (2012). The European Waste Hierarchy: from the Sociomateriality of Waste to a Politics of Consumption. *Environment and Planning A*. 44, P. 2413-2427.
- Langley, A. (1995). "Between "paralysis by analysis" and "extinction by instinct." *Sloan Management Review* 36 (3): 63-76.
- Langley, J., Yoxall, Al., Manson, G., Lewis, W., and Waterhouse, A. (2009). "The use of uncertainty analysis as a food waste estimate tool." *Waste management & Research* 27: 199-206.
- Lenz, R. T., and Lyles. (1985). "Paralysis by analysis: is your planning system becoming too rational?" *Long Range Planning* 18(4): 64-72.

- London. 2007a. *Road Map to Maximize Waste Diversion in London*. Retrieved:  
<https://www.london.ca/residents/Garbage-Recycling/Garbage/Documents/Road%20Map%201.0.pdf>
- London. 2008. *The story of London's W12A landfill site*. Retrieved:  
[https://www.london.ca/residents/Garbage-Recycling/Garbage/Documents/The\\_Story\\_of\\_W12A.pdf](https://www.london.ca/residents/Garbage-Recycling/Garbage/Documents/The_Story_of_W12A.pdf)
- London. 2013a. *Road Map 2.0 the Road to Increased Resource Recovery and Zero Waste*. Retrieved: <https://www.london.ca/residents/Garbage-recycling/Garbage/Documents/Road%20Map%202.0%20Full.pdf>
- London. 2013b. "Population and Dwelling." Retrieved: <https://www.london.ca/About-London/community-statistics/population-characteristics/Pages/Population-and-Dwellings.aspx>
- London. 2013c. "Age and Gender". Retrieved: <https://www.london.ca/About-London/community-statistics/population-characteristics/Pages/Age-and-Sex.aspx>
- London. 2014b. *Interim Waste Diversion Plan 2014 to 2015*. Retrieved:  
<https://www.london.ca/residents/Garbage-Recycling/waste-management-planning/Pages/Interim-Waste-Diversion-Plan.aspx>.
- London. Advisory Committee on the Environment (ACE). (2006). *Getting to 60: A discussion paper on waste diversion in London*. Held on April 5, 2006.
- London. Civic Works Committee (CWC). (2012). *Solid Waste Management Updates*. Meeting held on April 23, 2012.
- London. Civic Works Committee (CWC). (2013). *Status Report: Update of Road Map to Maximize Waste Diversion 2.0*. Meeting held on July 33, 2013.
- London. Civic Works Committee (CWC). (2014a). updates: *Proposed waste reduction act and related matters for financing the blue box program*. Meeting held on February 3, 2014.

- London. Civic Works Committee (CWC). (2015). *Waste Diversion: Update on examination of residential organic waste (food scraps) and next steps*. Meeting held on April 20, 2015.
- London. Environment and Transportation Committee (ETC). (2007b). *Solid Waste Management in Ontario, Canada: Problems and Opportunities*. Meeting December 10, 2007.
- London. Environment and Transportation Committee (ETC). (2007c.) *Presentation to the International Solid Waste Association September 2007*. Meeting on December 2007.
- London. Environment and Transportation Committee (ETC). (2008). *Guidance Document for Waste Diversion Decisions including the Green Bin Program*. Meeting on November 10, 2008.
- London. Environment and Transportation Committee (ETC). (2010). *Interim Business Plan for the Green Bin Program and Zero Waste Strategies*. Meeting on January 11, 2010.
- Ma, J., & Hipel, K. W. (2016). Exploring social dimensions of municipal solid waste management around the globe—A systematic literature review. *Waste Management*, 56, 3-12.
- Macklin, A. (2013). "Edmonton turns waste into fuel." *Canadian Biomass Magazine*, February 15. Retrieved:
- Maloney, P. (2010). "Trash debate is picking up." *London Free Press*, January 12. Retrieved: <http://www.lfpress.com/news/london/2010/01/11/12415191-sun.html>
- Maloney, P. (2010b). "Environmentalists trash plan." *London Free Press*, January 20. Retrieved: <http://www.lfpress.com/news/london/2010/01/20/12535016.html>
- Maloney, P. (2012). "Controversial composting plant facing two dozen environmental charges." *London Free Press*, August 30. Retrieved: <http://www.lfpress.com/2012/08/29/the-smell-test>

- McMullen, C., and Eyles, J. (1999). "Risky business: An analysis of claims making in the development of an Ontario drinking water objective for tritium." *Social Problems*, 46(2): 294-311.
- Ministry of Environment. (2002). *The Waste Diversion Act*. Revised Statutes of Ontario (R.S.O), 2002. Toronto Ontario: Queens Printer for Ontario.
- Ministry of Environment. (2004). *Ontario's 60% Waste Diversion Goal – A Discussion Paper*. Queens Printer for Ontario.
- Ministry of Environment. (2009). *From Waste to Worth: The Role of Waste Diversion in the Green Economy: Minister's Report on the Waste Diversion Act 2002 Review*. Queens Printer for Ontario.
- Ministry of Environment. (2013). *Waste Reduction Strategy*. Queens Printer for Ontario.
- Ministry of the Environment and Climate Change. (2015). *Draft Strategy for a Waste Free Ontario: Building the Circular Economy*. Queens Printer for Ontario.
- Moloney, P. (2010). "City's green-bin gobbler due for upgrade." *The Toronto Star*, December 29. Retrieved: [https://www.thestar.com/news/gta/2010/12/29/citys\\_greenbin\\_gobbler\\_due\\_for\\_upgrade.html](https://www.thestar.com/news/gta/2010/12/29/citys_greenbin_gobbler_due_for_upgrade.html)
- News Media Canada (2015). 2015 Daily Newspaper Circulation Report. Retrieved: <https://nmc-mic.ca/about-newspapers/circulation/daily-newspapers/>
- O'Brien, J. (2016). "Green Bins soaring in cost." *The London Free Press*, February 21. Retrieved: <http://www.lfpress.com/2016/02/21/green-bins-soaring-in-cost>.
- Otten, L. (2001). "Wet dry composting of organic municipal solid waste: current status in Canada." *Canadian Journal of Civil Engineering* 28(1): 124-130.
- Pal, L. A. (2005). *Beyond Policy Analysis Public issue management in turbulent times*. Scarborough: Nelson Thomson Learning.

- Parizeau, K., von Massow, M., and Martin, R. (2015). "Household level dynamics of food waste production and related beliefs, attitudes, and behaviours in Guelph, Ontario." *Waste Management* 35: 207-217
- Pasotti, E. (2010). "Sorting through the Trash: The Waste Management Crisis in Southern Italy." *South European Society and Politics*, 15(2): 289-307.
- Prior, L. (2004). *Following in Foucault's footsteps*. In Nagy Hesse-Biber, S. and Leavy, P. (Eds) *Approaches to Qualitative Research: A reader on Theory and Practice*. Oxford University Press.
- Resource Productivity and Recovery Authority. (2016). "Programs and Plans." Retrieved: <http://www.rpra.ca/Library/WDO-Historical/Programs-Plans>
- Richards, L. (1999). *Using NVIVO in Qualitative Research*. Los Angeles: Sage.
- Sharp, L., and Richardson, T. (2001). "Reflections on Foucauldian discourse analysis in planning and environmental policy research." *Journal of Environmental Policy & Planning*, 3(3): 193-209.
- Statistics Canada. (2011). "Focus on Geography series, 2011 census." Retrieved: <http://www12.statcan.gc.ca/census-recensement/2011/as-sa/fogs-spg/Facts-cma-eng.cfm?Lang=Eng&GK=CMA&GC=555>
- Wagner, T. (2007). "Reframing garbage: solid waste policy formulation in Nova Scotia." *Canadian Public Policy* 33(4): 459-475
- Yoshida, H., Gable, J. J., and Park, K. J. (2012). "Evaluation of organic waste diversion alternatives for greenhouse gas reduction." *Resources, Conservation and Recycling* 60: 1-9. Chapter Five: Manuscript Two

## **Chapter 4:** Municipal Identities: The case of residential food and organic waste curbside collection (Green Bin) in London and Guelph, Ontario

### **4.1. Introduction**

The political landscape of waste management in Canada is growing from traditional landfilling to a more holistic approach that incorporates concepts of circular economy and resource management. This growth has given rise to renewable technologies, such as anaerobic digesters, that convert waste into energy sources while maintaining a reduced carbon foot print. These new concepts and technologies come during a time of increased pressure to think differently about the waste stream. Traditional systems of disposal have been increasingly challenged by increased volumes of waste and related capacity needs that have increased environmental pressures to reduce greenhouse gases. These challenges have prompted systems to move away from disposal management and focus more on resource management.

A second challenge associated with movement away from disposal management toward resource management is the high costs associated with the implementation of new technologies and structures to meet environmental benchmarks. Traditional municipal waste management planning has historically focused on methods for collection and disposal. However, in most large municipalities in Ontario, landfill capacity has been rapidly decreasing or is non-existent within local borders, thereby increasing the focus on prevention and diversion strategies (Ministry of Environment and Climate Change (MOECC), 2017).

The majority of waste management direction comes from the provincial regulatory body, such as Ontario's Ministry of Environment, Conservation and Parks (MECP). In Ontario, waste management regulations have remained largely unchanged since the *Waste Diversion Act* (WDA) was created in 2004. Only recently has this legislation been replaced with the *Waste Free Ontario Act* in 2016. The *Waste Diversion Act* (WDA) emphasized increasing waste diversion from landfill, while the *Waste Free Ontario Act* is focused on the circular economy and producer responsibilities. The circular economy aims to eliminate waste through the life cycle of a product. In terms of food waste, the province has developed a food and organic waste framework that focuses on prevention and reduction, followed by recovering resources, supporting resource recovery infrastructure and promoting the beneficial use of recovered resources (MOECC, 2017). The thirteen-year timespan between the *WDA* and *Waste Free Ontario Act* does not necessarily imply stability, as at least one different replacement Act, the *Waste Reduction Act* was proposed and subsequently shelved during that time.

This study explores the use various discourses to influence decision making for one waste management stream, organic wastes (in particular food scraps) separation and collection (Green Bin) programs. This study will focus on two similarly sized municipalities London and Guelph, Ontario, Canada as examples of municipal policy planning in the midst of paradigm shifts toward zero waste and circular economy

strategies at the provincial level. Discourse analysis is used to uncover predominant discourses within the policy debate that can be used to understand specific policy outcomes. Specifically, this study examines the predominant and counter-discourses that surround municipal decisions to maintain an organics separation program (Green Bin) in Guelph, Ontario, with decisions to not implement a Green Bin program in London, Ontario.

## **4.2. Background and Review of Literature**

### **4.2.1. Environmental Policy**

Theories in environmental policy aim to understand why certain environmental risks are acted upon through policy while others are not – further, that these can be categorized to provide insights on likely policy responses. For example, studies using risk theory, such as Baxter (2009), explore why communities accept or reject hazardous facilities, finding that tailored risk communication strategies that are place specific and account for the communities historical relationship with the facility, influences the affective reaction they have to it. In addition, Baxter and Greenlaw (2005) studied why various groups (communities) view risks from the same hazard differently finding, the social construction of world views are historically embedded in community and social life and that risk is associated with the perceived threat to those world views. In other words, community coherence, through similar worldviews and ways of life are embedded early on and is related to the level of concern of a hazard (Baxter &



Greenlaw, 2005). While risk theory is beyond the scope of this paper, it is important to consider the place of specific factors that lead to successful policy acceptance.

According to O’Riordan (1989), environmental positions tend to fall into three broad categories: non-sustainable, techno-centric, and eco-centric. Those who hold positions that are non-sustainable tend to view the vulnerability of the environment as stable and not at risk, thereby the environment is robust and the focus is primarily on economic growth. While techno-centric positions are more apt to view the environment as somewhat vulnerable and strive to accommodate nature’s limits through the development of innovative technologies; an eco-centric belief tends to view the environment as extremely vulnerable and requires radical policy change. These fundamental differences in belief systems are often at the core of competing discourses.

Sharp (1999) used O’Riordan’s framework and expanded it to suggest that rather than positions, non-sustainable, eco-centric and techno-centric are discourses that are in constant competition. In addition, a community may have varying degrees of these discourses that represent the overall dominant position. Sharp (1999) suggests that these interactions are in constant flux where the dominant discourses tend to elicit counter-discourses within environmental policy debates. For example, Roe (1994) discussed policy strategies at the international and national levels to address the crisis of climate change that are often challenged by counter discourses by local municipalities noting high costs of infrastructure investments in the absence of immediate

environmental results, which are also often in conflict with other local competing economic priorities. Instead of distinct categories, non-sustainable, eco-centric and techno-centric positions interact as varied discourses such that “the policies and practices themselves are regarded as the outcome of the discourse competition which has been played out by local authorities” (Sharp, 1999, p. 147).

The work of Luhmann (1989, 1993) can be used to build on this idea of discourse competition, using a systems theory approach to describe distinct social groups that view acceptability of risk in relation to views held about outsiders in other systems that often conflict (non- sustainable vs techno-centric vs eco-centric). For example, those who support policy outcomes that aim to manage local waste within its own boundaries would likely oppose policies that approve outsiders waste to be managed within their municipality (i.e., importing waste).

The study of discourse gained popularity through the writings of French philosopher Michael Foucault, the father of governmentality. Governmentality is an approach to understanding how socioeconomic systems work. Governmentality views the power structures of discourse and the subsequent empowerment or disempowerment of certain views by key agents contributing to the normalization of those discourses in the population as a way to shape the world (Prior, 2004). According to Foucault (1972), discourses set the limit on what can or cannot be said on a certain topic, giving certain agents power to speak on these topics and thus creating control

over representations that shape the world. For this reason, the analysis of discourse helps unveil how dominant discourses maintain the *status quo* and how that *status quo* remains difficult to change even in the face of competing counter-discourse(s).

Foucault's conceptualization of governmentality aligns with Sharp's (1991) ideas about non-sustainable, eco-centric and techno-centric discourses due to their interconnectedness in the environmental policy realm, in that predominant discourses propagate and gain influence over a particular policy outcome(s). For instance, Sharp and Richardson (2001) used the case of the trans-European transport networks (TENs), which proposed the development of road, rail, air and water transport across the European Union. In light of mounting forecasts and discourses of dire environmental, social and economic impacts, the combination of counter economic growth discourses backed by major institutions and government ultimately shifted the policy outcome toward support of the project. Thus, the predominant discourses by major institutions and government outweighed the environmental and social concerns at the time.

As Foucault et al. (1991) claim, power is embedded within discourses to varying degrees and ultimately underlies all policy outcomes. In certain circumstances, two different groups may band together to change the balance of power, when there is a mutual interest in a common policy outcome, thus discourses can shift and re-align to work together towards that same end (Sharp, 1991). This can be observed in provincial discourses that filter down to the local municipal debate, thereby often profoundly

influencing the resultant predominant discourse of environmental policy related decisions. This is illustrated in the MOECC's *Strategy for a Waste-Free Ontario and Ontario's Climate Change Action Plan* (2016) that strongly promotes the reduction of greenhouse gases at the municipal level. Municipalities often debate environmental technologies and associated policies that reflect these non-sustainable, techno-centric and eco-centric discourses at council meetings, in the media, and within their communities. Environmental policies also tend to be in conflict with economic growth narratives that commonly use tactics, such as labelling the "other" discourse as "radical" when in conflict with "traditional" approaches to maintain the *status quo*, often stemming from a perception of risk (Pal, 2005). This is illustrated in a recent newspaper article by Jones (2017) on the proposed ban on organic waste from landfill, the Environmental Minister stated "fundamental changes are required in how people think of and treat organic waste," suggesting the shift in focus to environmental considerations to tackle reductions in greenhouse gas. However, small-sized municipalities use the counter economic claim that it is not feasible and would require provincial funding support from the province. In addition, the institutional, commercial and industrial (IC&I) sectors support the prohibitive economic counter claim by specifically highlighting the costs "to dispose of waste is \$118 per tonne to the U.S. and \$134 per tonne in Ontario, but \$205 per tonne to divert" (Jones, 2017). It is within this context that this case study will compare two municipalities in Ontario, London and

Guelph, which have implemented different approaches to managing organic waste, as a primary example of a local environmental issue.

#### **4.2.2. Conceptualizing Waste as a Resource**

Before turning to the study, the interconnected theories of policy change must be connected to conceptualizations of “waste” itself. Waste theories explore the various conceptualizations and interactions of waste in society, by analyzing of how it is operationally defined, how it is categorized, and who has the power to make political decisions regarding waste (Hird et al., 2014). Historically, waste has been represented as a substance that is abject that must be managed and removed from living spaces (Douglas, 1966). A more recent way to conceptualize waste is to view it as a resource. Viewing waste as a resource aligns with the circular economy and resource management conceptualizations proposed in Ontario, as it views the value of the substance or material and strives to preserve that value through its lifecycle. Circular economy is “a system in which products are never discarded, but reused, recycled and reintroduced into new products” (MOECC, 2017, p.1).

However, Gregson, Crang, Fuller and Homes (2015) critique the conceptualization of the circular economy as a moral economy based on maintaining the cycle within its own national boundaries without critically analyzing the implications it has on geographic economies of trade and markets on a global scale. Of note, they highlight that “to effect a circular economy driven by producers through either industrial symbiosis or cradle to

cradle manufacturing would require radical transformations to the economic order, including fundamental recasting of manufacture, retail, consumption and property rights (p.235).” While conceptualizations such as the circular economy are gaining momentum in Ontario, the economies of scale at the municipal level continue to follow the hierarchical waste approach as the dominant conceptualization. The hierarchical approach starts first with prevention, reuse, recycling, energy recovery and disposal as the least favourable (Environmental Commissioner of Ontario, 2017).

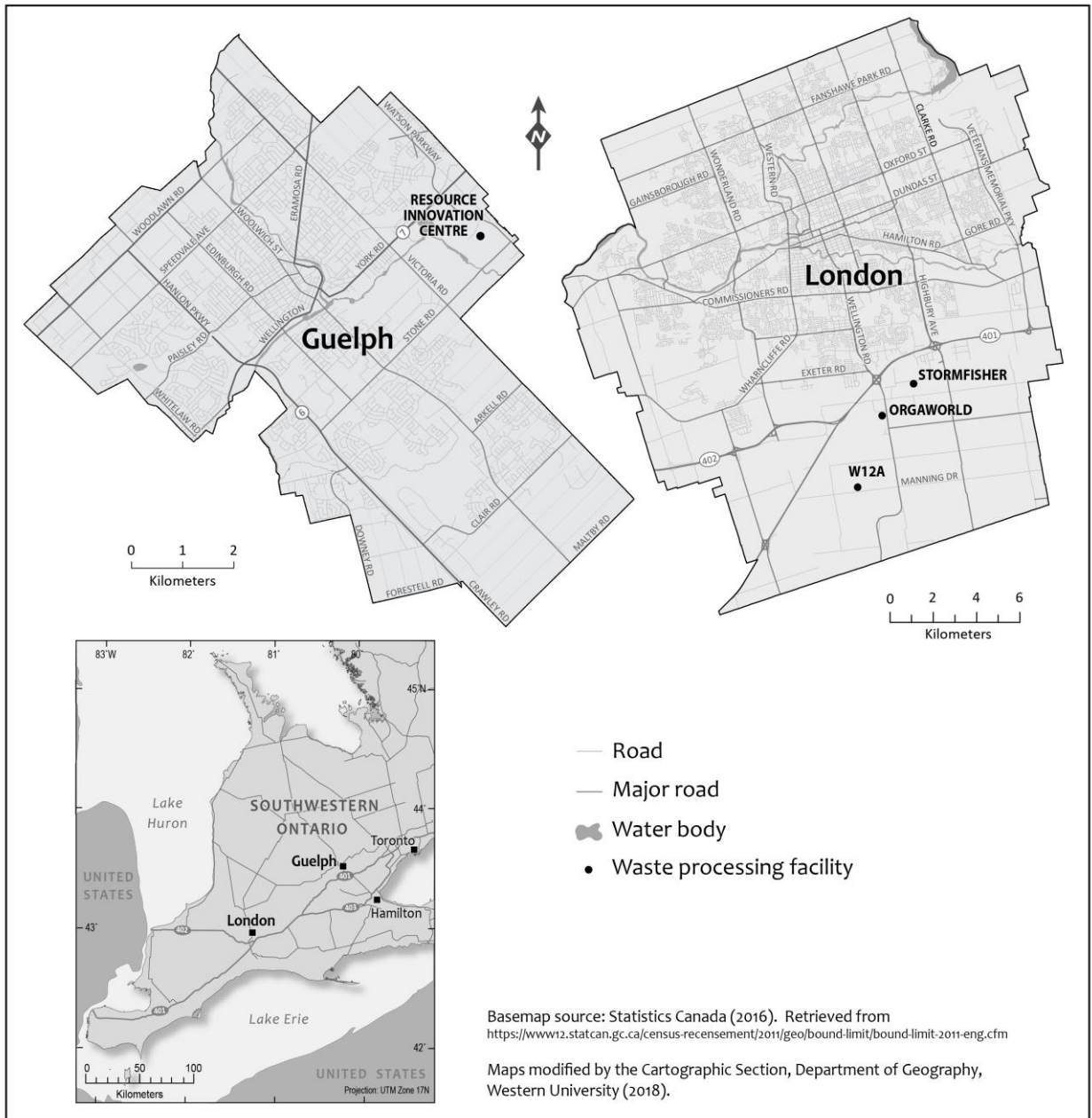
#### **4.2.3. Municipal contexts for the case studies**

London and Guelph are both situated in Southwestern Ontario, approximately 120 km apart. While London has a larger population (383,822) compared to Guelph (151,984) they are both cities surrounded by large rural counties and home to a university (London 2018, Guelph, 2017). Guelph is recognized as a medium-sized municipality that was the first to tackle household separation and collection of source-separated organics (i.e., food scraps).

A key difference between these two cities is the available landfill capacity; London has approximately nine years of capacity remaining at the W12 landfill with the likelihood of expanding capacity for the next 20 years since they have adequate space to increase the landfill site (London, 2010). In contrast, Guelph has no remaining landfill capacity and transports residual waste to the Twin Creeks landfill in Watford Ontario located approximately 170km away (Guelph, 2014). London is also home to two private

organic waste processing facilities: Orgaworld and Stormfisher, while Guelph has a municipally owned organic waste processing facility that privately contracts the operation (Resource Innovation Centre).

Figure 4.1 Map of Guelph and London



These contextual differences set the stage for discourses within and between London and Guelph. Table 4.1 outlines pivotal moments in both Guelph, London and the provincial government, regarding residential organics management. What this table shows is the historical parallels of policy decision making between London and Guelph to address organic waste and where different approaches were implemented, Guelph adopting a community wide system and London adopting an individualistic approach. The policy process follows issue identification, assessment of organic waste technologies, policy review and agenda setting, implementation and reframing.

Table 4.1 Historical review of policy decisions in London, Guelph, and the provincial government

Year	Guelph	London	Provincial
<b>Issue identification: recognized need to implement local organic waste diversion</b>			
<b>Pre-2005</b>	1995 implement green and blue bags for the wet/dry program. 1996: composting plant opens. 2003: wet/dry system switches to 3 streams (clear, blue, and green bags).	1995-1999 London participated in a provincial grant program to provide discounted home composters to residents.	2002 Waste Diversion Act passed in legislature.  2004: Ontario's 60% Waste Diversion Goal – A discussion paper.
<b>Assessment of organic waste processing technologies</b>			
<b>2006 - 2007</b>	Organic waste facility is shut down due to corrosion and odour complaints. Contract with energy from waste facility in Niagara Falls, N.Y. City pleads guilty to a single count under the EPA related to odours.	Private organic waste processing plant opens leading to odour complaints from neighbours. London releases A Road Map to Maximize Waste Diversion in London.	



Year	Guelph	London	Provincial
<b>Policy review and priority setting</b>			
<b>2008</b> -	Waste management Master Plan developed.	London begins internal debate to implement	From Waste to Worth: the Role of Waste
<b>2009</b>	Private contract to build and operate a new organics plant awarded. Discussion on switching from bags to carts for collection of waste begins.	Green Bin (projected implementation in 2010). Discussions on the implementation of a pilot Green Bin program begin.	Diversion in the Green Economy released.
<b>2010</b> -	Debate on removing yard waste collection begins.	Green Bin pilot program debated.	
<b>2011</b>	Debate on bags to carts continues. New organic waste facility opens. Odours in the neighbourhood lead to voluntary shutdown.	Private composting plant in London closes due to odour complaints. Re-opens in same year. Green Bin pilot begins.	
<b>Implementation of organic waste policy</b>			
<b>2012-</b> <b>2013</b>	Organics plant resumes accepting waste. Phase 1-3 of switching from bags to carts begins. Review of Master Plan to increase waste diversion to 70% by 2021.	Private composting plant charged with 16 offences related to odour issues.	Bill 91 introduced into provincial legislature to replace the WDA with the WRA.
<b>2014</b> -	Debate on residential leaf and yard pick up.	Investigation into potential opportunities for community composting.	Draft Strategy for a Waste Free Ontario: Building the Circular Economy.
<b>2015</b>		London releases Road Map 2.0: The Road to Increased Resource Recovery and Zero Waste and Interim Waste Diversion Plan 2014-2015.	
<b>Reframing focus toward prevention strategies</b>			
<b>2016</b>	Begin to focus on reducing preventable food waste.	Begin to focus on reducing preventable food waste.	Waste Free Ontario Act is passed in legislature.

(London, 2014; MOECC, 2002, 2004, 2009, 2013, 2015, 2016; Ruttan, 2012; Tracy, 2013)

### **4.3. Methodology**

To further understand the above policy process and policy outcomes, discourse analysis was used to uncover the predominant and counter discourses that influenced organic waste decision making in London and Guelph. News media articles and documents were reviewed in both municipalities in addition to conducting in-depth interviews with 26 participants (London (13) and Guelph (13)), using a semi-structured interview guide focused on the following topics: core policy objectives for waste management in the municipality, current status of organic waste management including successes and barriers, views on energy recovery, the role of research in policy decisions, philosophical views and key future issues within the municipality.

#### **4.3.1. Media and Document Analysis**

To develop an initial understanding of the portrayal of Green Bin within each municipality, a review of city documents (master plans, council packages, public-facing strategic plans) and online newspaper articles (Guelph 158, London 60) were reviewed and coded for predominant themes. The newspapers selected were the *Guelph Mercury Tribune* (formerly, *Guelph Tribune*) and the *London Free Press*. Both newspapers have large circulation rates within the community: *Guelph Mercury Tribune* has an average weekly circulation of 68,014 and the *London Free Press* has an average weekly circulation of 417,901 suggesting influence on predominant discourses shared in the community

(News Media Canada, 2015). The city documents were accessible online between the years of 2008 – 2016 to capture pivotal activities within each municipality that involved active debate about the status of Green Bin (demonstrated in Table 4.1). As noted above, parallels in the policy process allowed for comparison between the two cases. During the period of study (2014- 2017), notable experiences stemming from 2008 in both Guelph and London were influential in the current organic debate. While the experiences in 2008 are important to highlight, the capture is actually wider; many documents and interviewees referenced previous timelines and issues that had influenced the current activities and debates, particularly in Guelph. In 2008, Guelph was in a position of opening a second composting plant after the previous plant was shut down due to corrosion and odour issues. In the same year, London was debating the Green Bin program in light of a controversial private organic processing facility that was just beginning to operate.

#### **4.3.2. In-depth Interviews**

In-depth interviews ranged on average between 30- 45 minutes, to allow the researcher to uncover the predominant discourses and philosophical views of key stakeholders, who influenced or participated in waste management policy and planning. The interview process, according to Miller and Crabtree (2004), is a “special type of partnership and communicative performance or event” (p.187) such that each interview carries different interactions and transmissions between the interviewer and interviewee.

The interview guide consisted of eleven subject questions, listed in Table 4.2, which included sub-questions that were designed to be brief, open and neutral to generate and encourage candid narratives. The use of probing was used to provide further detail by encouraging the participant to provide examples or stories to illustrate varying perspectives. The interviews resulted in 17 total hours of interview time and 547 pages of transcribed text.

Table 4.2 Semi-structured Interview Guide  
**Introduction/ participant background**

<ul style="list-style-type: none"> <li>• Please tell me about your background and experience with waste management?</li> <li>• What role(s) have you had in policy development?</li> </ul>	Perception of organic waste management
<ul style="list-style-type: none"> <li>• What are the core policy objectives of the waste management systems here in [municipality]?</li> <li>• <b>Why does your municipality deal with organics the way it does?</b></li> <li>• <b>What do you think about energy recovery from organics management in the context of your municipality?</b></li> <li>• <b>What do you think are the primary motivations to public participation in waste management programs like Green Bin?</b></li> </ul>	Perception of other partners/stakeholders
<ul style="list-style-type: none"> <li>• What is the role of research for creating and sustaining Green Bin or other organic diversion strategies?</li> <li>• Who are the non-government stakeholders most interested in waste issues in your municipality?</li> </ul>	Perception of waste conceptualization
<ul style="list-style-type: none"> <li>• What are your thoughts on waste management policies that are moving towards “zero waste” or “circular economy”?</li> <li>• Anything to add about managing organics in your municipality?</li> </ul>	

### **4.3.3. Participants**

The participants were divided into two categories of influential stakeholder: key informants and community representatives (Table 4.3). Together, key informants and community representatives form a heterogeneous group of individuals, who are influential in the dispersion of discourses within their communities. The key informants influence the perceptions of organic waste that are influential in organic waste policy decisions and include people who work for the city departments related to waste management, city councillors, and city council advisory committees. Community representatives are those who are active and engaged citizens, many of whom belong to community-based organizations or groups that have a focus on environmental issues, composting, and/or have been informed of current events related to Green Bin. The community representatives help to create the transactional element of the social construction of organic waste as they interact and work with key informants on a regular basis. The discourses and views of the community groups also aid in exploring the prominent discourses and forms of knowledge dispersed in the community.

### **4.3.4. Participant Selection**

To ensure the key informants and community representative participants were appropriately selected, theoretical sampling was used. Theoretical sampling is a form of purposeful sampling aimed to select participants who can discuss in-depth on a specific event or experience such as participating in organic waste decision making or who have

knowledge of specific influential events (Strauss & Corbin, 1990). Key informants were also selected based on knowledge and experience that reflected both current and past waste management decisions. The ability to reflect on past waste management decisions was an asset to this study that focused on key contextual issues of that time. Timelines and waste management implementation details were verified with city documents.

Table 4.3 Key Stakeholders in London and Guelph

<b>Participant</b>	<b>Number in London</b>	<b>Number in Guelph</b>
<b>Key Informants:</b>	Total: 8	Total: 6
City Council member	3	1
City staff	2	5
Private industry	3	
<b>Community Representative:</b>	Total: 5	Total: 7
Engaged citizen	3	3
Institutional <sup>7</sup>	2	4

The interviews (26) were conducted to explore in-depth the predominant discourses of key informants and community representatives who were influential during the pivotal activities and debates. Once the interviews were completed, they were transcribed verbatim and coded using NVivo software (Richards, 1999). The

<sup>7</sup> Interviews were conducted with participants from Guelph and Western University where programs that address food and organic waste management occur on campus to help identify the propagation of predominant discourses.

document review and coding process, also using NVivo, was conducted in tandem with the interview process during 2015 -2017. This enabled the researcher to be iteratively immersed with all of the data simultaneously to ensure saturation was reached in both data sources (Baxter & Eyles, 1997).

#### 4.4. Results

The predominant discourses suggest a hegemonic meta-discourse in each municipality. Meta-discourse refers to the overarching position of the municipality – the foil for counter discourses. Table 4.4 highlights the overarching meta-discourse in each municipality with subsequent discourses that have been developed thematically on: source of pride, motivation, Green Bin support, and emerging technologies.

Table 4.4 Meta-discourse and predominant discourses in London and Guelph<sup>8</sup>

	Guelph	London
<b>Hegemonic Meta-discourse:</b>	<i>Guelph is proud of the Green Bin program and embraces environmentalism into the community identity.</i>	<i>London's waste system is sustainable and currently does not require a Green Bin program thereby strongly maintaining the status quo.</i>
<b>Discourses</b>		
<b>discourse 1: Community pride</b>	<ul style="list-style-type: none"> <li>• Anything but incineration</li> <li>• We are environmental leaders</li> </ul>	<ul style="list-style-type: none"> <li>• fiscal prudence: Green Bin is too expensive</li> </ul>
<b>discourse 2: Motivation</b>	<ul style="list-style-type: none"> <li>• It's simply the right thing to do</li> </ul>	<ul style="list-style-type: none"> <li>• Landfills are revenue empires</li> </ul>
<b>discourse 3: Green Bin support</b>	<ul style="list-style-type: none"> <li>• Aligns with provincial goals</li> </ul>	<ul style="list-style-type: none"> <li>• The Green Bin program is not the only solution</li> <li>• The province hasn't taken a hard stance on</li> </ul>

<sup>8</sup> The discourses discussed in the table stem from a variety of sources (interviews and documents)

		mandating organics programs
<b>discourse 4: Technology lock: inertia of the status quo.</b>	<ul style="list-style-type: none"> <li>Emerging technologies difficult to adopt given the costs to maintain the current facility</li> </ul>	<ul style="list-style-type: none"> <li>High implementation costs of a new technology and facility odour issues</li> </ul>
<b>Counter-Discourses</b>		
<b>Guelph:</b>		
c- discourse 1: costs of the organic waste collection and processing are too high		
c- discourse 2: community growing pains		
<b>London:</b>		
c- discourse 1: Promising technologies are on the horizon		
c- discourse: 2: Green Bin programs divert more organic waste		

*5.1 GUELPH: Guelph is proud of the Green Bin program and embraces environmentalism into the community identity.*

*5.1.1 Discourse 1: Community Pride: Anything but incineration*

The discourses that support the recycling approach to organics as opposed to energy-from-waste are reflected in a pivotal moment in Guelph’s waste management system during the 1980s. Guelph was faced with a looming landfill crisis that resulted in a debate over a waste-to-energy (WTE) facility or an organics recycling program.

Guelph’s approach to managing residential waste within its own borders was a priority, yet with no available landfill capacity. Guelph had considered incineration in the mid to late 1980s to keep waste management local, this was ultimately met with resistance from local lobbyist groups with an “anything but incineration” discourse as a strong driver toward a 3Rs (reduce, reuse, recycle) approach. As one member recalls:



The city engineer started saying we're in a crisis situation. We have two years left on our landfill and we've got to get going. And we need a mass-burn incinerator right away. So those two were pretty critical... we originally started pushing back with an anti-incineration campaign and realized, well, no, this is a stupid idea. What we really need to do is to take a 3Rs approach to the world. And again, this sounds so absolutely rudimentary because any kid in kindergarten can tell you what the three R's were. It was radical. People thought we were crazy, that we wanted the city to instill the hierarchical approach to the 3Rs. Our attitude was we could take out that negative campaign of stopping incineration side of it but that would be a single decision point. And instead what we opted for was push the 3Rs and, if nothing else, we push off the decision on an incinerator. (Roger, Guelph).

The landfill crisis pushed Guelph into a techno-centric debate over the two technologies: incineration and the 3Rs, with the 3Rs perceived as better socially and environmentally. The result of the lobbying efforts resulted in the exploration into alternative organic waste management approaches that evolved from a wet-dry stream, a three-stream wet-dry-residual, and three-cart (recycle, Green Bin, and residual) approach overtime. The driver to move toward increased recycling in Guelph that included organics collection is largely a political opposition to the less favourable incineration technology proposed at that time thus reinforcing the pro-environmental community pride.

#### *5.1.2 Discourse 1: Community pride as environmental leaders.*

Guelph, Ontario, having an established Green Bin program, strives to continue promoting the successes achieved in organic diversion thus promoting a discourse of community pride. Media coverage in the *Guelph Tribune* reflects this sentiment as: "We took great pride in being pioneers in organic waste management," Farbridge said. "It was fundamental to our identity as a green community. This building is much more than

a place to handle our organic waste. It's a symbol of Guelph reclaiming its place as an environmental leader in this province" (O'Flanagan, 2011, p.1). The coverage of the Green Bin program as a source of community pride is predominant in reference to the recognition of Guelph as an environmental leader in first adopting an organic waste management system and secondly reaching over 60% diversion from landfill. Following this claim to success, the *Guelph Tribune* year-to-year publishes articles related to Green bin at approximately double the rate compared to London. While this difference is understandable given that London does not have a Green bin program, London did run a pilot program and still only generated two newspaper articles on the topic in 2012 after the pilot project was deemed a success. In contrast, Guelph places Green Bin at the forefront of the community with persistent messaging and articles reinforcing Green Bin's contribution to a successful waste management system. In an article titled: "Guelph clawing its way back to the top" (Tracy, 2013) speaks to the sentiment of the above average coverage of Green Bin as well as speaking to Guelph's resiliency in supporting Green Bin despite its false start with failed infrastructure in terms of facility corrosion and odour emissions:

For many years now, the City of Guelph has sparked a huge volume of trash talk among its residents — even more than the norm.

That's partly because the municipality has sought to lead in this area and made significant investments to try to do so. In part, that's because it has also seen some high-profile ventures in its waste stewardship strategies fail quite impressively — giving ample ammunition to local critics and watchdogs on this city hall file. The abrupt closure of Guelph's first civic compost plant in

2006, and later being fined by the province over the facility plaguing the area around it with noxious odours, were conspicuous low points in the municipality's recent waste management story.

But the city has worked to bounce back in this sector and to welcome renewed innovation efforts in other waste management areas, such as its collection technology.

Guelph's claim of the Green Bin as a source of pride and striving to be an environmental leader, despite failed infrastructure and growing pains of varied collection approaches, add to the momentum of accepting the Green Bin as a core community program. These are further bolstered by ancillary claims of environmental pioneers and leadership which add to the predominant discourse of pride in Guelph's waste management system.

### *5.1.3 Discourse 2 Motivation: It's simply the right thing to do.*

Extending from the sense of community pride surrounding Green Bin are discourses that household participation is simply "the right thing to do." This discourse has been ingrained for close to twenty years in Guelph, as supporting Green Bin is seen as synonymous with supporting the environment and this connection has become accepted into the community identity. When asked about motivations for participating in Green Bin at the community level, Guelph residents were quoted as saying "Well, there's always that 'it makes me feel good to participate', right. I think that the bins are actually easy to manage, so it's not too difficult if you have the space to put them and that type of thing (Claire, Guelph)."

This is also demonstrated in an interview with Justin (Guelph) “Yeah, there's definitely, it's the right thing to do feeling. That's probably the main factor. But I can also see if someone starts using it and it's designed well, that it's also quite convenient.” The pro-environmental and “right thing to do” discourses lend toward an eco-centric belief positioning that values the contribution to reducing environmental impacts.

*5.1.4 Discourse 3: Support for Green Bin: Supported by Provincial direction and industry*

Provincial policies and the organic waste technology sector discourses trickle down and interplay with municipal discourses. Provincial eco-centric discourses are illustrated in the push for an Ontario-wide *Food Waste and Organics Action Plan* by the MOECC that is largely developed, consulted, and decided upon by advocates of pro-environmental discourses. Meanwhile, those in the private sector use a more multi-pronged approach to supporting organics collection to increase markets for the inputs and outputs of the technologies. This is illustrated in a quote by a privatized organic waste facility owner:

I've been active directly with the Ministry and politicians on advocating both positions here in the province but also federally, both sides of the border as well as United States where it makes sense. So I do that directly, either in direct engagement, through lobbyists that are strategy groups that'll help out and then also with associations (i.e. Ontario Waste Management Association, the Canadian Biogas council, Ontario Environmental Industry Association etc.). I go at it from multiple different ways because there's strength in numbers but there are also times that specific pieces of message need to be there... I'll discuss energy first, where the energy's going, how that fits in the climate change goals, because we

are a carbon sync, so we fit quite well with that and then, ultimately, come back to heat stock because I can't make the energy if I don't have heat stock. So then I'll come at it from, okay, where's the materials and are the policies in place? (Andrew)

The ability to lobby and perpetuate pro-environmental discourses by relating to current climate change concerns is readily intertwined with the “right thing to do” discourse and has been beneficial to supporting and sustaining new environmental technologies.

#### *5.1.5 Counter discourse 1: The costs to residents are too high*

Counter discourses by community critics such as the Guelph Waste Management Coalition cite concern over the political decision making processes, particularly the high costs associated with the program, odour issues related to the composting facilities, and failure of the first organics composting facility. While they may cause pause-for-thought, the counter discourses ultimately did not have enough support to deter the policy outcomes (Guelph Waste Management Coalition, 2011).

In terms of current perspectives on emerging technologies, Guelph has financially invested in aerobic composting and therefore do not foresee an investment into anaerobic technologies or incineration in the immediate future, as a result of technology lock (Foxon, 2013). Technology lock refers to the investment in the current three-cart curbside collection system and organics composting plant that is currently in place and would likely face strong community resistance with proposed technology change. Guelph has strong discourses supporting the 3Rs as the environmental option of choice

particularly with regards to reduce, reuse, and recycling before considering incineration technologies with energy recovery.

*5.1.6 Counter Discourse 2: Community growing pains are part of systemic change.*

Guelph experienced community growing pains and resistance as a result of introducing new and uncertain waste management approaches to residential curbside collection. The varied approaches used in the implementation of organics curbside collection over a 20 year period included; first, a simple wet/dry system; then, a three-stream system (clear bags, blue bags, green bags), and third, a three stream cart system. The transition through these varied approaches created a significant amount of community resistance as it disrupted the practices to which the community had become accustomed to. Roger (Guelph) described his view of the community growing pains as Guelph began the three-phase (refers to three geographic residential sections) rollout of the switch from using bags to carts for residential waste collection as:

“And, needless to say, the first area of the city that got them (cart system for recycling Green Bin and residual waste), the sky's falling and the second time out (second phase), well, maybe not the sky, but the clouds might be falling. By the third time (third phase), it was great, I can't wait.” (Roger, Guelph)

The community growing pains and discourses of community concerns did not significantly deter the implementation of the cart collection system.

*5.2 LONDON: London's waste system is sustainable and currently does not require a Green Bin program thereby strongly maintaining the status quo.*

*5.2.1 Discourse 1: Community pride in fiscal prudence: Green Bin is too expensive.*

London's waste management approach is considered fiscally conservative where the traditional aim is to provide tax- payers with services that are simultaneously sustainable and affordable. The key waste stakeholders in London confirm this perspective by recognizing that the projected high costs of implementing a Green Bin program are at the center of any political debate there. That said, the level of political engagement on the issues seems orders of magnitude less in London than it has been in Guelph. As previously noted, the relatively lower level of media coverage, in both the quantitative number of printed articles and reference to the two articles covering the Green bin pilot program demonstrated an uncertain stance on the issue by the City in London. These stakeholders raised questions surrounding the net environmental gain of such an "expensive" program, where the high costs are more concerning than the environmental gains as demonstrated by David, a key informant for the City of London (London), "You know, a green bin program costs a lot of money so from an environmental performance perspective, sure, maybe that will have some positive impact but it'll have a big economic impact so that's why we don't have one." David illustrates the weight of the economic impact as a greater or more

concrete concern than the compensating positive environmental impact; thus supporting policy conservatism.

### *5.2.1 Discourse 2 Motivation: Landfill revenues are empires.*

The “landfill revenues are empires” discourse highlights the idea that London can manage residential waste disposal through its expansive landfill space. Further, they are in a secure position to not only manage waste within their own borders but can also keep the costs to Londoners quite low. In this case, sustainability is focused on the ability of waste management to be maintained at a certain rate thereby supporting the economic growth perspective as opposed to sustainability from an environmental perspective as a predominant discourse. Michael, a key informant in London, discusses this perspective highlighting the capacity to generate revenue from disposing of others’ waste – strategies that nevertheless produce “empires” that are presumably resistant to change:

So we are one of the few municipalities that have our own landfill and we don’t contract that out to somebody and we don’t buy space in somebody else’s landfill, so it’s a revenue stream for us. We have a big, big, big hole in the ground. We can reduce our waste management costs because we own it, so we don’t really charge ourselves but notionally the charge is like 20 to 30 bucks a ton for a tipping fee for us and then we give a fairly higher tipping fee, but a competitive tipping fee, to our local industrial, institutional, and commercial sectors. So then there’s regimes built on waste management and that’s here; that’s locally. But if you were to take a look at other places that contract it out then you’ve got kind of a corporate engine driving it and they don’t want to give it up at all because it’s a massive revenue stream for them, so why would they encourage any diversion or reduction techniques? So it’s, yeah, a bit of an empire (Michael, London).



The recognition of keeping waste management within city borders is also important in Guelph where the organic composting facility is located, however it does not appear to be a dominant discourse, possibly given that, unlike London, there are flows of waste in both directions. That is, Guelph has established contracts to both receive organic waste from a neighbouring community and also exports household residual waste to a landfill outside of the city. Both Guelph and London discuss sustainability as a component of a successful waste management system. Discourses that explicitly discuss environmental sustainability are much more prominent within the newspaper articles in Guelph (re: conserving calories and lowering greenhouse gases) than in London. Conversely, the source of pride and motivation to maintain the *status quo* within London is framed in terms of sustainably managing waste within its own borders and keeping costs low for residents – perhaps not the environmental argument most have become accustomed to in terms of waste and greenhouse gas emissions. Success is measured by London’s prudence and forethought regarding landfill and acquiring land that will maintain the *status quo*.

*5.2.3 Discourse 3 Level of support for Green Bin: Green Bin is but one solution for food/organics.*

The food and organic waste hierarchy is a framework to prioritize the management of food and organic waste and is recognized internationally. The hierarchy

places food waste prevention and reduction at the forefront followed by composting and lastly landfill. The hierarchy is supported by both London and Guelph; however the discourses surrounding the hierarchy in London tend to be used to support the *status quo* of not immediately implementing Green Bin.

Both key informants and community representatives in London support the stance on reducing food waste and believe it should be a priority. The discourses used to influence prevention programs, as well as backyard and community composting, is relative to the costs associated with the program, as discussed by a key informant William (London),

Low cost is beginning with your home composting, community composting and then we said, we've really got to handle on food waste and the notion of prevention or avoidance. These things are driven by people. So they're, they're actually reasonably-, at a reasonable low cost.

London has also paired with Western University to investigate education and food waste prevention pilot projects that are aimed toward household food waste avoidance. This is further supported by a community representative, who strongly believes in first tackling food waste through educational resources is a top priority:

We've looked at figuring out maybe an education element to waste management. Actually, it's more the preventing the waste part. So we were talking very much about composting. So that has been a couple of years that we have been in discussion with the city, trying to figure out if there are ways that we can rally partners around it ... there's been pilot projects about composting and I think (the city) would like to go and try to reduce the waste first. You know, on the education side (James, London).

The focus on preventing food waste is a worthy stance as it aligns with provincial recommendations and offers London an opportunity to reduce the volume of organic

materials that are wasted while keeping costs low for tax payers in the absence of Green Bin.

London also supports programs that are believed to contribute to successful organic waste diversion such as the leaf and yard waste pick-up, promoting backyard composting, and community composting thereby decreasing a perceived need for community-wide Green Bin. Dan (London) reiterates this sentiment:

Another challenge is how to get people to do the thing that makes the most sense which would be recycling and (backyard) composting because it is far better than for us to take 10, 15 pounds of vegetable matter and mostly water, to the landfill site. Now that we've got the uptake, even though we're offering composters and digesters at very low costs at the Enviro Depot in London... (The focus is) to get people to do that, but it takes work.

Encouraging backyard and community composting has been the primary approach to tackling residential organic waste and was echoed in London's Interim Waste management plan (2014) that recommended these approaches as a low cost program while debating the Green Bin program. From an environmental perspective, backyard and community composting has strong support in London and is viewed as a better alternative to Green Bin.

*5.2.4 Discourse 3, Level of support for Green Bin: The province hasn't taken a hard stance on mandating organics programs.*

The perceived soft targets versus mandatory diversion targets from the province with regards to initiating a large scale composting program like Green Bin indicates a voluntary instead of mandatory stance. This is also coupled with past looming regulatory changes that have resulted in stalled decision-making in London. As one London key

stakeholder discusses firm provincial policy makes decision making at the municipal level simpler ("*thou shall* as opposed to *could you please*"):

From my perspective, you would need to employ some sort of quantitative driver, a 'thou shall' as opposed to 'could please do this' approach that we're taking now that adds restrictions. So you know, we're going to ban food waste from landfill, for instance or we're going to tax everything going to landfill, to fund programs to prevent stuff from going to landfill. Those sorts of things are, I think, on the horizon in a much more meaningful way (David, London).

David is referring to the new regulatory changes in Ontario that aim to restrict organic materials from entering landfills that would ultimately drive forced waste management change in London – a “thou shall” approach. This position is further supported by key informants questioning the effectiveness of the Green Bin program to increase diversion rates and reduce environmental impacts relative to the associated costs of implementing the program, as discussed by William, who says he has seen little concrete evidence to support the effectiveness of Green Bin programs to reach environmental targets:

I just have never seen a study that has sort of said that composting is, you know, it's doubled the environmental performance of a municipality. From a diversion perspective, it's not, that's not really an environmental measurement. But our reports and studies have already indicated that London is at about 45 percent diversion. Communities with green bin are sometimes at about 55 percent. So for those 10 percentage points for \$3 million, it's not really even an environmental measurement, keeping material out of the landfill site is just a measurement of not consuming landfill space so it's hardly-, there is the greenhouse gas that comes off that, so there is some environmental measurement but it's just-, it's not a strong one (William, London).

The fiscally conservative stance on calculating the costs of Green Bin relative to the perceived low-level environmental gains is a driver in London's decision to not implement Green Bin. The absence of quantitative estimates of environmental indicators, as suggested in the interview, for each alternative approach for organic waste management is not overly present in the reviewed provincial documents or newspapers. However, while debating Green Bin in the early stages, London's initial support for the program is highlighted in a public consultation document to determine the various extent of the programs through three options relative to the costs of implementation and the amount of relative greenhouse gas reductions associated with each option. Once the city tipped toward resistance to Green Bin, these environmental estimates were no longer present in local documents.

#### *5.2.4 Counter Discourse 4: New technologies are on the horizon*

Despite resistance to Green Bin, London is attracted to the prospect of new technologies and has been investigating various methods that include aerobic composting, anaerobic digestion, mechanical biological treatment, advanced thermal treatment, and next generation technologies that have energy recovery – systems that nevertheless could work in tandem with Green Bin collection (London, 2014). London's key stakeholders suggest that while London is interested in these technologies, it will take time before London would consider adopting them, as Ben states:

So I know there's lots of people who'd say let's just move forward with what we have, you know, the current technology and because there's always

going to be a new technology, but the perception that was given by [city staff] is that there's a lot of very exciting new technologies that are coming forward that are going to be very valuable and, and that we may want to move towards anyway, so we may as well go right to that potentially (Ben, London)

There is great caution associated with the excitement of emerging technologies; discourses of uncertainty and keeping costs low are prominent. There is no perceived urgency since London's landfill capacity is not at risk and also no push back from the community to make an immediate decision. The conservative nature of the city stance strongly holds that any other added expenditure in technology must be able to maintain waste disposal rates at a low cost. Energy recovery or renewable energy technologies would have to prove successful with a high rate of return on investment to be considered in London as discussed by John (London), who in keeping with the theme of conservatism, suggests the city is "very cautious and they should be":

I think anything that we can do that creates another beneficial use from materials is good. So if you could do something with organics to create energy and it's, one, its cost beneficial to taxpayers and it's proven technology again and you're going to be able to use the energy that you create, then to me that's a benefit .... I know that they are exploring things like that now. So, you know, how far along it is before they announce something, or maybe they're waiting to see if the technology that they're looking at is proven out to work as well, so they're very cautious and they should be.

London is in a financially stable position with a sustainable waste management system. Therefore, London has ample time to assess, compare, and monitor emerging technologies from other regions, to gain more certainty.

## 4.5. Summary

The predominant discourses in Guelph aim to maintain the current discourse of community pride in environmental leadership by recognizing Green Bin collection and aerobic composting as an indicator of success and the right thing to do. In contrast, London's discourses surrounding Green Bin planning coincide with environmental uncertainty relative to the high costs of Green Bin implementation that maintains the *status quo*. London owns the municipal landfill and this landfill is viewed as an economic asset in the community because it benefits decreased costs for tax payers, supporting a fiscal prudence discourse. This is further supported by discourses on alternative approaches to tackle organic waste through other low cost measures such as preventing food waste, home composting, community composting, and leaf and yard pick up. Both Guelph and London demonstrate the inertia of the *status quo* with regards to investment in new technological developments as a result of technology lock. Guelph is locked into the current structure that supports aerobic composting while London continues to support municipal landfill. Both systems are backed by ingrained community values that are resistant to the perceived uphill battle of technological evolution, which is not surprising, as waste management encompasses every community member whereby maintaining the *status quo* tends to not create community conflict. Counter discourses in both municipalities had little influence on the policy outcomes, particularly when stemming from the community with regards to organic waste decision

making. Where counter-discourses were portrayed by the city officials, it was a veiled claim that continued to support the predominant discourse. The exception to the level of influence by the community members is demonstrated, however by Guelph's strong community outrage to proposed incineration technologies that was magnitudes higher than the resistance that followed.

#### **4.6. Discussion and Conclusion**

Ultimately, this study finds that communities tend to hold ingrained value systems that work toward maintaining the *status quo*, including predominant discourses that reflect those values. To introduce a new technology or initiative that is not aligned with the ingrained value of a particular community would likely face strong resistance. This is supported by Foucault (1972), in that discourses, stemming from core beliefs, have the power to control society. This is evident in both contexts, but understanding the underlying value systems combined with the desired policy change is essential for grasping the scope and size of rhetorical power needed to invoke change. New environmental initiatives and technologies are likely more readily adopted by communities who already view themselves as eco-centric, whereas communities with conservative values will require more stringent requirements to adopt pro-environmental programs unless those environmental programs or technologies demonstrate an economic incentive or are mandated.



The complex nature of the intersections of economic, social and environmental systems also renders them highly resistant to change, yet when exposed to the political light within an emerging crisis (Guelph) or not (London) discourses for and against change take on different meaning and power. Guelph was incentivized to use eco-centric positioning when the community strongly opposed incineration. The grass roots support from the community was persuasive and sustained the eco-centric tone when adopting Green Bin as a logical next step. In this sense, the incremental move to Green Bin did not present itself as a risk or radical change as Pal (2005) suggests. In contrast, the complexity of waste management systems has had a different path in London. With no landfill crisis, maintaining the *status quo* to not adopt Green Bin, is highly supported and risk averse choice. This is evident in discourses that emphasize the riskiness of high costs associated with Green Bin that work against conservative values.

The study untangles the complexity of varying discourses in the Green Bin debate by using Sharp's framework to understand environmental policy outcomes based on the discourses of eco-centric, technocentric, and non-sustainable positions. Deconstructing the meta-discourse of each municipality through the evaluation of the sub-discourse and counter discourse is an effective means to understand policy outcomes. In this manner, and supported by the findings of this study, counter discourses have no persuasive power when competing with community coherence within a given policy debate. Further, the influence of technocentrism supports the *status quo* as

demonstrated by technology lock. Techno-centric discourses reflect the current waste management structures in place that tends to create inertia.

Further reflected in the social values of both London and Guelph is the environmental-justice oriented notion described by Luhmann (1989; 1993) of keeping municipal waste out of other regions' backyards. The ability to manage wastes within one's own borders is a discourse that promotes a source of pride yet each has embedded that idea into very different meta-discourses. This suggests that environmental justice is at the very least pliable, and at worst, merely rhetoric. In Guelph, flows are interpreted as balanced: as much comes in as goes out and what comes in supports an ostensibly "greener" approach to organics waste management. Thus Guelph's version may be more rhetorical than London's whose justice argument is based on only importing waste, bolstering pride in not foisting waste of any type on other municipalities. This says little, however, about the justice for anyone living close to London's landfill, suggesting that they too are susceptible to accusations of mere rhetoric.

This study finds that eco-centric positions are more often discursively juxtaposed against economic conservatism discourses above all others. This is further supported by holding the belief that the municipality is already doing a good job environmentally and sustainably. Change is most likely to occur when faced with a crisis situation or forced regulatory change at the municipal level, as the proposed by the MOECP's Food and

Organic Waste Framework aims to achieve, including funding for new technological investments to move past the hurdle of inertia. The implications of this study are that local policies are not immune to perceived risk of radical change. In the face of crisis or perceived risk, the community tends to be highly risk averse, prompting less risky intermediary acceptable risks to be supported.

## 4.7. References

- Baxter, J. (2009). A quantitative assessment of the insider/outsider dimension of the culture theory of risk and place. *Journal of Risk Research*, 12: 6, 771-791.
- Baxter, J., & Eyles, J. (1997). Evaluating Qualitative Research in Social Geography: Establishing 'Rigour' in Interview Analysis. *Transactions of the Institute of British Geographers, New series*, 22(4), 505-525.
- Baxter, J., & Greenlaw, K. (2005). Explaining perceptions of a technological environmental hazard using comparative analysis. *The Canadian Geographer*, 49 (1), 61-80.
- Douglas, M. (1966). *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*. New York: Praeger.
- Environmental Commissioner of Ontario. (2017). *Beyond the Blue box: Ontario's fresh start on waste diversion and the circular economy*. Retrieved: <http://docs.assets.eco.on.ca/reports/special-reports/2017/Beyond-the-Blue-Box.pdf>
- Foucault, Michel. (1972). *The archeology of knowledge*, trans. A. Sheridan. London. Tavistock.
- Foucault, M., Burchell, G., Gordon, C., & Miller, P (Eds.). (1991). *The Foucault Effect: Studies in Governmentality*. Chicago: University of Chicago Press.
- Foxon, T.J. (2013). Technological lock-in. *Encyclopedia of Energy, Natural Resources and Environmental Economics. Volume 1; p.123-127*.
- Gregson, N., Crang, M., Fuller, S., and Holmes, H. (2015). Interrogating the circular economy: the moral economy of resource recovery in the EU. *Economy and Society. Vol 44 (2): 218-243*
- Guelph. (2017). Guelph Quick sheet: Demographics. Retrieved: <https://guelph.ca/business/economic-development-office/guelph-quicksheet/>

- Guelph. (2014). City of Guelph Solid Waste Management Master Plan Review. WSP Group Inc. Retrieved: <http://guelph.ca/wp-content/uploads/2014SWMMPPFinalReport.pdf>
- Guelph Waste Management Coalition. (2011). Guelph's Befuddling 32 Million Dollar Compost Experiment. Retrieved: <http://www.gwmc.ca/category/editorials>
- Hird, J. Myra, Lougheed, Scott, Rowe, R. Kerry and Kuyvenhoven, Cassandra. (2014). "Making Waste Management Public (or falling back to sleep)." *Social Studies of Science* 44 (3): 441-465
- Jones, A. (2017). Ontario considering disposal ban on organic waste. *The Canadian Press*, October 1. Retrieved: <https://www.ctvnews.ca/canada/ontario-considering-disposal-ban-on-organic-waste-1.3614352>
- London. (2018). "Population and Dwelling." Retrieved: <http://www.london.ca/About-London/community-statistics/population-characteristics/Pages/Population-and-Dwellings.aspx>
- London. (2014). *Interim Waste Diversion Plan 2014 to 2015*. Retrieved: <https://www.london.ca/residents/Garbage-Recycling/waste-management-planning/Pages/Interim-Waste-Diversion-Plan.aspx>.
- Luhmann, N. (1989). *Ecological Communication*. Chicago: University of Chicago Press.
- Luhmann, N. (1993). *Communication and Social Order: Risk A Sociological Theory*. New York: A. de Gruyter.
- Miller, W. L., & Crabtree, B. F. (2004). Depth Interviewing. In Nagy Hesse-Biber, S. and Leavy, P. (Eds) *Approaches to Qualitative Research: A reader on Theory and Practice*. Oxford University Press.
- Ministry of the Environment. (2002). *The Waste Diversion Act*. Revised Statutes of Ontario (R.S.O), 2002. Toronto Ontario: Queens Printer for Ontario.

- Ministry of the Environment. (2004). *Ontario's 60% Waste Diversion Goal – A Discussion Paper*. Queens Printer for Ontario.
- Ministry of Environment. (2009). *From Waste to Worth: The Role of Waste Diversion in the Green Economy: Minister's Report on the Waste Diversion Act 2002 Review*. Queens Printer for Ontario.
- Ministry of Environment. (2013). *Waste Reduction Strategy*. Queens Printer for Ontario.
- Ministry of the Environment and Climate Change. (2015). *Draft Strategy for a Waste Free Ontario: Building the Circular Economy*. Queens Printer for Ontario.
- Ministry of the Environment and Climate Change. (2017). *Proposed Food and Organic Waste Framework*. Queens Printer for Ontario.
- News Media Canada. (2015). Daily Newspaper Circulation Data. Retrieved: <https://nmc-mic.ca/about-newspapers/circulation/daily-newspapers/>
- O' Flanagan, R. (2011). Guelph Back in organic waste processing game. Guelph Mercury, September 27. Retrieved: <https://www.guelphmercury.com/news-story/2734101-guelph-back-in-organic-waste-processing-game/>
- O'Riordan, T. (1989). 'The challenge of environmentalism,' in Richard Peet and Nigel Thrift, *New Models in Geography*, London: Unwin Hyman.
- Prior, Lindsay. (2004). *Following in Foucault's footsteps*. In Nagy Hesse-Biber, S. and Leavy, P. (Eds) *Approaches to Qualitative Research: A reader on Theory and Practice*. Oxford University Press.
- Richards, Lyn. (1999). *Using NVIVO in Qualitative Research*. Los Angeles: Sage.
- Roe, E. (1994). *Narrative Policy Analysis: Theory and Practice*. Durham and London: Duke University Press.
- Ruttan, D. (2012). Raising a stink. London Free Press, August 2. Retrieved: <http://www.lfpress.com/news/london/2012/08/02/20060851.html>

- Sharp, L. (1999). Local Policy for the global environment: in search of a new perspective. *Environmental Politics*, 8:4, 137-159.
- Sharp, L. and Richardson, T. (2001). Reflections on Foucauldian discourse analysis in planning and environmental policy research. *Journal of Environmental Policy & Planning*, 3:3, 193-209.
- Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage.
- Tracy, S. (2013). Guelph clawing its way back to top of waste management game. *Guelph Mercury Tribune*, July 6. Retrieved: <https://www.guelphmercury.com/news-story/3881157-guelph-clawing-its-way-back-to-top-of-waste-management-game/>

## Chapter 5: Synthesis

### 5.1. The intersection between policy making, community coherence and discourse

The main objective of this research paper was to understand the predominant and counter-discourses that persuade for the acceptance or rejection of waste technology, Green Bin, within two Ontario communities. The theory used to support this research study includes discourse analysis, policy making processes, and Sharp (1999) and O’Riordan’s (1989) environmental positioning framework. The findings of this study highlight the interplay between policy making, community coherence and discourse that have significant implications to new proposed waste technologies.

Manuscript one reviews three broad environmental policy making processes to understand the policy outcome in the case study of London, Ontario in not adopting Green Bin: 1) the rational policy approach, 2) paralysis by analysis, and 3) policy under pressure. While not specifically reviewed, Guelph, Ontario demonstrates policy making under pressure. In light of a landfill crisis, it was in a position to find a waste management solution within a short timeframe. As discussed, London was not faced with a perceived crisis situation, therefore it aligned somewhere between the rational policy process and paralysis by analysis. The rational policy process is based on gathering sufficient information to develop an informed approach that will be



supported and implemented. Paralysis by analysis is based on the premise of continually collecting data that inevitably leads to inertia. However, London had already determined the Green Bin program would meet expected participation rates as demonstrated in the local pilot project (London, 2013a). This study contributes to policy making theory by proposing a fourth tenet: precautionary paralysis.

Precautionary paralysis, as demonstrated in London, stems from a lack of political will that inevitably stalls implementation. Intentional policy stalling can occur while waiting for provincial direction or for a city council to vote in favour of a program, as the predominant discourses reflect. Secondly, support for Green Bin simply was not the highest priority based on the conservative waste management stance that is resistant to voluntary change. As discussed in manuscript two, communities tend to hold ingrained value systems on a given environmental issue that work toward maintaining the *status quo*, including dominant discourses that reflect those values. The Green Bin program did not align with the inherent conservative values of waste management in London. The discourse in London also reflects this in claiming high implementation costs are prohibitive, whereas Guelph's eco-centric community identity allowed sustained support for Green Bin, despite setbacks such as the failed organic processing plant. Guelph's eco-centric community values enabled the Green Bin program to be sustained with discourses highlighting its success and claiming that it's the right thing to do that allowed this program to be accepted.

A second component that can stifle a community policy moving forward is technology lock (Foxon, 2013). Technology lock occurs where a particular, and often expensive, technology has been invested by the community and prevents consideration of immediate new technologies. Sharp (1999) discussed techno-centrism as a distinct environmental position, however this study finds that technology is embedded into the fabric of communities and in itself is not a substantial separate position. While Sharp (1999) also sees non-sustainable, eco-centric, and techno-centric discourses as co-existing and interacting, this study finds eco-centric and economic conservatism as the two prominent identities. Introducing a new technology or initiative that is not aligned with the ingrained values such as economic conservatism or eco-centrism would likely face resistance as demonstrated by Guelph's resistance to incineration and London's resistance to Green Bin.

Third, manuscript two finds that adoption of a new policy or technology is most likely to be accepted if the implementation occurs incrementally versus a perceived radical or high risk change. This was found in the case of Guelph supporting the 3Rs approach to recycling over the highly opposed incineration technology. Guelph's approach to Green Bin was also implemented in a staged approach and was continuously revised over time (e.g., divisions of waste streams, bags to carts etc.), whereas in London the risk averse choice was to maintain the *status quo*, namely to not invest in Green Bin. A second dominant claim used to stall Green Bin in London was that

advanced technology is on the horizon, which reinforced the uncertainty and riskiness of the currently proposed Green Bin program. This is supported by Foucault (1972), in that discourses, stemming from core beliefs, have immense power over society, thus counter-discourses that are not aligned with the community coherence on a given environmental policy tends to be less persuasive.

Lastly, from a practical stand point, this study adds to the environmental policy planning literature to aid in successful policy adoption. Discourse has immense power in environmental policy debates as it influences the policy direction toward support or resistance. This thesis contributes to the literature of policy making and implementation by highlighting the importance of location specific context by identifying prominent community discourses surrounding environmental issues. A practical method that is often used by policy makers is forecasting. Forecasting is the use of multiple scenarios to determine the facilitators and barriers to successful policy implementation and is particularly useful in domains with high uncertainty (Goodier, 2011). The findings of this thesis suggest an additional component to consider in public policy forecasting is the use of discourse analysis to aid in identifying context-specific implementation considerations. Specifically, forecasting with discourse analysis can identify the following influential discourses: ingrained community values, perceived riskiness of an emerging technology and instances of uncertainty that will enable policy makers to

anticipate local implementation issues and provides support toward successful policy adoption.

## **5.2. Limitations**

This qualitative study primarily focused on discourse analysis of documents, reports, news articles and interviews to explore local policy outcomes. This method is suited to explore in-depth, specific case studies. Thus, the transferability of the study findings to environmental policies more generally or broadly may be problematic as the findings suggest local contextual factors differ from place to place. Secondly, this paper did not use quantitative or life cycle assessments in the analysis of varied organic waste processing technologies, which can be another method of comparing the merits of varied organic waste processing approaches.

## **5.3. Future Research**

Future research in the following areas of study are suited to provide further insights in environmental policy and planning. This first area of study is public policy design and implementation. This thesis proposes expanding on policy development frameworks to adopt discourse analysis as a component of forecasting is an area that can improve successful implementation of environmental public policy. Forecasting, a method to theoretically test the likelihood of a successful policy through varied scenarios, may be able to detect successful policy outcomes. This thesis aids in future research by identifying local contextual discourses such as those identified (community

coherence, uncertainties, and perceived risk) that can be further examined. Another area of study is in the field of risk theory and policy implementation. Risk theory may benefit from the further examination of community acceptance or rejection of new environmental technologies in light of the interaction between community discourse and uncertainty. The use of risk theory within the context of uncertainty is well suited to address geographical considerations of community coherence on a given environmental issue and sense of place. This thesis suggests that implementation of new or novel technologies that use a staged or phased in approach may reduce the perceived riskiness of the new technology and facilitate community acceptance. Further research in this domain will expand on the literature of facilitators to successful implementation of new environmental technologies.

## 5.4. References

- Foucault, Michel. (1972). *The archeology of knowledge*, trans. A. Sheridan. London. Tavistock.
- Foxon, T.J. (2013). Technological lock-in. *Encyclopedia of Energy, Natural Resources and Environmental Economics. Volume 1; p.123-127*. Goodier, C. (2011). *Forecasting*. In Mulvaney, D., and Robbins, P. (Eds) *Green Energy: An A-to- Z Guide*. Sage Publications, Inc. Thousand Oaks. Pp 176-177.
- London. 2013a. *Road Map 2.0 the Road to Increased Resource Recovery and Zero Waste*. Retrieved: <https://www.london.ca/residents/Garbage-recycling/Garbage/Documents/Road%20Map%202.0%20Full.pdf>
- O’Riordan, T. (1989). ‘The challenge of environmentalism,’ in Richard Peet and Nigel Thrift, *New Models in Geography*, London: Unwin Hyman.
- Sharp, L. (1999). Local Policy for the global environment: in search of a new perspective. *Environmental Politics*, 8:4, 137-159.

# APPENDICES

## Appendix A Interview Guide

1. Please tell me about your background and experience with waste management?
  - a. How does your position relate to the waste hierarchy?
2. What role(s) have you had in policy development?
  - a. Delivery of programs?
  - b. Challenges in waste management planning?
  - c. What has gone well so far?
3. What are the core policy objectives of the waste management systems here in [municipality]?
  - a. Do the objectives address / include organic waste?
  - b. What are the key challenges?
  - c. Have the objectives remained the same or have changed over time for the better?
4. Why does your municipality deal with organics the way it does?
  - a. How has it evolved?
  - b. What do residents think of current organics programs, or lack thereof?
  - c. What is required to have an effective waste diversion policy or program that incorporates organic waste (Green Bin) diversion?
  - d. What are the current barriers to implementing or managing organic waste programs?
  - e. In your opinion, what is required to have a successful organics diversion program?
  - f. What do residents think?
5. What do you think about energy recovery from organics management in the context of your municipality?
  - a. Something your municipality is currently exploring?
  - b. How have views changed over time (yours, people in your office, residents)?
  - c. Why are organics so difficult to manage?
6. What is the role of research for creating and sustaining Green Bin or other organic diversion strategies?
  - a. Secondary data?
  - b. Primary surveys?
  - c. What source / type of evidence? Secondary review / comparison; primary data; consultation.

- d. What change did this evidence prompt?
- 7. What do you think are the primary motivations to public participation in waste management programs like Green Bin?
  - a. What are the barriers to participation in organic programs?
  - b. As increasingly more is asked of residents in terms of managing / sorting their waste do you think different incentives / disincentives will be needed?
- 8. Who are the non-government stakeholders most interested in waste issues in your municipality?
- 9. What do you see as key future issues for waste management in your municipality?
  - a. What role does technology play in future planning?
- 10. What are your thoughts on waste management policies that are moving towards "zero waste"?
  - a. What would it take in your system to move towards zero waste? Tell me a story about barriers to zero waste here.
- 11. Anything to add about managing organics in your municipality?

All purpose probes:

Would you please give me an example of that?

Please tell me more about what you said about...

It sounds like there is a story that goes with that...

What did you do then?

I cannot imagine how...



## **Appendix B** Letter of Information

**Project Title:** Getting to 60: organic waste management in two Ontario municipalities

**Primary Researcher:** Carrie Warring

### **1. Invitation to Participate**

I am Carrie Warring working with Dr. Jamie Baxter in the Department of Geography at Western University. We are conducting a study to find out about decision-making surrounding organic waste management in Ontario municipalities. I am writing to invite you to participate in an interview for this study.

### **2. Purpose of the Letter**

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research. If you agree, you will be asked to participate in a face-to-face or telephone or online interview (your choice) with me at a time and place that is convenient for you. The interview should take approximately 1 hour, depending on how much you want to talk about these issues.

### **3. Purpose of this Study**

This study will explore how various stakeholders talk about decision-making regarding organics separation (e.g., Green Bin) programs in two Ontario municipalities, London and Guelph. Key actors who influence policy decisions at the municipal level regarding waste management, in particular organic waste management, will be interviewed at a place of their choosing, such as their office. The participants will be asked questions in relation to their experience and views on waste management, in particular, organic waste in their municipality. The key decision makers will be drawn from local government and non-government organizations.

### **4. Inclusion Criteria**

The participants eligible to be included in this study are those who have held current or past positions in municipal waste decision-making, and those who have participated actively in non-governmental advocacy groups surrounding organics waste management. The participants will be representing views from one of the two municipalities, London and Guelph.

### **5. Exclusion Criteria**

Those who do not or have not influenced (directly or indirectly) policy decisions on waste management in the local municipalities included in the study, London and Guelph are not eligible to participate.

## **6. Study Procedures**

If you agree, you will be asked to participate in a face-to-face or telephone or online interview (whichever you prefer) with me at a time and place that is convenient for you. The interview should take approximately 1 hour to finish, depending on how much you want to talk about these issues. The interview will be audio recorded and subsequently transcribed. My questions will touch upon your activities with respect to and views about municipal organic waste management policies and practices. Some example questions are as follows:

- How did your municipality arrive at its current organic waste management system?
- What do you think about energy recovery from organics management in the context of your municipality?
- What do you think are the primary motivations to public participation in waste management programs like Green Bin?

## **7. Possible Risks and Harms**

Participation in the study is minimal risk and should not exceed that involved in your daily life. You will be asked to speak candidly about policies and practices in your day-to-day work. If you would like to discuss this, or any other risks you perceive to be associated with your possible participation in this study, please do not hesitate to contact either one of us.

## **8. Possible Benefits**

There are no direct benefits to the participants. However my thesis and any articles from it will be made available on the [rearp.uwo.ca](http://rearp.uwo.ca) project website. Other indirect benefits may include discussion and reflection resulting from the findings of the study to facilitate future organic waste management policy objectives and outcomes.

## **9. Compensation**

You will not be compensated for your participation in this study.

## **10. Voluntary Participation**

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time. You may keep a copy of this

information sheet, which I will ask you to sign and return to me if you agree to participate.

## **11. Confidentiality**

All data collected will remain confidential and accessible only to the investigators of this study. If the results are published, your name will not be used. The information collected, such as names, specific positions, aliases, interview transcripts, will be used for purposes of the study only. All personal information collected for the study will be kept confidential and stored in password protected computer software programs and/or kept behind lock doors. All information will be destroyed no later than five years after completion of the study using data destruction tools. No other agency will have access to this information. Investigators working on the ReWaRP project ([rewarp.uwo.ca](http://rewarp.uwo.ca)) will have access to the anonymized data but will follow the same confidentiality procedures listed above.

## **Contacts for Further Information**

Questions about the study should be directed to the researchers at the contact information below. If you have any questions about the *conduct* of this study or your rights as a research participant you may contact the Office of Research Ethics, Western University or the principal investigator or primary researcher of the study (details below).

## **12. Publication**

If the results of the study are published, your name will not be used. Study reports will be made available at [rewarp.uwo.ca](http://rewarp.uwo.ca). You will be given the opportunity to look at my preliminary interpretations and to give me your comments.

The potential study findings will be presented in aggregate form. I will take great care to maintain your confidentiality and to reduce the likelihood that you would be identifiable in the results of this research. No personal identification information will be used in any report or publications. However, I cannot guarantee complete anonymity because I am only inviting a small number of research participants for interview (approximately 20) from organizations operating between two Ontario municipalities.

Sincerely,

---

Carrie Warring – Primary Researcher  
MA Candidate  
Department of Geography  
Western University  
Social Science Centre

Dr. Jamie Baxter – Primary Investigator  
Associate Professor  
Department of Geography  
Western University  
Social Science Centre

**Consent Form**

**Project Title:** Getting to 60: organic waste management in two Ontario municipalities

**Study Investigator's Name:** Carrie Warring

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

Participant's Name (please print): \_\_\_\_\_

Participant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Person Obtaining Informed Consent (please print):

\_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **Appendix C** Autobiographical Statement

I am currently a Masters candidate in the Geography department at Western University. My interest in completing a Masters degree stems from my curiosity in exploring geographical differences in policies that are environmentally focused. Initially, I was interested in exploring why London hasn't adopted a Green Bin program despite other cities that have had it for many years. At the time of deciding a research focus, I was a public health inspector working for the Middlesex-London Health Unit and would see much of the food that is thrown away and wondered what impact this had on the environment when landfilled compared to compost.

As my research progressed, I maintained an open mind to the various view-points of the research participants. I have come to realize the complexity of managing organic waste and can accept merit in the many different perspectives and opinions expressed by the interviewees. During the research process, I also attended conferences and city meetings to learn more about waste management generally, and organic waste specifically. My research had also facilitated the opportunity to join London City Council's Advisory Committee on Environment's (ACE), as a public health representative. While sitting on the committee, I also joined the waste working group focused on increased waste diversion in addition to joining the Ontario Food Collaborative aimed toward reducing food waste. These opportunities allowed me to become immersed in the research area, as well an opportunity to learn more about local municipal planning and implementation in a variety of environmental issues. The insights that I have gained from this experience facilitated my deeper understanding of an issue that may resonate with other environmental fields.

I am now working for the Ministry of Health and Long-Term Care as a Senior Policy and Program Advisor / Acting Manager on the Environmental Health Policy and Program Unit. I would like to recognize the experience I have gained from this research study and engagement on local committees that has prepared me for this role.

# Appendix D Research Ethics Approval Form for Use of Human Participants



Research Ethics

## Western University Non-Medical Research Ethics Board NMREB Delegated Initial Approval Notice

**Principal Investigator:** Dr. Jamie Baxter  
**Department & Institution:** Social Science\Geography, Western University

**NMREB File Number:** 106991  
**Study Title:** Getting to 60: Discourses in decision-making about organic waste management in two Ontario municipalities  
**Sponsor:** Social Sciences and Humanities Research Council

**NMREB Initial Approval Date:** September 08, 2015  
**NMREB Expiry Date:** September 08, 2016

### Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Instruments	Appendix C: Interview Guide	2015/07/18
Letter of Information & Consent	Appendix A: Letter of Information and Consent	2015/07/18
Revised Western University Protocol		2015/08/21
Other	Revised Attachment Telephone Script	2015/08/21

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941

Erika Basile	Grace Kelly	Mina Mekhail	Vikki Tran

*This is an official document. Please retain the original in your files.*

## Curriculum Vitae

**Name:** Carrie Warring

**Post-secondary Education:** *The University of Western Ontario*  
London Ontario, Canada  
2008, HSBsc.

*Ryerson University*  
Toronto, Ontario, Canada  
2010, B.A.Sc.

*The University of Western Ontario*  
London, Ontario, Canada  
2018, MA.

**Honours and Awards:** Environmental Health Foundation of Canada,  
Continuing Education Award, 2015

**Related Work Experience:** Senior Policy and Program Advisor/ Acting Manager  
Ministry of Health and Long-Term Care  
2017 – Present

Public Health Inspector  
Middlesex-London Health Unit  
2010 – 2017

### **Publications (Peer Reviewed):**

Braimah, J.A., Atuoye, K.N., Vercillo, S., **Warring, C** & Luginaah, I. (2017). Debated agronomy: public discourse and the future of biotechnology policy in Ghana. *Global Bioethics* 28 (1) 3-18.



**Conference Presentations:**

**2017 Warring, C.,** Lakusiak, E. *"Ontario Food Collaborative: Strategic Messaging"*  
Resilient Cities Conference, London, Ontario.

**2017 Warring, C.** *"Ontario Food Collaborative: Strategic Messaging"* Urban League  
Panel, London, Ontario.

**2015. Warring, C.** *"Investigation of a Salmonella Thompson Outbreak at a Local London  
Restaurant"* Food Forum for Industry and Government in Southwestern Ontario,  
Ingersoll.

**Volunteer Service:**

Canadian Institute for Public Health Inspectors, Board Examiner CIPHI (2014)

London City Council Advisory Committee for the Environment (ACE) (2016)

Ontario Food Collaborative – Strategic Messaging (2016)

Public Health representative for the City of London Urban Agriculture Strategy (2017)

Organizing Committee for the Resilient Cities Conference hosted by ACE (2017)

Toronto Council on Aging, Director, Board of Directors (2018)